Technical Report No. 25-04

Aquatic Studies at Greens Creek Mine, 2024

by

Jesse W. Lindgren



February 2025

Alaska Department of Fish and Game **Habitat Section**

Symbols and Abbreviations

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Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm
nanometer	nm

Weights and measures (English)

cubic feet per second	ft^3/s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

all atomic symbols	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
inch of mercury	inHg
kilowatt	kW
Kilopascal	kPa
Nephelometric Turbidity Unit	NTU
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

Alaska Administrative Code	AAC
all commonly accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
etalii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
idest (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	$, ¢
months (tables and figures): first three letters	Jan,...,Dec
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. state	use two-letter abbreviations (e.g., AK, WA)

Measures (fisheries)

fork length	FL
mideye-to-fork	MEF
mideye-to-tail fork	METF
standard length	SL
total length	TL

Mathematics, statistics

all standard mathematical signs, symbols and abbreviations	
alternate hypothesis	H_A
base of natural logarithm	e
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2, etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	E
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	$\log_2$, etc.
minute (angular)	'
no data	ND
not significant	NS
null hypothesis	H_O
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance	
population	Var
sample	var

TECHNICAL REPORT NO. 25-04

AQUATIC STUDIES AT GREENS CREEK MINE, 2024

by

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P.O. Box 110024, Juneau, Alaska, 99811

February 2025

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Cover: Habitat Biologist Greg Albrecht takes a drone photo in Zinc Creek, July 8, 2024.

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Former Habitat Biologist Erika King helped lead data collection and data management. Habitat Biologists Greg Albrecht, Claire Delbecq, Nick Jensen, and Dylan Krull; Southeast Regional Supervisor Kate Kanouse; and former Habitat Biologist Flynn Casey assisted with data collection. Matthew Kern of Alder Grove Farm identified benthic macroinvertebrates and Greg verified benthic macroinvertebrate identification and quality control. Kate and Greg reviewed and edited the report, and Operations Manager Dr. Al Ott reviewed the report.

Thank you all for your contribution.

EXECUTIVE SUMMARY

Since 2001, the Alaska Department of Fish and Game Habitat Section completed the aquatic biomonitoring studies required by the U.S. Forest Service and Alaska Department of Environmental Conservation for Hecla Greens Creek Mining Company's Greens Creek Mine. The aquatic studies include sampling periphyton, benthic macroinvertebrates, sediment element concentrations, and juvenile fish abundance and element concentrations in Greens, Zinc, and Tributary Creeks; the reference sampling sites are Greens Creek Site 63 and Zinc Creek 371 and mine influenced sampling sites include Greens Creek Site 54, Zinc Creek Site 10, and Tributary Creek Sites 9 and 1847. New aquatic biomonitoring sites are Zinc Creek Sites 371 and 10 and sediment element concentrations will also be collected at the Greens Creek Delta, Tributary Creek Site 808, Cannery Creek Site 37, and Fowler Creek based on the 2024 U.S. Forest Service Record of Decision (USFS 2024). We completed the 2024 aquatic biomonitoring studies July 8–10.

The National Weather Service (2025) reports that during 2024, the Juneau area received precipitation (197 cm) about 16% above normal (mean values 1991–2020) and snowfall (219 cm) about 2% below normal. In the two months prior to sampling in July, the Juneau area had precipitation 2.8 cm above and air temperature 0.4 °F above normal with three peak streamflow events occurring two months prior to sampling. Mean streamflow three weeks prior to sampling was within the middle range observed 2001–2023.

The 2024 mean chlorophyll-a density among all sites ranged 5.94–9.51 mg/m^2, generally within the middle range observed since we began sampling in 2001. Tributary Creek Site 9 had the highest density among sites and Zinc Creek Sites were similar. Periphyton samples collected at all sites generally contained about 90% chlorophyll-a, nearly 0% chlorophyll-b, and about 10% chlorophyll-c, consistent with previous years. Despite the environmental and stream characteristic differences (e.g., geomorphic and hydrologic) between Tributary and Greens Creeks, mean chlorophyll-a densities generally follow a similar trend 2001–2024.

Benthic macroinvertebrate (BMI) mean densities ranged 1,625–3,567/m^2 across sites, generally within the middle range observed. The mean densities of Ephemeroptera, Plecoptera, and Trichoptera (EPT) insects among sites ranged 1,432–3,259 EPT/m^2; EPT insects at Greens and Zinc Creeks composed about 90% of samples compared to about 65% in Tributary Creek. Tributary Creek Site 9 has less variability and generally lower EPT densities than Greens Creek Sites. Zinc Creek Site 10 had higher EPT density than Site 371. At all sites, we observed average numbers of BMI taxa

The 2024 Dolly Varden *Salvelinus malma* captures at Greens Creek sites were in the upper range observed 2001–2023, and about average at Tributary Creek Site 9. We captured juvenile coho salmon *Oncorhynchus kisutch* at Site 54 confirming adult coho salmon passage through the Greens Creek fish pass; for the second year in a row we captured juvenile coho salmon at Site 63 upstream of the concrete weir indicating continued streamflow-dependent fish passage. We capture more juvenile coho salmon than Dolly Varden at Tributary Creek Site 9 each year. At all sites most years, we captured several age classes of Dolly Varden, and the mean fish condition ranged 0.93–1.23 for both Dolly Varden and coho salmon.

In 2024, at all sites the whole body Dolly Varden mean element concentrations were within the middle ranges previously observed, 2001–2024 and within mining-related influence elsewhere in Alaska (Legere and Timothy 2016). Greens Creek Site 63 and Site 54 mean element concentrations generally followed a similar trend between sites and are similar to Zinc Creek sites. Greens and

Zinc Creeks have higher Zn concentrations compared to Tributary Creek Site 9, however Site 9 Dolly Varden element concentrations are higher in Ag and Hg and more variable in Cd, Pb, and Se compared to Greens Creek.

In 2024, mean sediment element concentrations for Greens Creek and Zinc Creek sites were similar with concentrations of As, Cd, Cr, Cu, Ni, and Zn near or above the TEC freshwater toxicity guidelines both above and below mine influence, Zinc Creek has higher concentrations of As, Cr, and Ni all naturally occurring above the PEC. Tributary Creek Sites 9 and 1847 have concentrations of As, Cr, and Ni near or above the TEC while Site 808 just above Site 9 in the lowest beaver pond had concentrations of As, Cr, Pb, Ni, and Zn above the TEC and As and Pb concentrations were about three times higher compared to Sites 9 and 1847. Cannery and Fowler Creeks had concentrations of As, Ni, and Zn above the TEC with Cannery Creek As concentrations being above the PEC.

INTRODUCTION

The Greens Creek Mine is located about 29 km southwest of Juneau by air near Hawk Inlet on the west side of Admiralty Island in Southeast Alaska, within the Tongass National Forest and the Admiralty Island National Monument, both administered by the U.S. Forest Service (USFS 2024). The mine has operated since 1989, except between 1993 and 1996 when the mine temporarily closed, and produces lead and zinc concentrates that contain silver and gold. Hecla Greens Creek Mining Company (HGCMC), a subsidiary of Hecla Mining Company of Coeur d'Alene, Idaho, has owned and operated the mine since April 2008.

Most mine infrastructure is located in two drainages that support resident and anadromous fish: Tributary Creek, which contains the dry-stack tailings disposal facility (TDF) at the headwaters; and Greens Creek which contains the mill, mine facilities, and waste rock storage areas (Figure 1). To document conditions to the surrounding environment, annual monitoring requirements are included in the General Plan of Operations Integrated Monitoring Plan (IMP; HGCMC 2020) required by the U.S. Forest Service and Alaska Department of Environmental Conservation (ADEC) Waste Management Permit (WMP) 2020DB0001. Reports summarizing sampling results from previous years are in Weber Scannell and Paustian (2002), Jacobs et al. (2003), Durst and Townsend (2004), Durst et al. (2005), Durst and Jacobs (2006–2010), Kanouse (2011–2012), Kanouse and Brewster (2013–2014), Kanouse (2015), Brewster (2016), Zutz (2017–2018), Kane and Legere (2019), Kane (2020–2022), and Lindgren and King (2023, 2024).

Habitat Section staff completed the aquatic studies required annually for Greens Creek Mine in Tributary and Greens Creeks since 2001. The WMP and IMP require sampling periphyton, benthic macroinvertebrates (BMI), and juvenile fish in Greens Creek and Tributary Creek. The U.S. Forest Service published a Record of Decision (ROD) in 2024 (USFS 2024) detailing additional aquatic biomonitoring sampling sites in Zinc Creek as well as including sediment element concentrations for all sites and on Cannery Creek, Fowler Creek, Tributary Creek beaver ponds, and Greens Creek Delta, which were incorporated into the 2024 aquatic biomonitoring program. We document stream condition using chlorophyll density and composition, BMI density and community composition, juvenile fish abundance, juvenile fish element concentrations, and sediment element concentrations.

PURPOSE

This technical report summarizes the 2024 aquatic biomonitoring study data and documents the conditions of biological communities in Greens Creek and Tributary Creek near mine development and operations, satisfying the aquatic biological monitoring requirements included in HGCMC's approved ADEC Waste Management Permit 2020DB0001 and General Plan of Operations Integrated Monitoring Plan (HGCMC 2020).

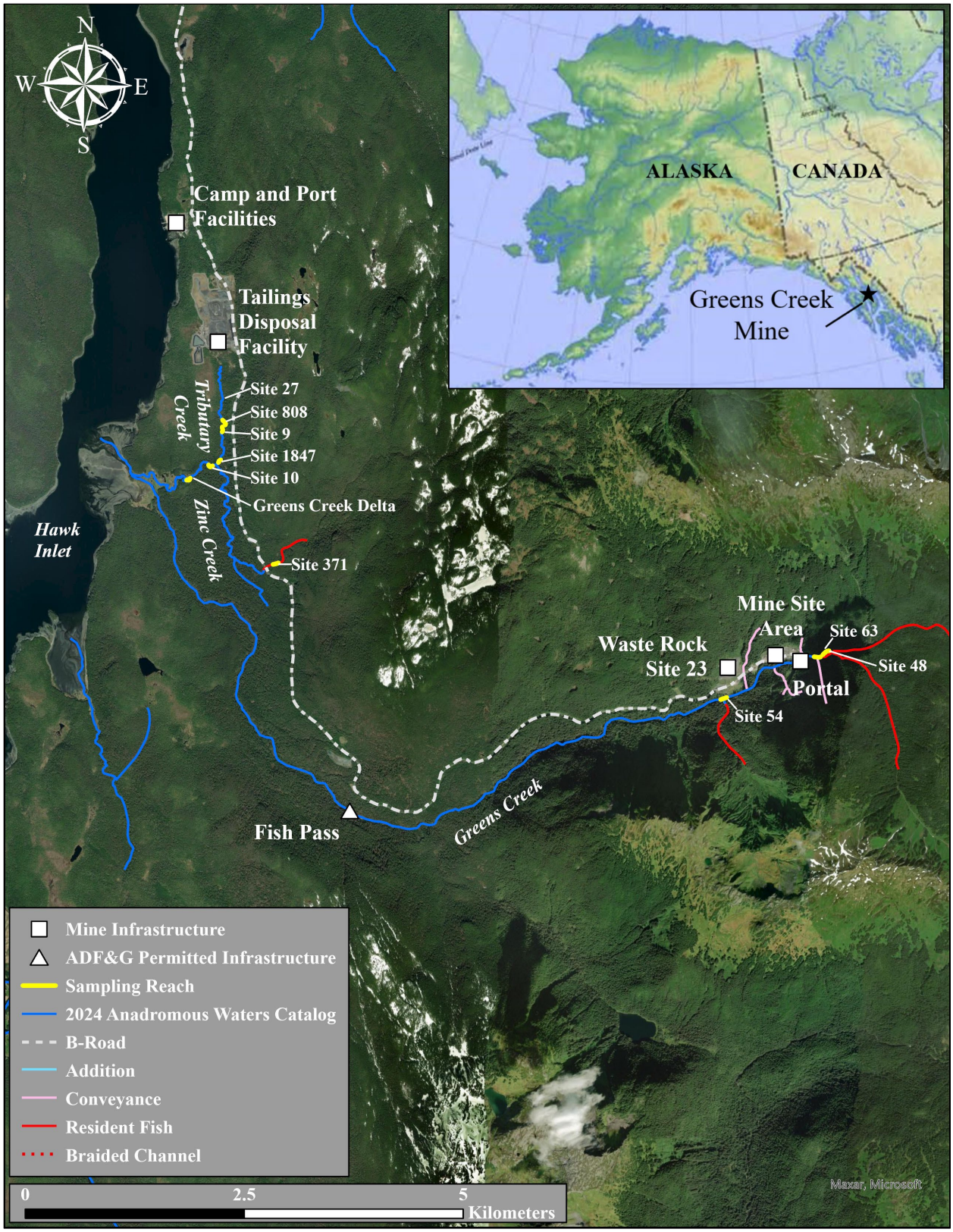


Figure 1.–Greens Creek Mine area.

STUDY AREA

Greens Creek

Greens Creek drains a 58.5 km^2 watershed with the main channel measuring 16 km from the alpine headwaters to the mouth in Hawk Inlet (USGS 2021). At sample sites grades range from 2 to 4%, cobble and gravel are the dominant substrate, and large woody debris is common; characteristic of a medium width moderate grade mixed control channel (Paustian 2010). The creek is fed by snowmelt in the spring and rain throughout the year. Snowpack influences the magnitude of peak discharge in early summer; rain events in the fall often cause peak discharge events.

The lower 10.6 km of Greens Creek (Stream No. 112-65-10232) provides habitat for chum salmon *O. keta*, coho salmon, pink salmon *O. gorbuscha*, and Dolly Varden (Giefer and Graziano 2024). ADF&G Division of Commercial Fisheries staff survey returning chum and pink salmon in Greens Creek as part of their in-season assessment of salmon run strength (S. Forbes, Commercial Fisheries Area Management Biologist, ADF&G, Douglas, personal communication). Juvenile and adult Chinook salmon were documented near the portal in the early 1990s but have not been observed since; in 2017, USFS staff sampled the stream for Chinook salmon eDNA and the test result was negative (M. Johnson, Wildlife and Fisheries Biologist, U.S. Forest Service, Tongass National Forest, Juneau, personal communication).

Greens Creek discharge data are recorded at U.S. Geological Survey (USGS) Gage Site 15101490[a], downstream of sample sites 48 and 63, 1350 Creek, Cub Creek, and Hecla's water withdrawal. The gauge is upstream of mining activities and represents about 40% of the watershed draining to Hawk Inlet.

Greens Creek Site 48 and Site 63

Prior to the river avulsion in fall 2017,[b] we sampled Greens Creek Site 48 which is located upstream of mining activities, except exploratory drilling, near 265 m elevation and about 0.8 km upstream of the mine portal (Figure 2). Due to the continued instability upstream, we completed the aquatic biomonitoring studies beginning about 3 m downstream of the channel confluences at Site 63.

Site 63 is located near 265 m elevation, downstream of Big Sore Creek, and upstream of mining activities (Figure 3); unlike Site 48, 1350 Creek flows into the Site 63 sampling reach, which was unavoidable due to the limited suitable sampling areas between Big Sore Creek and the portal. The data collected at Site 48 and Site 63 are used as reference to compare the data collected downstream of mining activities at Site 54. Historically, we captured resident Dolly Varden at Sites 48 and 63, however this was the second year we observed juvenile coho salmon above the weir at Site 63.

---

[a] Prior to February 16, 1999, the gage was located 9 m upstream and at 3 m greater elevation (USGS 2022).

[b] We also sampled Greens Creek Site 6, located upstream of Site 54 and the Bruin Creek confluence, in 2001, 2006, and 2011 (Kanouse 2012).

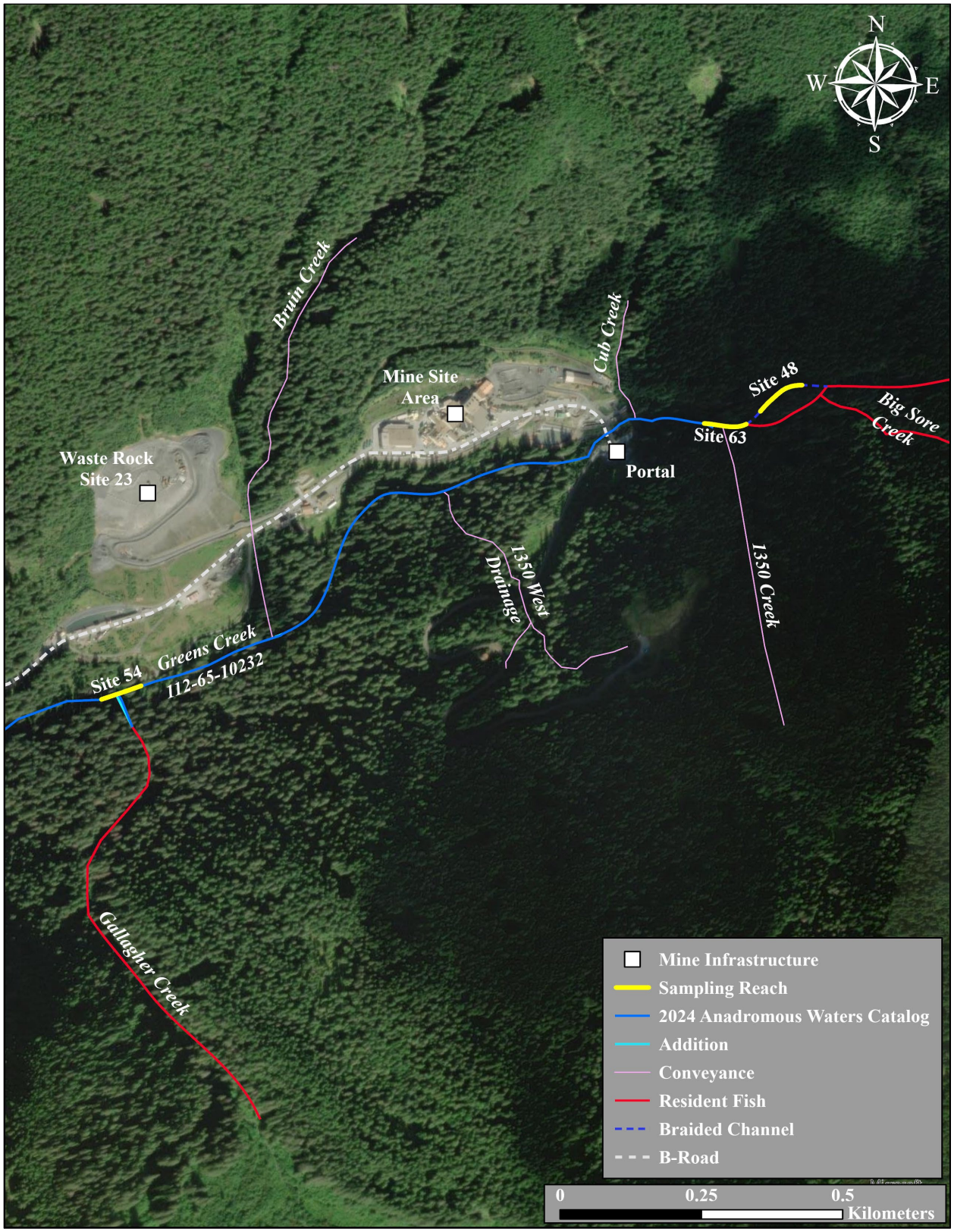


Figure 2.–Greens Creek sampling Sites 48, 63, and 54.



Figure 3.–Greens Creek Site 63 periphyton and benthic macroinvertebrate sample reach, facing upstream July 9, 2024.

Greens Creek Site 54

Site 54 is located near 225 m elevation, downstream of the Bruin Creek confluence, adjacent to waste rock storage Site 23, and about 1.8 km downstream of the mine portal (Figure 4). Data collected from 2001 to 2023 at Site 54 are compared to the data at reference Sites 48 and 63 to detect potential impacts from mining activities, such as changes from waste rock storage areas, storm water ponds, and the mine site upstream. Between Sites 48/63 and 54, four tributaries drain to Greens Creek: 1350 Creek, 1350 West Drainage, Cub Creek, and Bruin Creek. Gallagher Creek enters Greens Creek at the upper extent of the Site 54 fish sample reach. Periphyton and benthic macroinvertebrate sampling occur about 30 m upstream of the fish sample reach.

Since 2001, we documented coho salmon, Dolly Varden, cutthroat trout *O. clarkii*, and rainbow trout *O. mykiss* at Site 54.[c] In 2023, we caught Dolly Varden and 11 juvenile coho salmon, demonstrating successful adult coho salmon passage through the Greens Creek fish pass, located about 5.6 km upriver from the stream mouth.[d]

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[c] In 2007 and 2008, two cutthroat trout were observed; one rainbow trout was observed in 2020.

[d] In 1989, Greens Creek Mining Company installed the engineered fish pass as mitigation for impacts to Tributary Creek from the TDF. Three weirs provide step pools for adult coho salmon passage through a natural bedrock chute that prevents upstream fish migration. In November 2005, flood flows caused by a heavy rainstorm damaged the fish pass, limiting upstream adult fish passage in subsequent years. Hecla repaired and fortified the fish pass in March 2016 and inspects the structure seasonally. We have observed juvenile coho salmon at Site 54 since 2017, demonstrating successful adult coho salmon passage occurred the prior fall spawning season.



Figure 4.–Upper extent of Greens Creek Site 54, facing downstream, July 9, 2024

Tributary Creek

Tributary Creek drains a 1.7 km^2 watershed (USFS 2013) and the main channel measures about 1.6 km between its headwaters and confluence with Zinc Creek (Figure 5). Tributary Creek (Stream No. 112-65-10232-2001-3003) provides habitat for coho and pink salmon and Dolly Varden (Giefer and Graziano 2024).

The TDF occupies the headwaters of the watershed. Tributary Creek is a lowland stream characterized as a small flood plain channel type (Paustian 2010). Stream grade varies from 1 to 2%, organic material and sand are the dominant substrates with gravel and large and small woody debris. Discharge estimates based on field measurements and limited gage data suggest annual mean discharge is less than 3 ft^3/s (USFS 2003).



Figure 5.–Tributary Creek Site 9 and Site 1847.

Tributary Creek Site 9

Site 9 is located about 1.0 km downstream of the TDF at 25 m elevation and is sampled to detect potential changes from mining activities over time. We documented coho salmon, Dolly Varden, cutthroat and rainbow trout, and sculpin *Cottus* sp. at the site. Periphyton and benthic macroinvertebrate sampling occur within the juvenile fish sampling reach.

Greens Creek Mine TDF expansions and beaver activity have changed Tributary Creek streamflow patterns and sediment composition at Site 9 since sampling began in 2001. Tributary Creek discharge appears to be reducing over time, seemingly more so in recent years since beavers returned to the system, immediately upstream of Site 9. The current conditions (Figure 6) limit our ability to properly sample periphyton and BMI in riffles in part due to a beaver dam about 25 m upstream.

Since 2018, we also sampled periphyton and benthic macroinvertebrates at Tributary Creek Site 1847, downstream of Site 9 near the stream mouth, to investigate those communities in riffle habitats more suitable for sampling than at Site 9.[e] Stream discharge does not increase much between sampling sites as there are no surface inputs; the main difference between sampling sites is gradient which supports gravel substrate for sampling at Site 1847, compared to small gravel, sand, and organics at Site 9.



Figure 6.–Tributary Creek Site 9 sample reach, July 10, 2024.

[e] Kate Kanouse, Habitat Biologist, to Jackie Timothy, Southeast Regional Supervisor, ADF&G Division of Habitat. Memorandum: GCM Tributary Creek Sampling Site 1847; dated July 17, 2018. Unpublished document can be obtained from the Southeast Regional Supervisor, ADF&G Habitat Section, 802 3rd Street, Douglas, AK.

Tributary Creek Site 1847

Site 1847 is located about 1.4 km downstream of the TDF at about 20 m elevation, and about 20 m upstream of the confluence with Zinc Creek. We sampled periphyton and BMI 2018–2024 and compare the data to the Site 9 data. We did not sample fish since Site 9 is preferred as the most upstream sampling site for Dolly Varden element concentrations.

Tributary Creek Site 808

Site 808 is a pond about 6,000 m^2 formed and maintained by beavers in Tributary Creek since 2017, the upper extent of which is about 600 m downstream of the TDF at about 30 m elevation. Fish movement into the beaver ponds is restricted or flow-dependent due to dam height, and Dolly Varden were present when we last sampled fish the pond in 2022. Sediment collection for metals analysis was initiated in 2024, outlined in the ROD (USFS 2024), to monitor element accumulation in the beaver pond complex which is about 70 m upstream of Site 9.

Zinc Creek

Zinc Creek drains a 12.4 km^2 watershed (USFS 2024) and the main channel measures about 14.9 km between its alpine headwaters and confluence with Greens Creek (Figure 7). Zinc Creek (Stream No. 112-65-10232-2001) provides habitat for chum, coho and pink salmon and Dolly Varden (Giefer and Graziano 2024) up to a barrier falls near the B Road bridge, above which, habitat for resident Dolly Varden continues.

Zinc Creek flows under and adjacent to the B Road for about 1.3 km, joins Tributary Creek, and flows west joining Greens Creek near the Hawk Inlet tidal delta. Downstream of the road, the stream is characterized as a moderate width flood plain channel type (Paustian 2010). The creek is fed by snowmelt in the spring and rain throughout the year. Snowpack influences the magnitude of peak discharge in early summer; rain events in the fall often cause peak discharge events.

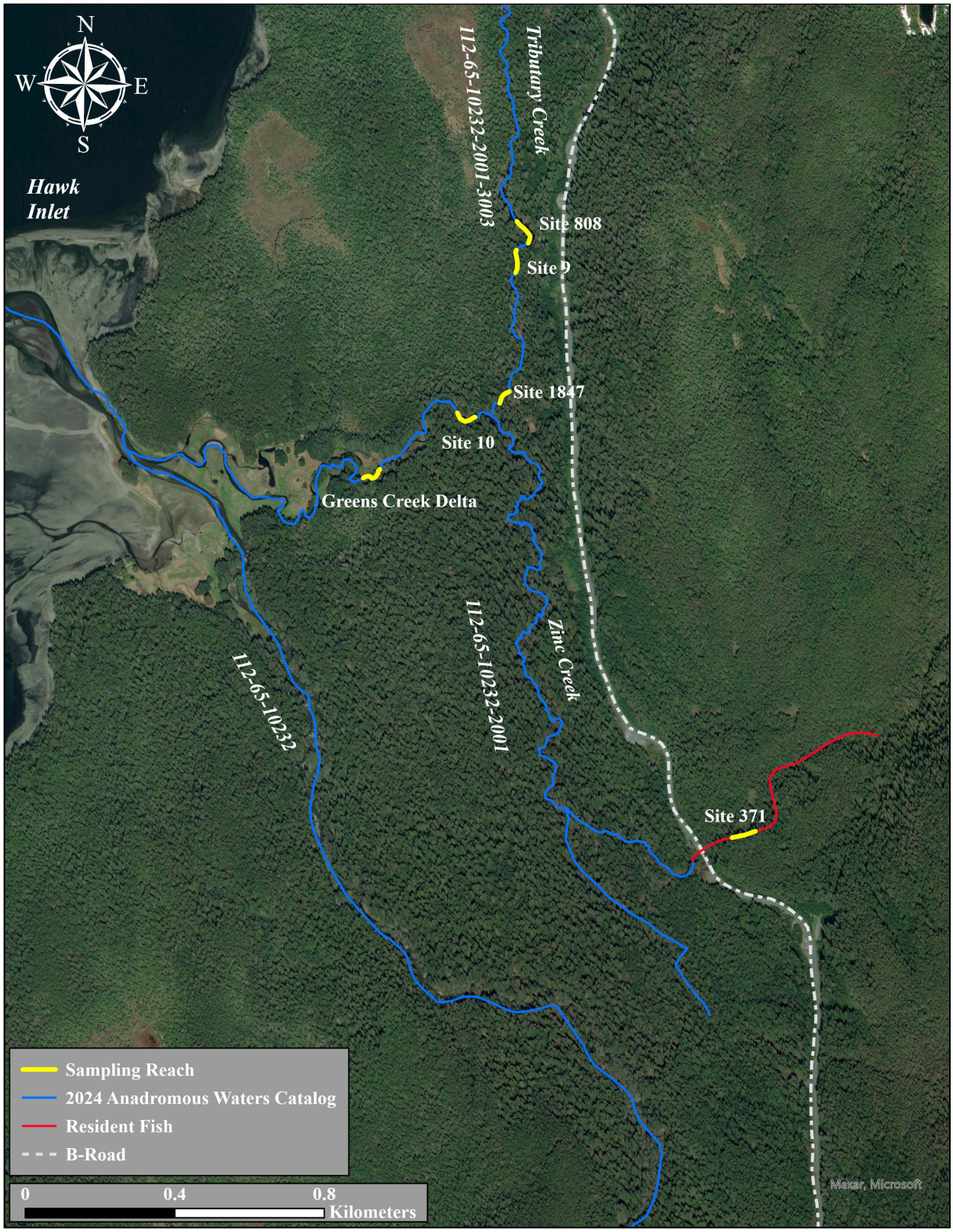


Figure 7.–Zinc Creek Sites 371 and 10.

Zinc Creek Site 371

Site 371 is upstream of the B Road bridge and provides habitat for resident Dolly Varden, above a 10 m high barrier falls near the B Road bridge. Site 371 was added as an aquatic biomonitoring site outlined in the ROD (USFS 2024) as a reference site to document natural stream conditions. This reach is a moderate gradient mixed control process group channel type (Figure 8; Paustian 2010) and includes several downed trees and log jams with angular cobble and gravel as the dominant substrate.



Figure 8.–Zinc Creek site 371.

Zinc Creek Site 10

Site 10 is about 30 m downstream of the confluence of Tributary and Zinc Creeks, at about 19 m elevation, and provides habitat for resident and anadromous fish. Site 10 was added as an aquatic biomonitoring site outlined in the ROD (USFS 2024) to detect potential changes from mining activities over time. This reach is a moderate width flood plain channel type (Figure 9; Paustian 2010) and includes deep pools, overhanging logs and diverse fish habitat.



Figure 9.–Zinc Creek Site 10.

Greens Creek Delta

The Greens Creek Delta site is located on Zinc Creek just above tidal influence about 700 m from the intertidal confluence of Greens Creek and Zinc Creek and provides resident and anadromous fish habitat. Sediment sampling at this site was added in 2024 as outlined in the ROD (USFS 2024), to monitor element accumulation just upstream of tidal influence in the deposition zone. This reach is a moderate width flood plain channel type (Figure 10; Paustian 2010) which transitions to an

estuarine environment with relict channel braids. Riparian vegetation is largely fern and shrubs and spawning habitat is present throughout.



Figure 10.–Greens Creek Delta site.

Cannery Creek

Cannery Creek is pending submission for nomination to the anadromous waters catalog for rearing coho salmon downstream of the barrier falls at the camp boardwalk. Also, one adult pink salmon carcass was observed in the intertidal zone in 2018. Fish are not present upstream of the barrier falls in the high gradient reach, where at least one relict water impoundment structure is present.[f] Cannery Creek provides freshwater for the project and the water supply impoundment is on the east side and upstream of the B road; and surface streamflow to the ocean ceases during parts of the year as observed on occasion from camp.

Cannery Creek Site 37

Cannery Creek Site 37 is 75 m upstream of the water supply impoundment on the east side of the B Road. Sediment sampling at this location was added in 2024 as outlined in the ROD (USFS

[f] Greg Albrecht, Habitat Biologist, to Jackie Timothy, Southeast Regional Supervisor, ADF&G Division of Habitat. Memorandum: Tributary and Cannery Creeks fish resource investigations trip report; dated 10/8/2018

2024), to detect potential changes from mining activities over time, fish are not present at the site. This reach is a moderate gradient mixed control channel type (Figure 11; Paustian 2010) with woody debris, pools and cobble substrate.



Figure 11.–Cannery Creek Site 37 sediment collection site.

Fowler Creek

Fowler creek originates on the south side of the A Road; however flow from two tributaries originates north of the road and flows through culverts, eventually draining to Young Bay on the east side of Admiralty Island. The drainage area is 20.6 km^2 and contains a network of 40.5 km stream channels (USFS 2013). The majority of the upper watershed is palustrine channels with beaver activity; however, the lower reaches are moderate width flood plain channel (Paustian 2010). Habitat staff investigated Fowler Creek in 2013, documenting anadromous and resident fish habitat, including Brook Lamprey *Lampetra planeri* and rough-skinned newts *Taricha granulosa*.[g]

Fowler Creek Site

The Fowler Creek sediment site is about 200 m south of the A Road and contains resident and anadromous fish habitat. Sediment sampling at this location was added in 2024 as outlined in the ROD (USFS 2024), to detect potential changes from mining activities over time. This reach is a

[g] Ben Brewster, Habitat Biologist, to Jackie Timothy, Southeast Regional Supervisor. ADF&G Division of Habitat. Memorandum: Fowler Creek survey; dated 6/25/2013.

narrow low gradient flood plain channel type (Figure 12; Paustian 2010) and includes woody debris, depositional bars, spawning and rearing habitat.



Figure 12.–Fowler Creek sediment sampling site.

AQUATIC STUDIES AND LOCATIONS

July 8–10, 2024, we completed the Greens Creek Mine aquatic biomonitoring studies required in HCGMC's approved ADEC Waste Management Permit 2020DB0001, General Plan of Operations Integrated Monitoring Plan (HGCMC 2020), and in advance, the U.S. Forest Service ROD (USFS 2024) requirements which didn't go into effect until final issuance in November 2024. Sampling locations and aquatic studies for each sample site are detailed in Table 1.

Table 1.–Aquatic biomonitoring study sample sites, 2024.

Location	Biomonitoring reach	Latitude[a]	Longitude	Date Sampled
Greens Creek Site 63[b] (2018–2024)	Fish – Upper extent	58.0827	-134.6286	7/9
	Fish – Lower extent	58.0832	-134.6295	
	Periphyton and benthic macroinvertebrates	58.0831	-134.6300	
	Sediment	58.0831	-134.6300	
Greens Creek Site 54 (2001–2024)	Fish – Upper extent	58.0785	-134.6469	7/9
	Fish – Lower extent	58.0783	-134.6478	
	Periphyton and benthic macroinvertebrates	58.0783	-134.6466	
	Sediment	58.0783	-134.6466	-
Cannery Creek Site 37 (2024)	Sediment	58.1222	-134.7453	7/10
Fowler Creek 2233 (2024)	Sediment	58.1534	-134.7282	7/10
Tributary Creek Site 808 (Site 2232) (2024)	Sediment	58.1059	-134.7445	7/10
Tributary Creek Site 9 (2001–2024)	Fish – Upper extent	58.1055	-134.7450	7/10
	Fish – Lower extent	58.1050	-134.7450	
	Periphyton and benthic macroinvertebrates	58.1054	-134.7452	
	Sediment	58.1054	-134.7452	
Tributary Creek Site 1847 (2018–2024)	Periphyton and benthic macroinvertebrates	58.1018	-134.7458	7/10
	Sediment	58.1018	-134.7458	
Zinc Creek Site 371 (2024)	Fish – Upper extent	58.0917	-134.7341	7/8
	Fish – Lower extent	58.0918	-134.7347	
	Periphyton and benthic macroinvertebrates	58.0918	-134.7347	
	Sediment	58.0918	134.7347	
Zinc Creek Site 10 (2024)	Fish – Upper extent	58.1014	-134.7470	7/8
	Fish – Lower extent	58.1017	-134.7477	
	Periphyton and benthic macroinvertebrates	58.1015	-134.7468	
	Sediment	58.1015	-134.7468	
Greens Cr. Delta 2239 (2024)	Sediment	58.0999	-134.7512	7/8

[a] WGS84 datum.

[b] Reference samples were collected at Greens Creek Site 48 2001–2017.

Periphyton Chlorophyll Density and Composition Monitoring

The ADEC WMP (2.3.1.2.3) and IMP (6.3) requires annual monitoring of periphyton chlorophyll density and composition within mining influence at Greens Creek Site 54, Tributary Creek Site 9, Zinc Creek Site 10, and at reference reaches above mine influence at Greens Creek Site 63 and Zinc Creek Site 371 to monitor changes in primary productivity compared to natural variation due to factors such as mineral seeps, climate, and stream migration and streamflow. Annual periphyton

sampling occurs in July and ideally not within three weeks following peak discharge to detect changes over time.

Periphyton is composed of primary producing organisms such as algae, cyanobacteria, heterotrophic microbes, and detritus attached to the submerged surfaces of aquatic ecosystems. Algal density and community structure are influenced by water and sediment quality through physical, chemical, and biological factors that change throughout the year (Barbour et al. 1999).

The concentration of chlorophyll-a (Chl-*a*) pigment in periphyton samples provides an estimate of active algal biomass (density), while concentrations of chlorophyll-b (Chl-*b*) and chlorophyll-c (Chl-*c*) pigments estimate the composition of algal organisms present, such as green algae that produce Chl-*b*, and diatoms and brown algae that produce Chl-*c*. The chlorophyll data are used to document primary productivity (e.g., live algal biomass).

Benthic Macroinvertebrate Density and Community Composition Monitoring

The ADEC WMP (2.3.1.2.4) and IMP (6.4) requires annual monitoring of BMI density and community composition within mining influence at Greens Creek Site 54, Tributary Creek Site 9, Zinc Creek Site 10, and at reference reaches above mine influence at Greens Creek Site 63, and Zinc Creek Site 371 to detect changes in secondary productivity compared to natural variation due to factors such as mineral seeps, climate, stream migration, and streamflow. Annual BMI and periphyton sampling occur in July to detect changes over time. Sampling targets riffle habitats which support greater densities of EPT taxa than other stream habitat types (Barbour et al. 1999) and generally are sensitive to environmental changes and have short life cycles. The BMI data are used to document secondary productivity (e.g. macroinvertebrate density and diversity).

Benthic macroinvertebrates (BMI) classified in the orders Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies), collectively known as EPT taxa, many of which are sensitive to changes in water and sediment quality (Barbour et al. 1999). These organisms are secondary producers, feed upon periphyton and other macroinvertebrates, and are a food source for fish.

Juvenile Fish Abundance and Condition Monitoring

The ADEC WMP (2.3.1.2.1) and IMP (6.5) require annual monitoring of abundance and condition of juvenile fish by species. Fish condition is affected by age, sex, season, maturation, diet, gut contents, fat reserve, and muscular development (Anderson and Neumann 1996). Length and weight data are used to assess fish condition.

Juvenile Fish Element Concentrations Monitoring

The ADEC WMP (2.3.1.2.2) and IMP (6.6) requires annual monitoring of whole-body element concentrations in juvenile Dolly Varden at Greens Creek Site 54, Tributary Creek Site 9, Zinc Creek Site 10, and at reference reaches above mine influence at Greens Creek Site 63 and Zinc Creek Site 371 to document element concentrations in aquatic communities near the mine. Element bioavailability and bioaccumulation depends on physical and chemical factors and interactions among biological communities (Tchounwou et al. 2012). Resident Dolly Varden samples are analyzed for whole body concentrations of silver (Ag), cadmium (Cd), copper (Cu), mercury (Hg), lead (Pb), selenium (Se), and zinc (Zn) to document concentrations and variability. These elements were selected based on target elements identified in the ore body. Due to the scarcity of juvenile Dolly Varden of suitable sampling size in Tributary Creek in recent years, we also collect juvenile coho salmon, following the same methods, to build a separate data set.

Sediment Composition and Element Concentrations Monitoring

The ROD (Appendix A, Section SW-1) requires[h] annual analysis of five fine sediment samples in Tributary Creek Sites 808, 9 and 1847; Greens Creek Sites 54 and 63; Cannery Creek Site 37; Fowler Creek; and Zinc Creek Sites 371, 10, and the Greens Creek delta. Annual sediment sampling occurs in July and samples are analyzed for particle size, total solids, total volatile solids, total sulfide, total organic carbon, and total concentrations of silver (Ag), aluminum (Al), arsenic (As) cadmium (Cd), chromium (Cr), copper (Cu), mercury (Hg), nickel (Ni), lead (Pb), selenium (Se), and zinc (Zn).

Sediment element concentrations are influenced by a variety of factors, such as geochemical composition and weathering within the watershed, sediment grain size, organic content, and development/disturbance (Tchounwou et al. 2012). Subsequently, sediment element concentrations influence benthic aquatic productivity, and heavy metals in sediments can decrease BMI taxa richness and alter the composition of BMI communities (Qu et al. 2010).

[h] Surface water monitoring requirements, along with other requirements in the ROD, will be incorporated into a new publication of the Waste Management Permit in 2025.

METHODS

We review data sets annually to ensure accuracy and consistency with modifications to the methods; corrections and updates are reported in the document and appendices. The most recent technical report presents the current data sets and should be used to analyze data from previous years.

WATER QUALITY

Basic water quality data (temperature, conductivity, and pH) were collected with a Hanna HI98194 multiparameter meter; the instrument was calibrated per the manufacturer's instructions prior to sampling. In some years, HGCMC measures water quality and we report the data.

STREAMFLOW

Sampling and Analysis

In Greens Creek, discharge was measured with a SonTek FlowTracker acoustic doppler velocimeter[i] following methods described in SonTek (2007). In Tributary Creek, discharge was measured with a collapsible 20 cm (8 in) Cutthroat flume using methods described in CDPHE (2016).[j]

Data Presentation

Discharge measurements are presented for each site, including the daily mean discharge data obtained from USGS Site 15101490. Also presented is a figure of Greens Creek daily mean discharges three weeks prior to the sampling event, including daily mean discharges for the period three weeks prior to sampling events 2001–2023,[k] and a figure presenting the range of Greens Creek daily mean discharges three weeks prior to sampling, 2001–2023.

PERIPHYTON: CHLOROPHYLL DENSITY AND COMPOSITION

Sample Collection and Analysis

Sampling methods are adapted from Barbour et al. (1999). Ten smooth, flat, undisturbed, and perennially wetted rocks were collected from riffle habitats in less than 0.45 m water depth at each sample site and submerged in the creek near the work area in the same orientation as initially collected. To collect a sample from each rock, a 5 × 5 cm square of high-density foam was held on the sample area; the area around the foam was scrubbed with a toothbrush to remove algae and other organisms outside the sample area. The rock was rinsed by submerging it in the stream while holding the foam in place; the toothbrush also was rinsed and scrubbed in the stream to remove remnant periphyton.

A 47 mm diameter Type A/E 1 µm glass fiber filter was placed into a Nalgene® filter receptacle attached to a vacuum pump with a gauge. The foam square was removed and the underside of the foam and the sample area were gently scrubbed in a circular pattern with the toothbrush into the filter receptacle. Stream water in a wash bottle was used to rinse loosened periphyton from the

[i] From 2010–2015, discharge in Greens Creek and Tributary Creek was estimated using a Global Flow Probe Model FP101 flow meter (Kanouse 2015) and a modification of the methods described in Platts et al. (1983).

[j] From 2016 to 2018, 2020, and in 2021, Tributary Creek discharge was measured using a SonTek FlowTracker acoustic doppler velocimeter.

[k] Continuous discharge data are not available for Tributary Creek.

foam, sample area of the rock, toothbrush, and the inside of the filter receptacle onto the filter. The toothbrush was rinsed inside the receptacle, and the sample area was scrubbed a second time and the rinse cycle was repeated. With most of the water pumped through the filter, maintaining pressure less than 34 kPa, a few drops[l] of saturated magnesium carbonate solution was added to the filter[m]. The glass fiber filter was removed from the receptacle, folded in half with the sample inside, and wrapped in a white coffee filter for additional moisture absorption. The samples were placed in a sealed, labeled plastic bag with desiccant and stored in a light-proof cooler containing frozen icepacks during transportation; the samples were stored in a -20°C freezer in the ADF&G Douglas laboratory until processing.

U.S. Environmental Protection Agency (EPA; 1997) protocol was followed for chlorophyll extraction and measurement, determining instrument and estimated detection limits, and data analysis.[n] Samples were removed from the freezer, cut into small pieces, and placed into individual 15 mL screw cap centrifuge tubes containing 10 mL of 90% buffered acetone. The centrifuge tubes were capped and shaken to ensure complete submersion of the sample. Secured in a vial rack covered with aluminum foil to reduce light exposure, the samples were stored in a refrigerator for 12–24 hours to allow for saturation and chlorophyll extraction.

In a dimly-lit laboratory, the samples were removed from the refrigerator and centrifuged for 20 minutes at 500 relative centrifugal force, using a properly balanced centrifuge. Prior to sample measurement, two cuvettes containing 90% buffered acetone were placed into a Shimadzu UV-1800 spectrophotometer to calibrate absorbance of the solvent at wavelengths 664 nm, 647 nm, 630 nm, and 750 nm. Each sample supernatant was decanted into an individual cuvette and absorbance was measured at each wavelength. Each sample was treated with 80 μL of 0.1 N hydrochloric acid for 90 seconds to convert the chlorophyll to phaeophytin, and absorbance was measured at wavelengths 665 nm and 750 nm. To minimize stray light and improve resolution, sample cuvettes were cleaned with a nonabrasive wipe prior to placement in the spectrophotometer.

Trichromatic equations were used to estimate Chl-*a*, Chl-*b*, and Chl-*c* densities, correcting for turbidity using the 750 nm absorbance value (APHA 2012, EPA 1997). Chl-*a* densities were corrected when phaeophytin was detected. Each year the estimated detection limit (EDL) is determined by analyzing seven replicate spinach dilution samples; the 2024 EDL for Chl-*a* concentration was 0.22 mg/m^2. When Chl-*a* was not detected in a sample, the concentration is reported as the spectrophotometer EDL and values for Chl-*b* and Chl-*c* are not reported.

Data Presentation

For each site and by year, mean Chl-*a* densities (mg/m^2) are presented in a figure. Greens Creek Site 63 data is presented with Site 48; Tributary Creek Site 9 data is presented with Site 1847. Annual sample data and summaries are provided in Appendix A.

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[l] This measurement is not exact as the amount of water and magnesium carbonate used to create a saturated solution varies and does not affect sample integrity; supernatant solution was used to avoid magnesium carbonate solids.

[m] To prevent acidification and conversion of chlorophyll to phaeophytin.

[n] Deviations from EPA (1997) include sample storage longer than 3.5 weeks, and cutting sample filters to reduce acetone exposure for laboratory staff (as opposed to homogenization).

BENTHIC MACROINVERTEBRATE DENSITY AND COMMUNITY COMPOSITION

Sample Collection and Analysis

Eight BMI samples[o] were collected from each site using a Hess stream bottom sampler in riffles and runs with gravel and cobble substrate and varying flow velocities—habitats that support greater BMI densities and taxonomic richness (Barbour et al. 1999). Other habitat types (e.g., pools) were excluded to reduce variability.

The Hess stream bottom sampler has a 0.086 m^2 sample area and material is captured in a 200 mL cod end, and constructed with 300 µm mesh net. After securing the frame on the streambed with the opening facing the upstream current, rocks within the sample area were scrubbed with a bristel brush; gravel, sand, and silt were disturbed to about 10 cm depth to dislodge macroinvertebrates into the net. The net was rinsed in the stream to ensure all organisms drifted into the cod end, and each sample was transferred from the cod end to a labeled 500 mL plastic bottle. Samples were preserved in 95% ethanol at a ratio of three parts ethanol to one part sample. Samples exceeding the capacity of the cod end were discarded in the field to minimize detritus and substrate in samples and ensure proper sample preservation.

Entire samples were processed with an elutriator system with a 500 µm and 300 µm sieves to sort macroinvertebrates from debris[p] and identified organisms to the lowest practical taxonomic level[q] using Merritt and Cummins (1996) and Stewart and Oswood (2006). Habitat biologists provided quality control by verifying macroinvertebrate identification of eight samples (more than 10% of samples).

BMI density was calculated for each sample by dividing the number of macroinvertebrates by 0.086 m^2—the Hess sampling area. Mean density was estimated for each site by calculating the mean density among the eight samples. Taxa richness is reported as the number of taxonomic groups identified to the lowest practical level; terrestrial[r] organisms were excluded from all calculations.

Data Presentation

For each site and by year, mean BMI and EPT density and community composition are illustrated in figures. Greens Creek Site 63 data are presented with Site 48; Tributary Creek Site 9 data with Site 1847. Annual data summaries are provided in Appendix B.

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[o] Prior to 2015, we collected 5 BMI samples each year.

[p] Gordon Willson-Naranjo and Greg Albrecht, Habitat Biologists, to Jackie Timothy, Southeast Regional Supervisor, ADF&G Division of Habitat. Memorandum: Benthic macroinvertebrate elutriation trials amendment; dated 12/17/2013. Unpublished document can be obtained from the Southeast Regional Supervisor, ADF&G Habitat Section, 802 3rd St, Douglas, AK.

[q] Insects of the orders Ephemeroptera, Plecoptera, Trichoptera, and Diptera to genus, except nonbiting midges to family Chironomidae, and all others to class or order. Damaged and degraded organisms that cannot be identified are not reported.

[r] Including adult terrestrial insects of the orders Ephemeroptera, Plecoptera, Trichoptera, and Diptera.

JUVENILE FISH ABUNDANCE AND CONDITION

Sample Collection and Analysis

Following methods described in Magnus et al. (2006), two-piece 6.35 mm galvanized steel minnow traps baited with disinfected salmon roe[s] were deployed throughout 50 m sample reaches isolated by natural features, such as shallow riffles and debris jams. In areas with high streamflow, rocks were added to the bottom of each trap for weight and to provide refuge for captured fish. Bait was contained in a punctured plastic bag to prevent ingestion and reduce the possibility of sample contamination. Prior to the study, several baited minnow traps were set within 15 m of the upstream and downstream sample reach boundaries to capture potential migrants and improve sample reach isolation.[t] After the 1.5-hour trapping event, captured fish were transferred to a plastic bucket containing aerated stream water. Fish captured in the boundary traps were excluded from the abundance estimate. Ten Dolly Varden were retained for whole body element concentration analyses at each sample site, if needed, fish from the boundary traps were retained as samples.

Biologists anesthetized fish using 9 mg/L[u] AQUI-S® 20E (10% eugenol), measured and recorded FL to the nearest 1 mm, and species (Pollard et al. 1997). Fish weight was recorded to the nearest 0.1 g. During recovery, fish were retained in a perforated plastic bucket secured in the creek and released to the sample reach upon study completion.

Fulton's condition factor (K) was calculated using the equation given in Anderson and Neumann (1996), where the weight (W) of each fish is divided by the cubed length (L) of the fish, and the product multiplied by 100,000:

$$K = \frac{W}{L^3} \times 100{,}000$$

Data Presentation

Juvenile fish abundance and condition are compared by species for each site and year with data from the historical initial 1.5-hour trapping events and presented in figures.[v] Greens Creek Site 63 data are presented with Site 48. Annual data summaries and length-frequency diagrams are provided in Appendix C.

JUVENILE FISH ELEMENT CONCENTRATIONS

Sample Collection and Analysis

[s] Four oz of Betadyne® was added to 3 gal of tap water to saturate roe for 15 min, stirring frequently, then drained.

[t] Greens Creek discharge is usually too high to efficiently and effectively isolate sample reaches using a 6.35 mm (0.25 in) mesh net across the stream. Though a mesh net could effectively isolate the Tributary Creek Site 9 sample reach, baited minnow traps were used all years.

[u] The dosage is equivalent to 0.30 mL anesthetic per 1 gal of stream water.

[v] Prior to an approved modification of the IMP in 2020, estimating juvenile fish populations was required—achieved with a depletion sampling method involving three sequential 1.5-hour minnow trapping events.

Wearing latex gloves, 10 juvenile Dolly Varden from the abundance trapping event were retained in individual clean, labeled plastic bags.[w,x] Fish retained were within the size range 85–125 mm FL;[y] an 85 mm fish provides the minimum weight (about 5 g) required for laboratory analyses, while the maximum length of 125 mm improves the probability of sampling 2–3 year old resident Dolly Varden at Greens Creek Site 54 and Tributary Creek Site 9. FL and weight were measured, correcting for bag weight, and samples were stored in a cooler with ice packs during transportation to the ADF&G Douglas laboratory, where samples were stored in a -20°C freezer.

The samples were shipped in a cooler with ice packs to ALS Environmental in Kelso, WA, maintaining written chain of custody documentation. ALS Environmental individually digested, dried, and analyzed each sample for total silver (Ag), cadmium (Cd), copper (Cu), mercury[z] (Hg), lead (Pb), selenium (Se), and zinc (Zn) on a dry weight basis following EPA (2002) method 1631E for Hg, and EPA (1998) method 6020A[aa] for other elements. ALS Environmental provided Tier II quality control information, including results for matrix spikes, sample blanks, sample duplicates, and standard reference materials.

Data Presentation

For each sample site, a figure presents the minimum, median, and maximum of whole-body concentrations (mg/kg) for each analyte by year.[bb,cc] The annual raw data, presenting the mean value for duplicate sample results, and the 2024 laboratory report are provided in Appendix D.

SEDIMENT COMPOSITION AND ELEMENT CONCENTRATIONS

Sample Collection and Analysis

Wearing latex gloves, one sample of submerged sand and silt were collected at each site within actively flowing channels. For each sample, the top 4 cm of sediment was retained in five glass jars provided by the laboratory[dd]. To preserve sulfide in the sample jar designated for sulfide analyses, 5–10 mL of zinc acetate was added immediately after sample collection to fill the sample jars; all other samples were filled to the top with stream water to minimize air space.[ee] Samples were stored in a cooler with frozen icepacks during transport and in an ADF&G Douglas laboratory fridge until shipment to the ALS Environmental laboratory in Kelso, WA for analyses.

The samples were shipped in a cooler with frozen icepacks via overnight air freight, maintaining written chain of custody documentation. ALS Environmental measured particle size, total solids, total volatile solids, total sulfide, total organic carbon, and total concentrations of Ag, Al, As, Cd,

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[w] Prior to 2015, 6 samples were collected at each site.

[x] Due to scarcity of Dolly Varden captured at Tributary Creek Site 9 2019–2022, all fish samples were collected beyond the sample reach, to achieve a sample size of 10 fish. Six fish were captured via electrofishing on August 15, 2022.

[y] To achieve a minimum sample size, when fish were scarce in some years, we retained fish samples measured less than the designated length range; when less than 85 mm, two fish were analyzed as a composite sample. We discontinued this practice.

[z] Annual analyses for Hg concentrations began in 2012; Hg data was incidentally received in 2010.

[aa] EPA (1994) method 200.8 was used for analyses 2001–2010, 2012–2015, and 2018–2019.

[bb] The 2011 samples were mistakenly homogenized, resulting in one data point for each element analysis.

[cc] In 2012, laboratory contamination in several samples was suspected due to elevated sample results.

[dd] In 2015, sieving sediments during collection was discontinued to avoid sample bias.

[ee] Per laboratory staff instruction (S. Samy, Kelso Laboratory Senior Project Manager, ALS Environmental, Kelso, WA, personal communication).

Cr, Cu, Hg, Ni, Pb, Se, and Zn on a dry-weight basis (Table 2). The laboratory provided Tier IV quality assurance and quality control information, including results for matrix spikes, sample blanks, and sample duplicates.

Table 2.–Sediment tests, analytes, and methods used in 2024.

Test Description	Analyte	Method
Standard test method for particle-size analysis of soils	Particle size determination	ASTM D422M
Puget Sound Estuary Program sediment total organic carbon	Total organic carbon	PSEP TOC
Total solids on liquids, modified for solids	Total solids	EPA 160.3 Modified
Puget Sound Estuary Program sediment sulfide	Total sulfide	PSEP Sulfide
Total volatile solids, modified for solids	Total volatile solids	EPA 160.4 Modified
Mercury in solid or semisolid waste	Hg	EPA 7471B
Determination of trace elements in waters and wastes by ICP/MS	Ag, Al, As, Cd, Cr, Cu, Ni, Pb, Se, Zn	EPA 200.8

Data Presentation

For each site and by year, all sediment element concentration data are presented in a figure, including the mean values. When duplicate data are provided by the lab, we report the mean values. Sediment element concentrations undetected at the method reporting limit are illustrated as an empty circle (◦) and as a solid circle (•) for measured element concentrations.

The data are compared with the threshold effects concentrations (TEC) and the probable effects concentrations (PEC) for inorganics in freshwater sediment guidelines developed by the National Oceanic and Atmospheric Administration (Buchman 2008). The guidelines are based on results of controlled laboratory bioassays, where element concentrations below the TECs rarely affect aquatic life survival and growth, and element concentrations above the PECs can affect aquatic life survival and growth.

Annual data from 2024 and the 2024 laboratory report are provided in Appendix E.

RESULTS

WEATHER AND STREAM FLOW DATA

The National Weather Service (2025) reports that during 2024, the Juneau area received precipitation (197 cm) about 16% above normal and snowfall (219 cm) about 2% below normal, compared to mean values reported 1991–2020. In the two months prior to sampling in July, the Juneau area had precipitation 2.8 cm above and air temperature 0.4 °F above normal.

Three weeks prior to July 2023 sampling, Greens Creek daily mean discharge was 76 ft^3/s, within the middle range of mean discharges observed 2001–2023 (Figure 13). There were three peak streamflow events within two months prior to sampling; discharge declined after the peak events (Figure 14). Peak events generally are defined as streamflow at or near bankfull.

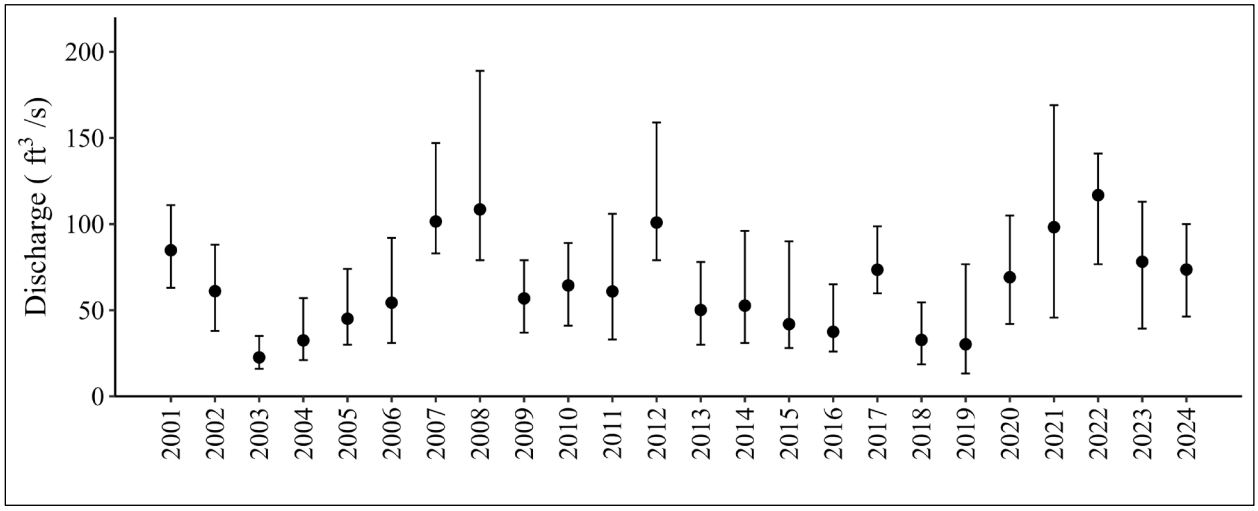


Figure 13.–Greens Creek daily mean discharge three weeks prior to sampling, 2001–2024.
Source: USGS 15101490 (USGS 2025).
Note: Minimum, mean, and maximum discharges presented.

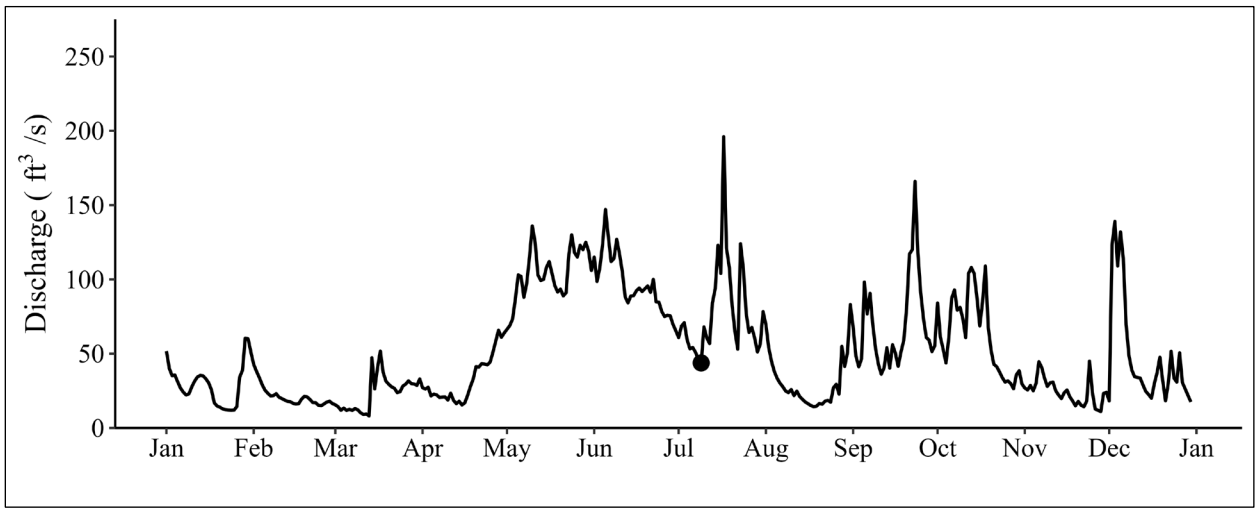


Figure 14.–Greens Creek daily mean daily discharge, 2024.
Source: USGS 15101490 (USGS 2025).
Note: Sampling dates represented by a black circle.

GREENS CREEK SITE 48 AND SITE 63

On July 9, 2024, we sampled Greens Creek Site 63. Hecla environmental staff measured basic water quality at 1440 hours and the USGS Greens Creek stream gage read 42.75 ft^3/s during our sampling (Table 3).

Table 3.–Greens Creek Site 63 water quality data, 2023.

Sample Date	Temperature (°C)	Conductivity (µS/cm)	pH	Discharge (ft^3/s)
07/9/2024	9.0	101.8	6.8	42.75

Periphyton: Chlorophyll Density and Composition

The 2024 Greens Creek Site 63 estimate mean density of Chl-*a* was 8.50 mg/m^2, within the middle range of mean densities 2001–2023 (Figure 15). The samples contained about 88% Chl-*a*, 12% Chl-*c*, and 0% Chl-*b*, consistent with composition observed in previous years (Figure 16).

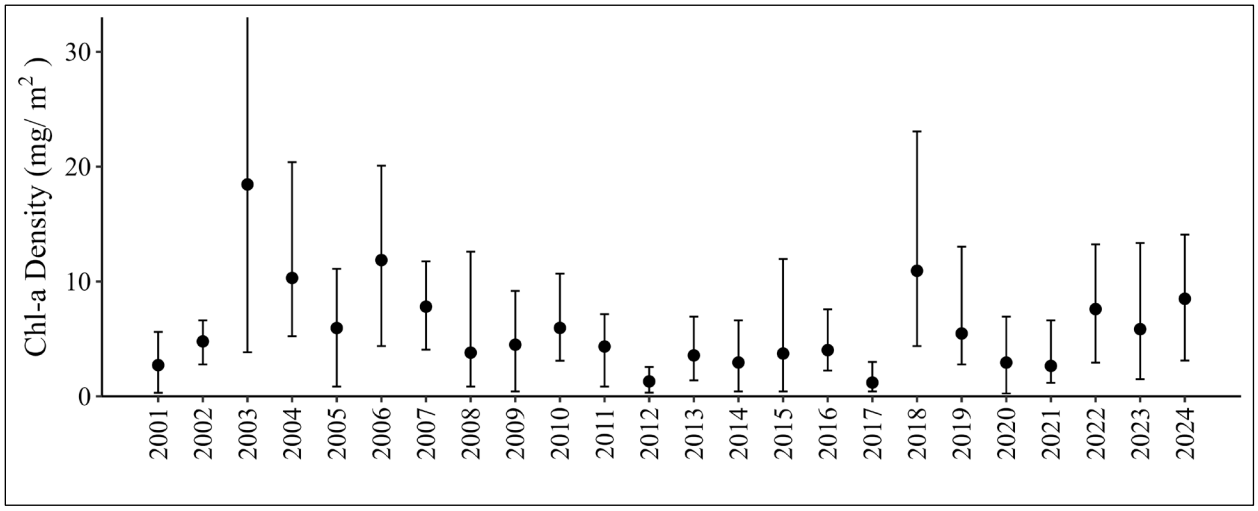


Figure 15.–Greens Creek Site 48 (2001–2017) and Site 63 (2018–2024) mean, minimum and maximum chlorophyll a densities.

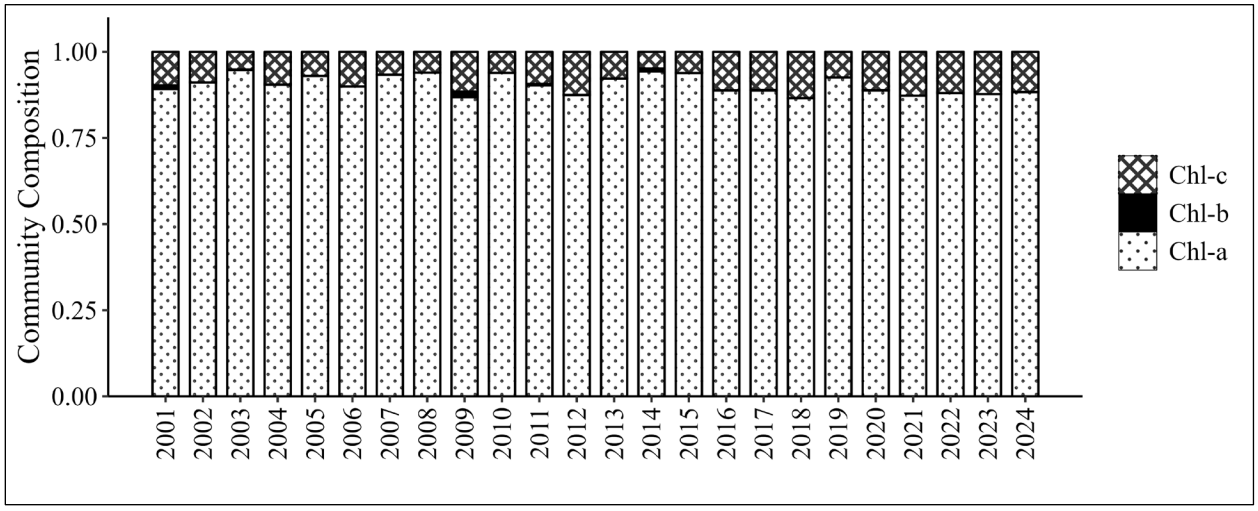


Figure 16.–Greens Creek Site 48 (2001–2017) and Site 63 (2018–2024) mean proportions of chlorophylls a, b, and c.

Benthic Macroinvertebrate Density and Community Composition

The 2024 Greens Creek Site 63 BMI estimate mean density is 3,344 BMI/m^2 and we identified 26 taxa, within the middle range of BMI densities observed 2001–2023 (Table 4; Figures 17, 18). We estimate mean EPT density was 3,087 EPT/m^2, within the middle range observed, accounting for 92% of the samples. Dominant taxa were Ephemeroptera of the genera *Epeorus* (34%) and *Baetis* (19%).

Table 4.–Greens Creek Site 48 and 63 benthic macroinvertebrate data summary, 2001–2024.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Mean EPT density (per m^2)	2679	1509	4905	3372	2937	1486	1575	2833	2168	2674	1676	1430	1760
Mean BMI density (per m^2)	2753	1637	5505	3905	3247	1612	1705	3095	2216	2884	2284	1612	1988
Number of EPT Taxa	15	19	17	17	18	12	13	11	13	14	16	16	13
Number of BMI Taxa	25	26	27	30	29	21	24	21	18	23	27	22	20
% EPT	97	92	89	86	90	92	92	92	98	93	73	89	89

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Mean EPT density (per m^2)	2223	2430	2534	2111	3490	4084	1956	1076	1535	1574	3087
Mean BMI density (per m^2)	2688	2948	3086	2346	3737	4435	2342	1391	1690	1818	3344
Number of EPT Taxa	14	16	15	16	17	19	20	17	20	15	16
Number of BMI Taxa	24	27	25	25	27	28	33	29	26	24	26
% EPT	83	82	82	90	93	92	84	77	91	87	92

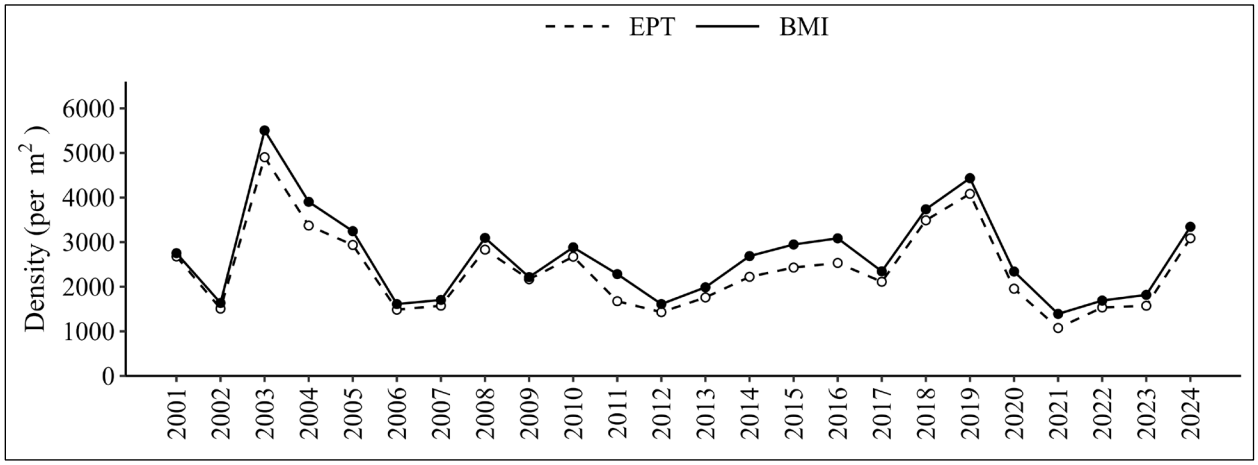


Figure 17.–Greens Creek Site 48 (2001–2017) and Site 63 (2018–2024) mean EPT and BMI densities.

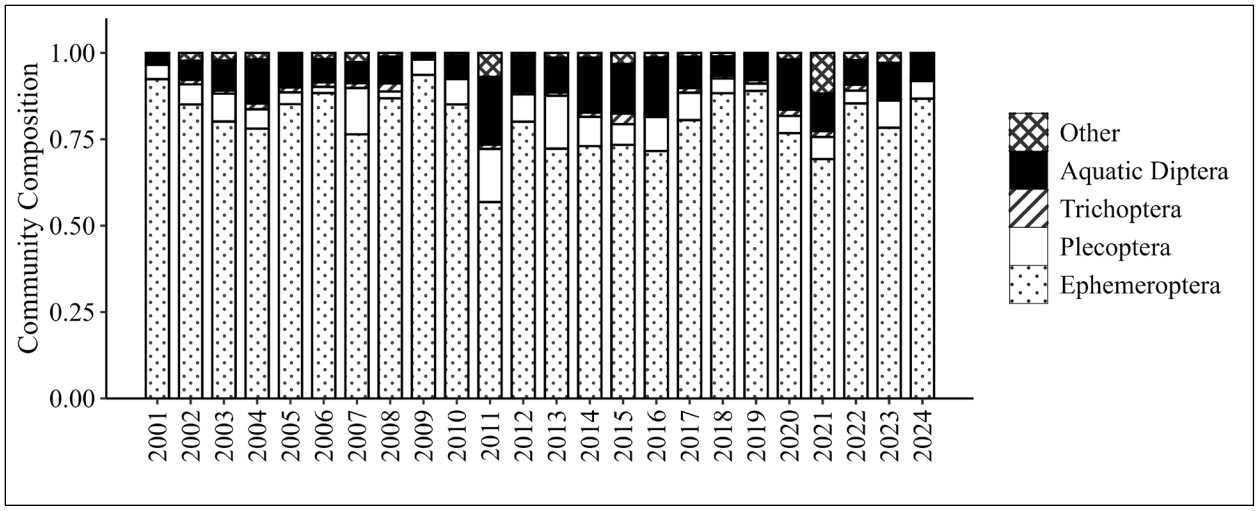


Figure 18.–Greens Creek Site 48 (2001–2017) and Site 63 (2018–2024) mean BMI community composition.

Juvenile Fish Abundance and Condition

In 2024 at Greens Creek Site 63, we captured 133 Dolly Varden (52–142 mm FL) and 8 juvenile coho salmon (60–74 mm FL), within the upper range of Dolly Varden captured during a single trapping event 2001–2023 (Figure 19). Historically, we have captured resident Dolly Varden at Sites 48 and 63. This was the second year we captured juvenile coho salmon above the infiltration gallery concrete weir near the mine portal, which has blocked upstream fish passage since construction in the late 1980s, indicating a change in substrate or pool feature at the weir allowing adult coho salmon passage over the weir the previous fall.

Mean fish condition factor among the Dolly Varden captured was 1.0, about the same previously observed at Sites 48 and 63. Mean fish condition factor among the coho salmon captured was 1.2. The range of Dolly Varden length frequencies observed suggests at least two age classes were present, consistent with previous years, and one age class for coho salmon (age-1).

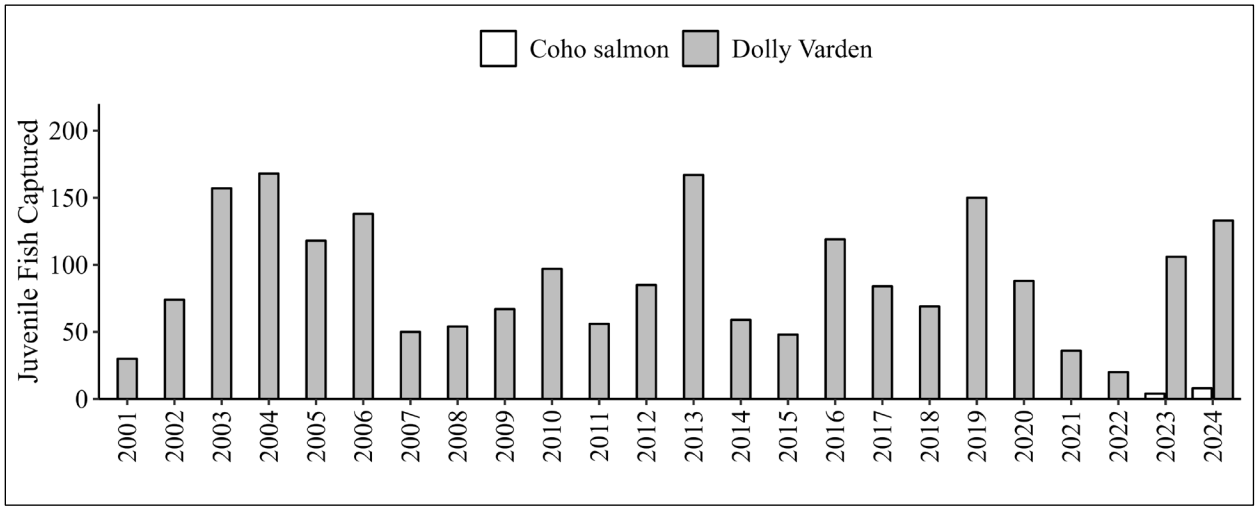


Figure 19.–Greens Creek Site 48 (2001–2017) and Site 63 (2018–2024) Dolly Varden and coho salmon captured.

Juvenile Fish Element Concentrations

In 2024 at Greens Creek Site 63, we retained 10 Dolly Varden (90–121 mm FL) for whole body element analysis. Mean element concentrations were within middle ranges previously observed at Sites 48 and 63 2001–2023 (Figures 20, 21).

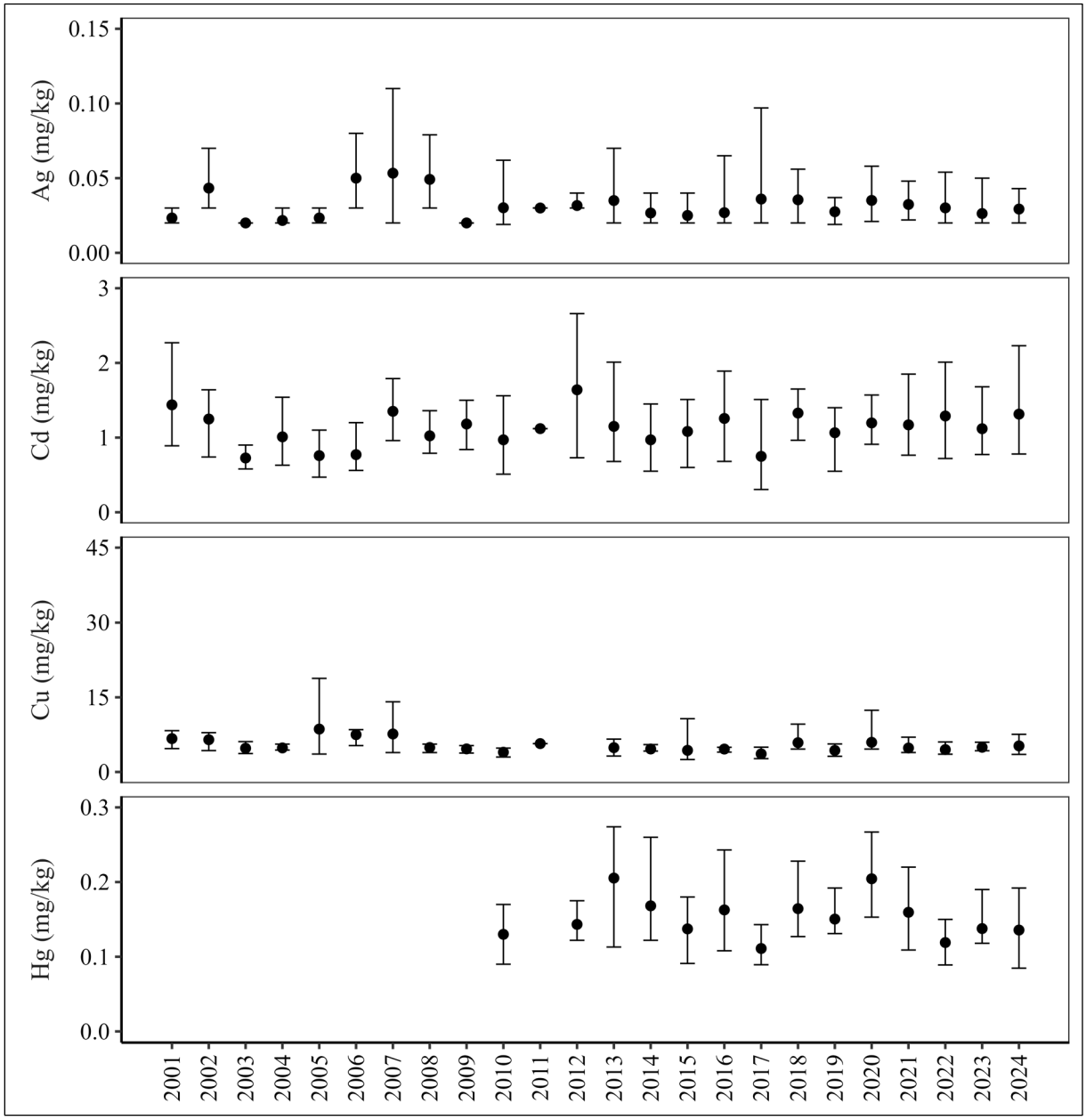


Figure 20.–Greens Creek Site 48 and Site 63 whole body Dolly Varden Ag, Cd, and Cu concentrations, 2001–2024, and Hg concentrations, 2010, 2012–2024.

Note: Minimum, mean, and maximum concentrations presented.

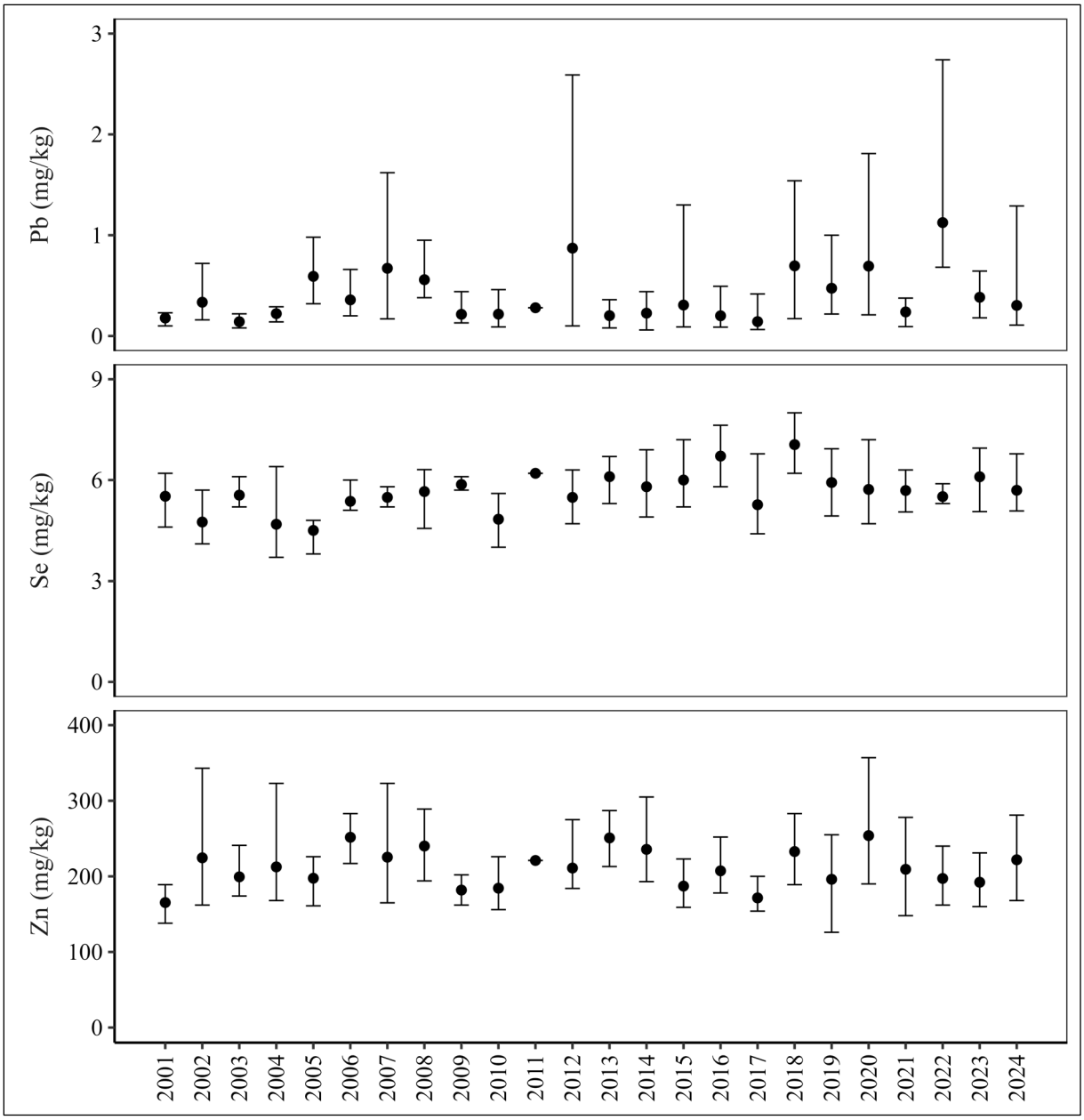


Figure 21.–Greens Creek Site 48 and Site 63 whole body Dolly Varden Pb, Se, and Zn concentrations, 2001–2024.

Note: Minimum, mean, and maximum concentrations presented.

Sediment Element Concentrations

The 2024 Greens Creek Site 63 sediment samples contained As, Cd, Cu, Ni, and Zn concentrations near or above the TEC freshwater sediment toxicity guidelines (Table 5). All other element concentrations were below the TEC and PEC freshwater sediment toxicity guidelines.

Table 5.–Greens Creek Site 63 mean sediment element concentrations, 2024.

Element	Al	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
Concentration (mg/kg)	6,987	8.4	0.87	12.27	32.07	7.86	0.049	22.5	1.5	0.331	146

GREENS CREEK SITE 54

On July 9, 2024, we sampled Greens Creek Site 54. We measured stream discharge of 41.7 ft^3/s at 0900 hours and Hecla environmental staff measured basic water quality at 0830 hours (Table 6).

Table 6.–Greens Creek Site 54 water quality data, 2023.

Sample Date	Temperature (°C)	Conductivity (µS/cm)	pH	Discharge (ft^3/s)
07/9/2024	8.0	105.4	6.78	41.7

Periphyton: Chlorophyll Density and Composition

The 2024 Greens Creek Site 54 estimate mean density of Chl-*a* was 5.94 mg/m^2, within the middle range of mean densities 2001–2023 (Figure 22). The samples contained about 89% Chl-*a*, 11% Chl-*c*, and 0% Chl-*b*, consistent with composition observed in previous years (Figure 23).

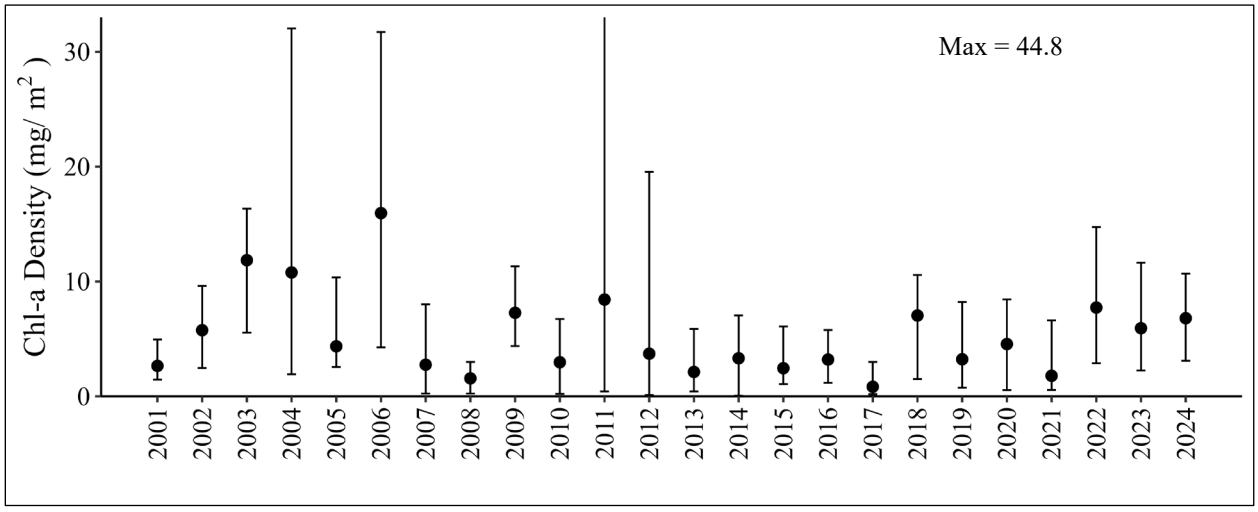


Figure 22.–Greens Creek Site 54 mean, minimum, and maximum chlorophyll-a densities, 2001–2024.

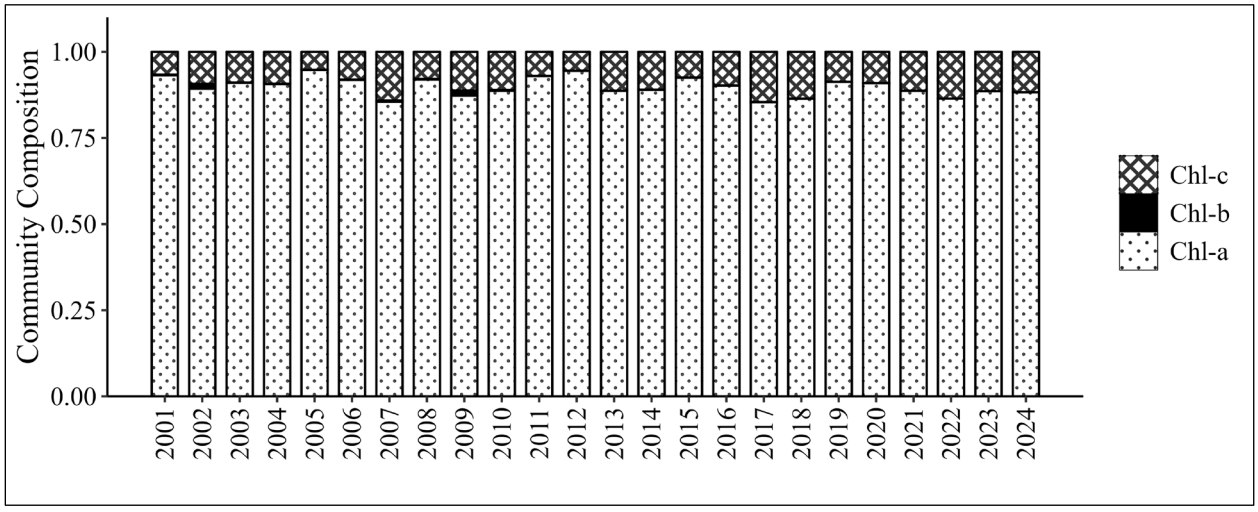


Figure 23.– Greens Creek Site 54 mean proportions of chlorophylls a, b, and c (2001–2024).

Benthic Macroinvertebrate Density and Community Composition

The 2024 Greens Creek Site 54 BMI estimate mean density is 3,567 BMI/m^2 and we identified 24 taxa, within the middle range of BMI density and number of taxa observed 2001–2023 (Table 7; Figure 24, 25). We estimate mean EPT density at 3,259 EPT/m^2, within the middle range observed, accounting for 91% of the samples. Dominant taxa were Ephemeroptera of the genera *Epeorus* (23%) and *Baetis* (21%).

Table 7.– Greens Creek Site 54 benthic macroinvertebrate data summary, 2001–2024.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Mean EPT density (per m^2)	3986	3284	4895	4040	3100	1188	716	2741	2191	3042	3871	1503	849
Mean BMI density (per m^2)	4144	3409	5430	4575	3260	1221	742	2970	2277	3202	4449	1753	1014
Number of EPT Taxa	16	15	15	19	18	10	10	14	16	13	20	21	12
Number of BMI Taxa	28	30	26	32	25	13	15	22	23	21	34	30	19
% EPT	96	96	90	88	95	97	97	92	96	95	87	86	84

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Mean EPT density (per m^2)	3268	1547	3334	1469	3437	3596	3022	888	1308	5506	3259
Mean BMI density (per m^2)	3737	1887	3658	1651	3647	4032	3634	1068	1427	6102	3567
Number of EPT Taxa	17	15	17	20	18	19	19	12	15	19	15
Number of BMI Taxa	26	28	30	31	29	29	31	24	22	32	24
% EPT	87	82	91	89	94	89	83	83	92	90	91

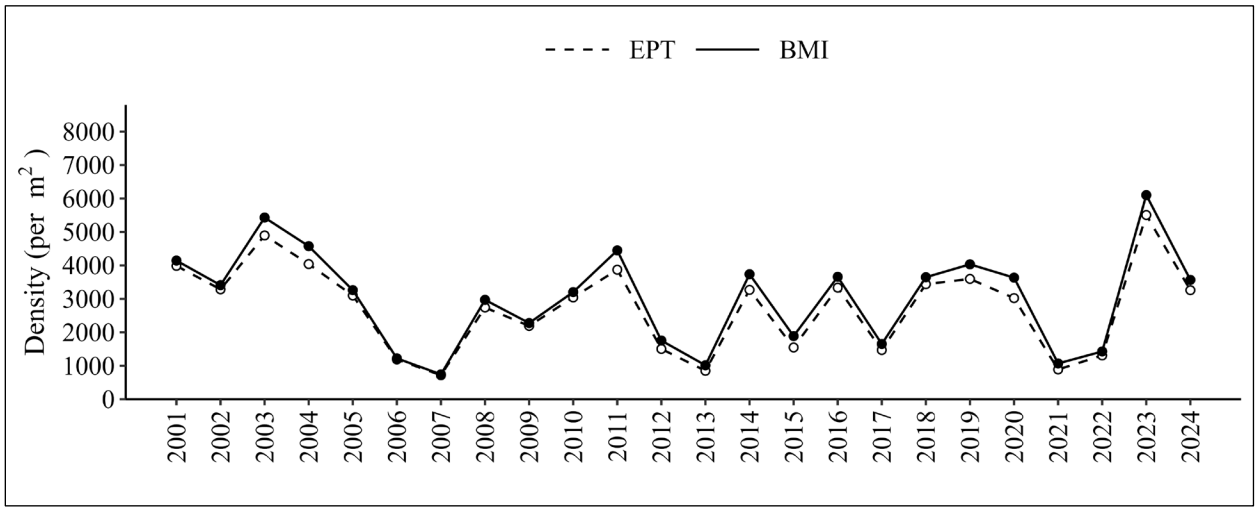


Figure 24.–Greens Creek Site 54 mean EPT and BMI densities, 2001–2024.

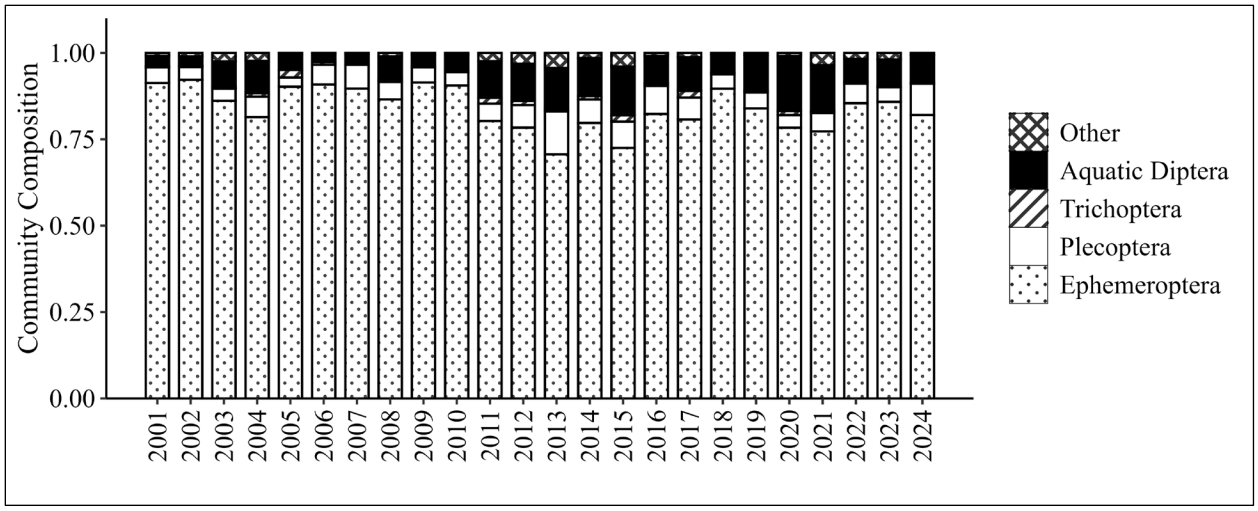


Figure 25.–Greens Creek Site 54 BMI community composition, 2001–2024.

Juvenile Fish Abundance and Condition

In 2024 at Greens Creek Site 54, we captured 174 Dolly Varden (54–146 mm FL), within the upper range of captures in 2001–2023, and 23 juvenile coho salmon (61–83 mm FL; Figure 26). Mean fish condition factor for Dolly Varden and coho salmon was 1.1, similar to previous fish captured at Site 54. The range of length frequencies observed suggests at least two age classes were present for Dolly Varden and one for coho salmon, consistent with previous years.

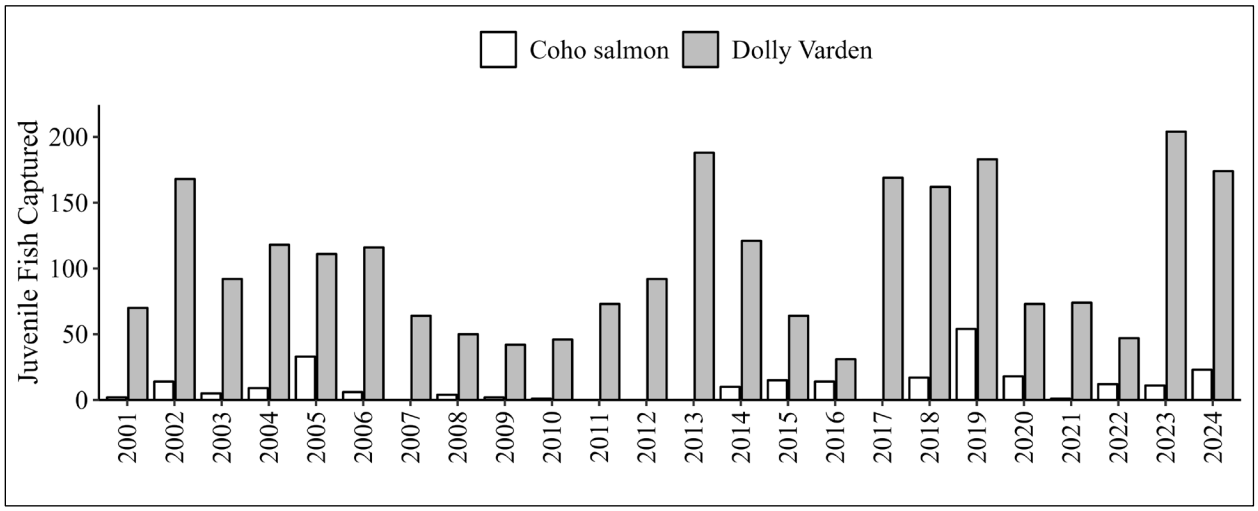


Figure 26.–Greens Creek Site 54 juvenile fish captured, 2001–2024.

Note: 2001–2010 data were from a 28 m reach, while 2011–2024 data from a 50 m reach. Other species captured are not illustrated.

Juvenile Fish Element Concentrations

In 2024 at Greens Creek Site 54, we retained 10 Dolly Varden (91–128 mm FL) for whole body element analysis. The median element concentrations were within ranges previously observed 2001–2023 (Figures 27, 28).

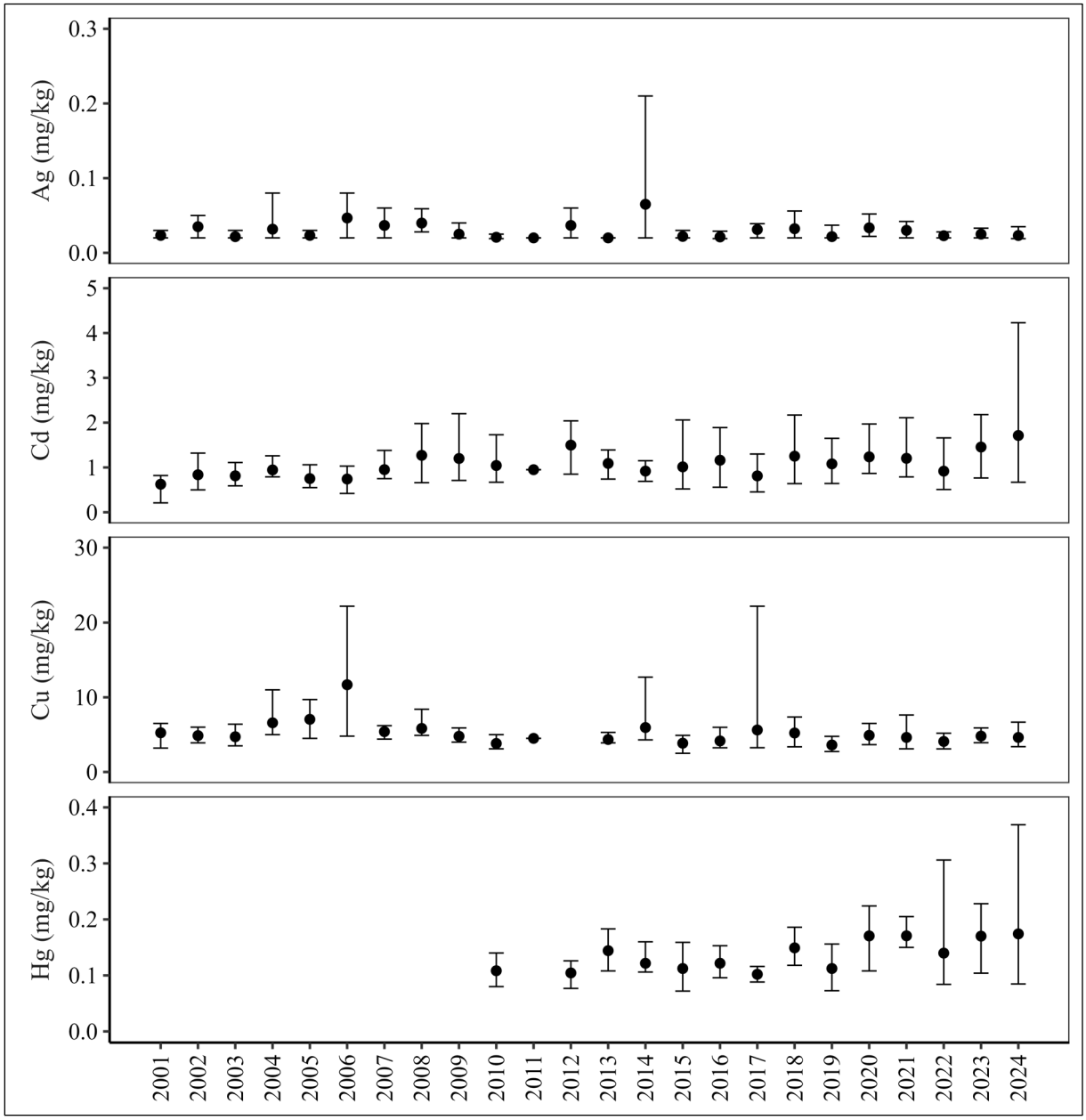


Figure 27.–Greens Creek Site 54 whole body Dolly Varden Ag, Cd, and Cu concentrations, 2001–2024, and Hg concentrations, 2010, 2012–2024.

Note: Minimum, mean, and maximum concentrations presented.

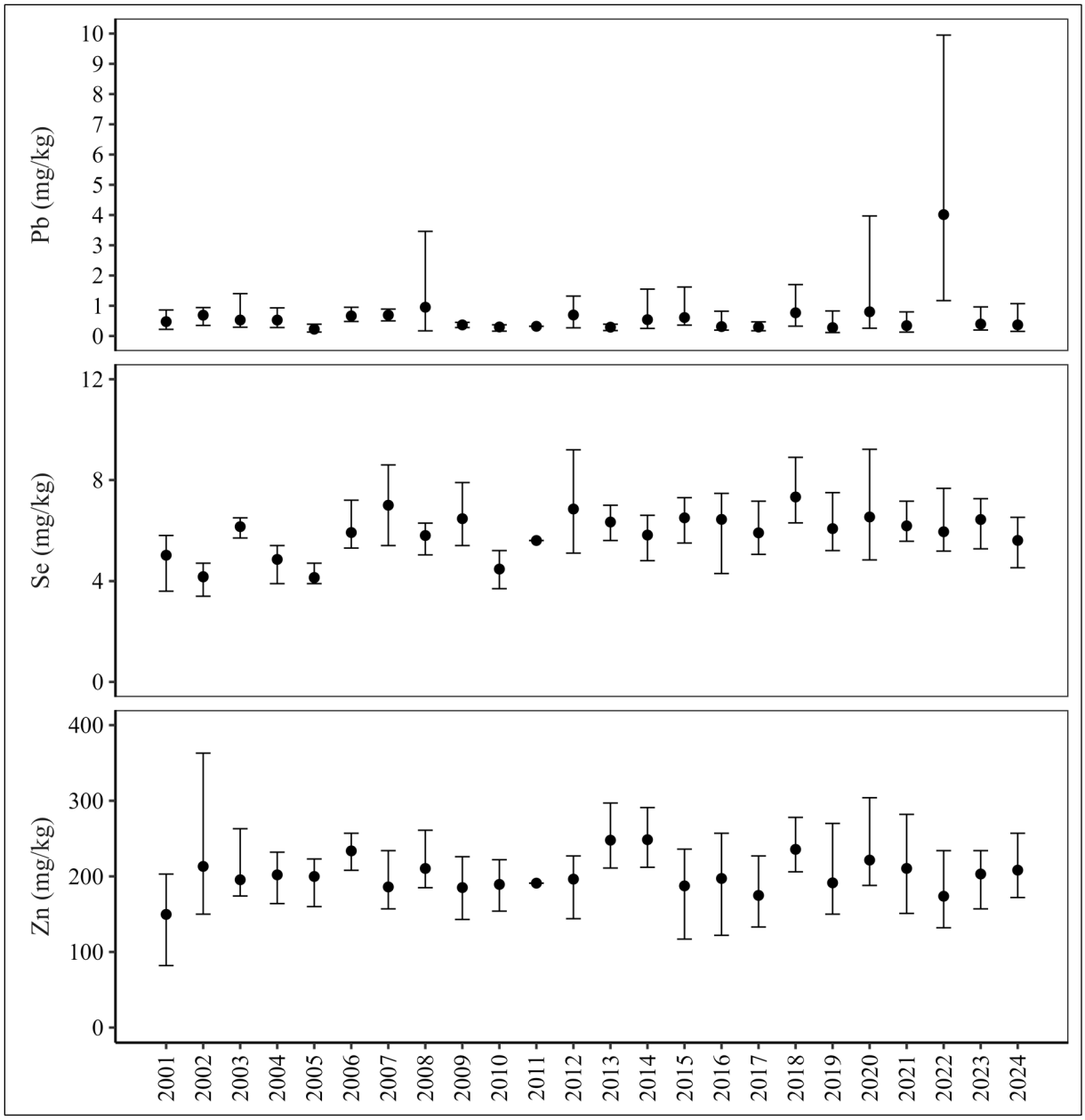


Figure 28.–Greens Creek Site 54 whole body Dolly Varden Pb, Se, and Zn concentrations, 2001–2024.

Note: Minimum, mean, and maximum concentrations presented.

TRIBUTARY CREEK SITE 9

On July 10, 2024, we sampled Tributary Creek Site 9. Hecla environmental staff measured basic water quality at 0930 hours and we did not collect discharge due to equipment malfunction (Table 8).

Table 8.–Tributary Creek Sites 9 water quality data, 2024.

Sample Date	Temperature (°C)	Conductivity (µS/cm)	pH
07/10/2024	13.2	73.2	7.08

Periphyton: Chlorophyll Density and Composition

The 2024 Tributary Creek Site 9 estimate mean density of Chl-*a* was 9.16 mg/m^2, within the middle range of mean densities 2001–2023 (Figure 29). The samples contained about 93% Chl-*a*, 7% Chl-*c*, and 0% Chl-*b*, consistent with composition observed in previous years (Figure 30).

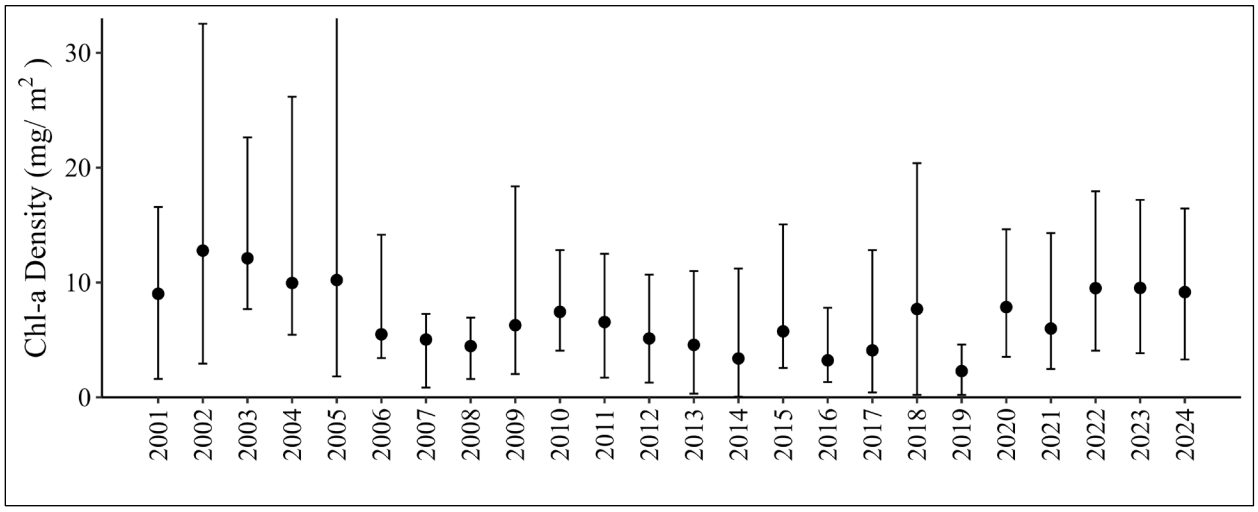


Figure 29.–Tributary Creek Site 9 mean, minimum, and maximum chlorophyll-a densities, 2001–2024.

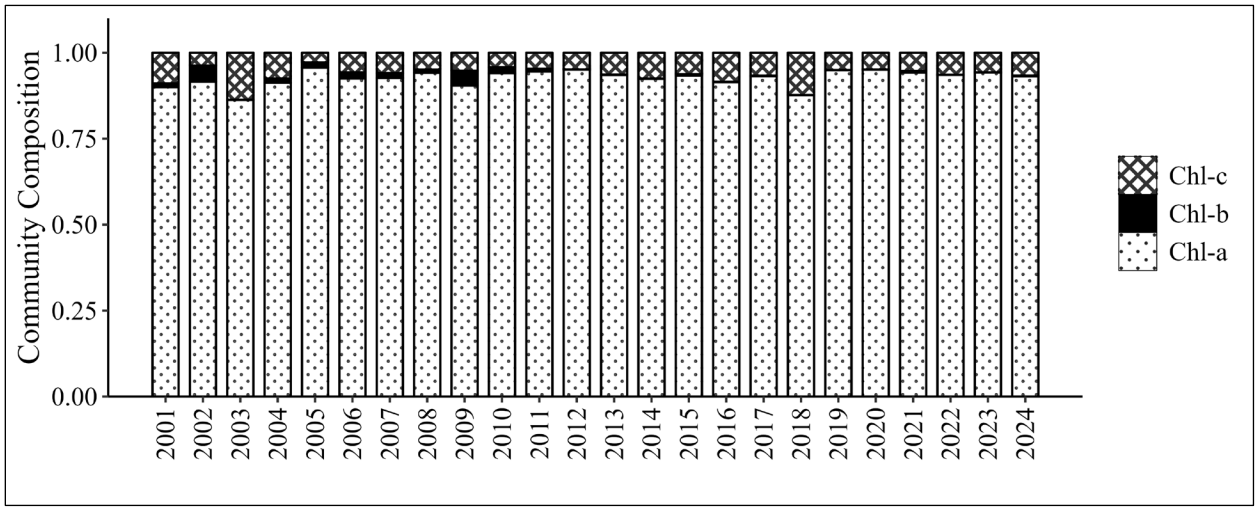


Figure 30.–Tributary Creek Site 9 mean proportions of chlorophylls a, b, and c (2001–2024).

Benthic Macroinvertebrate Density and Community Composition

The 2024 Tributary Creek Site 9 BMI estimate mean density is 2,407 BMI/m^2 and we identified 31 taxa, within the range of BMI densities and taxa observed 2001–2023 (Table 9; Figures 31, 32). We estimate mean EPT density at 1,500 EPT/m^2, within the range observed, accounting for 62% of the samples. Dominant taxa were Ephemeroptera of the genus *Cinygmula* (19%) and Diptera of the genus *Prosimulium* (16%).

Table 9.–Tributary Creek Site 9 benthic macroinvertebrate data summary, 2001–2024.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Mean EPT density (per m^2)	634	1179	3675	1705	1007	1119	337	1144	698	246	996	753	1991
Mean BMI density (per m^2)	1184	1740	5851	2400	1228	1453	507	1751	1114	460	1991	1416	2393
Number of EPT Taxa	11	14	16	14	18	10	10	12	13	12	14	14	12
Number of BMI Taxa	21	24	36	26	30	23	21	20	26	22	26	27	20
% EPT	54	68	63	71	82	77	67	65	63	54	50	53	83

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Mean EPT density (per m^2)	1700	432	2193	1208	400	657	794	919	1108	3251	1500
Mean BMI density (per m^2)	2479	749	5602	2625	1243	1317	2241	2304	2330	5625	2407
Number of EPT Taxa	12	12	16	15	13	14	15	14	14	19	17
Number of BMI Taxa	22	23	29	29	25	28	32	28	26	36	31
% EPT	69	58	39	46	32	50	35	40	48	58	62

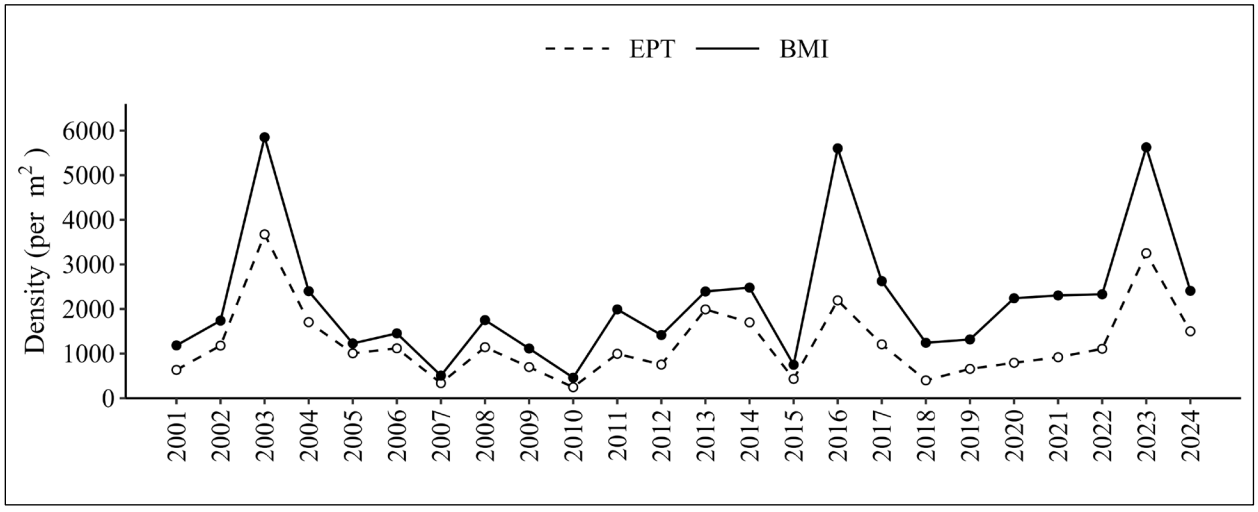


Figure 31.–Tributary Creek Site 9 mean EPT and BMI densities, 2001–2024.

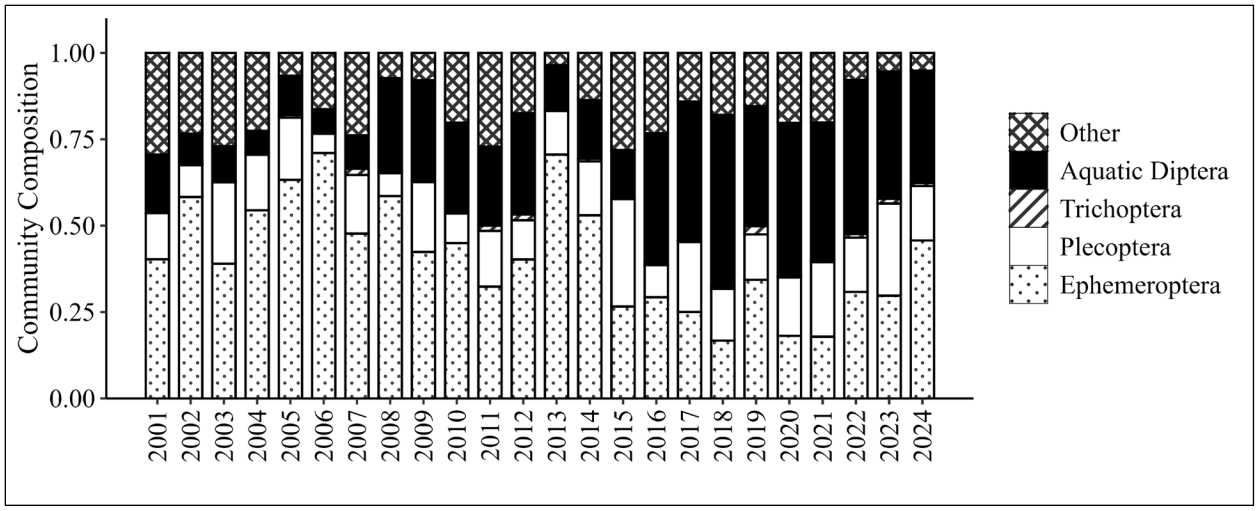


Figure 32.–Tributary Creek Site 9 mean BMI community composition, 2001–2024.

Juvenile Fish Abundance and Condition

In 2024 at Tributary Creek Site 9, we captured 13 Dolly Varden (80–102 mm FL) and 38 juvenile coho salmon (45–91 mm FL), similar to fish captures during a single trapping event 2001–2023 (Figure 33). The mean fish condition factor for Dolly Varden was 0.98 and the mean fish condition factor for juvenile coho salmon was 0.93, slightly lower than previous fish captured at Site 9, especially coho salmon, which have historically ranged 1.1–1.4. The range of length frequencies observed suggests at least two age classes were present for Dolly Varden and coho salmon, consistent with previous years.

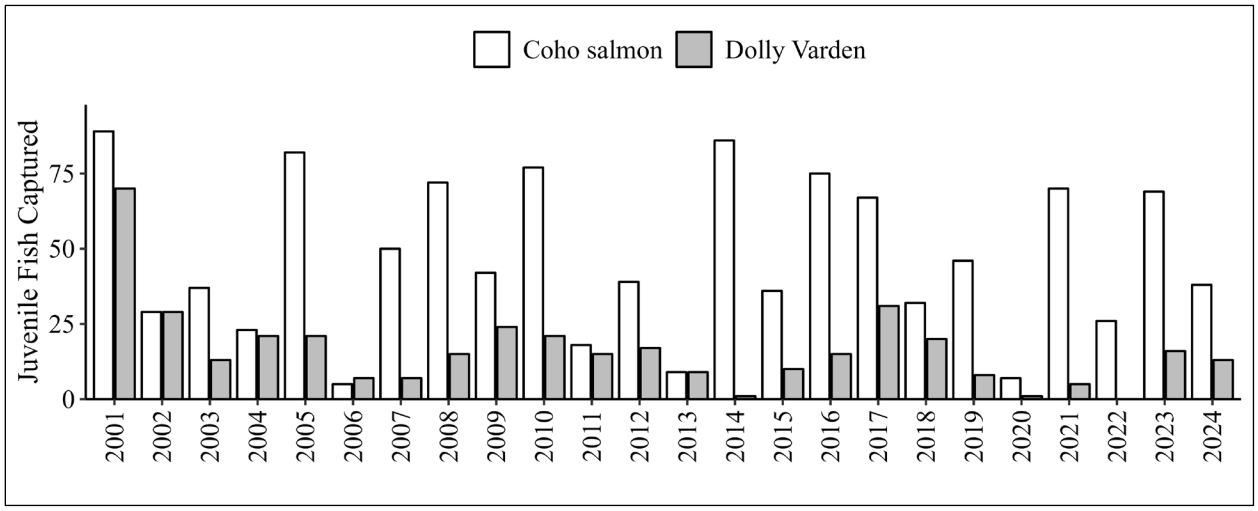


Figure 33.–Tributary Creek Site 9 juvenile fish captured, 2001–2024.

Juvenile Fish Element Concentrations

In 2024 at Tributary Creek Site 9, we retained 10 Dolly Varden (80–102 mm) for whole body element analysis. The median element concentrations were within ranges previously observed 2001–2023 and the Ag, Cd, Pb, and Se concentration means and ranges have decreased since 2020 (Figures 34, 35).

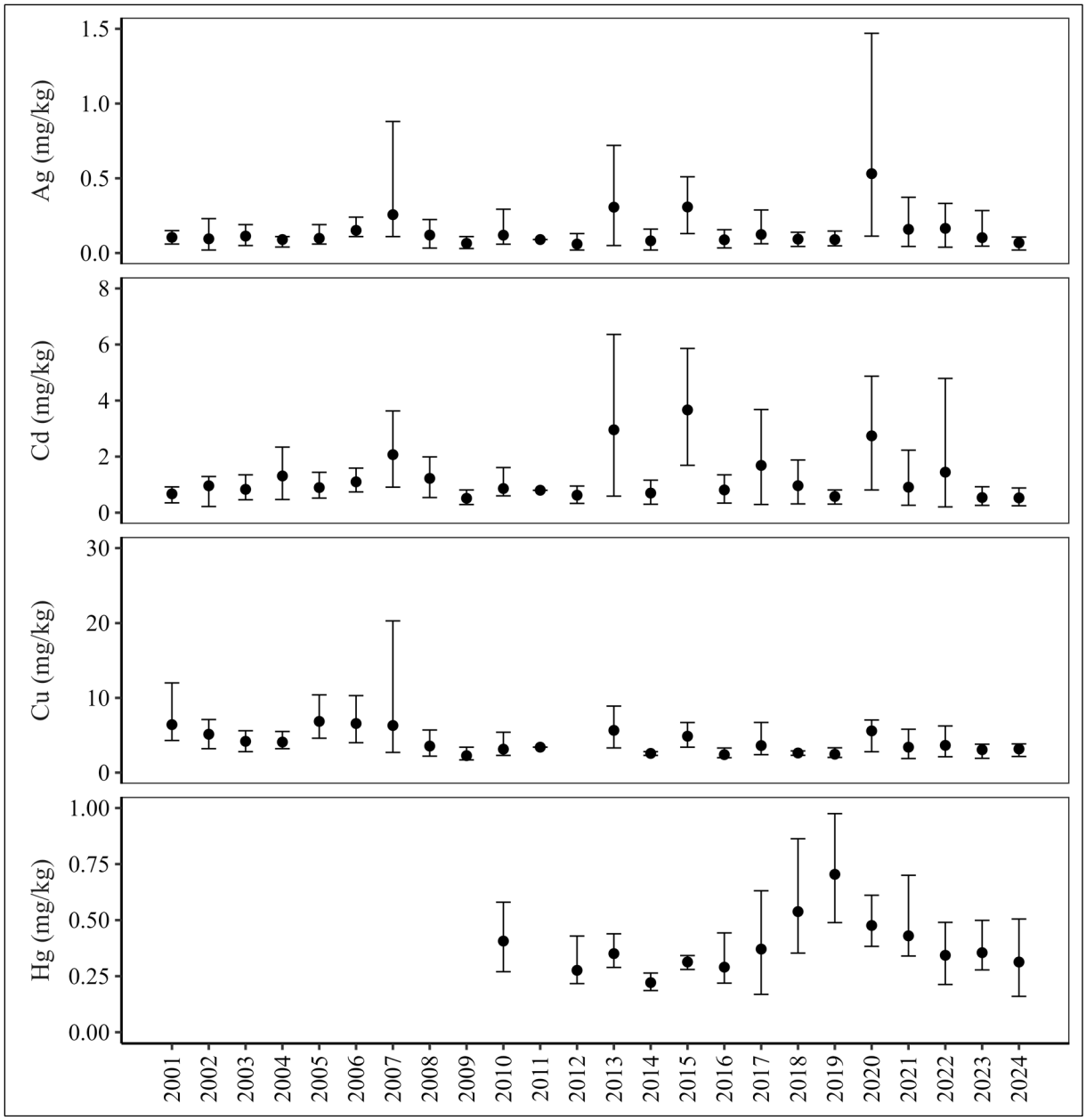


Figure 34.–Tributary Creek Site 9 whole body Dolly Varden Ag, Cd, and Cu concentrations, 2001–2024, and Hg concentrations, 2010, 2012–2024.

Note: Minimum, mean, and maximum concentrations presented.

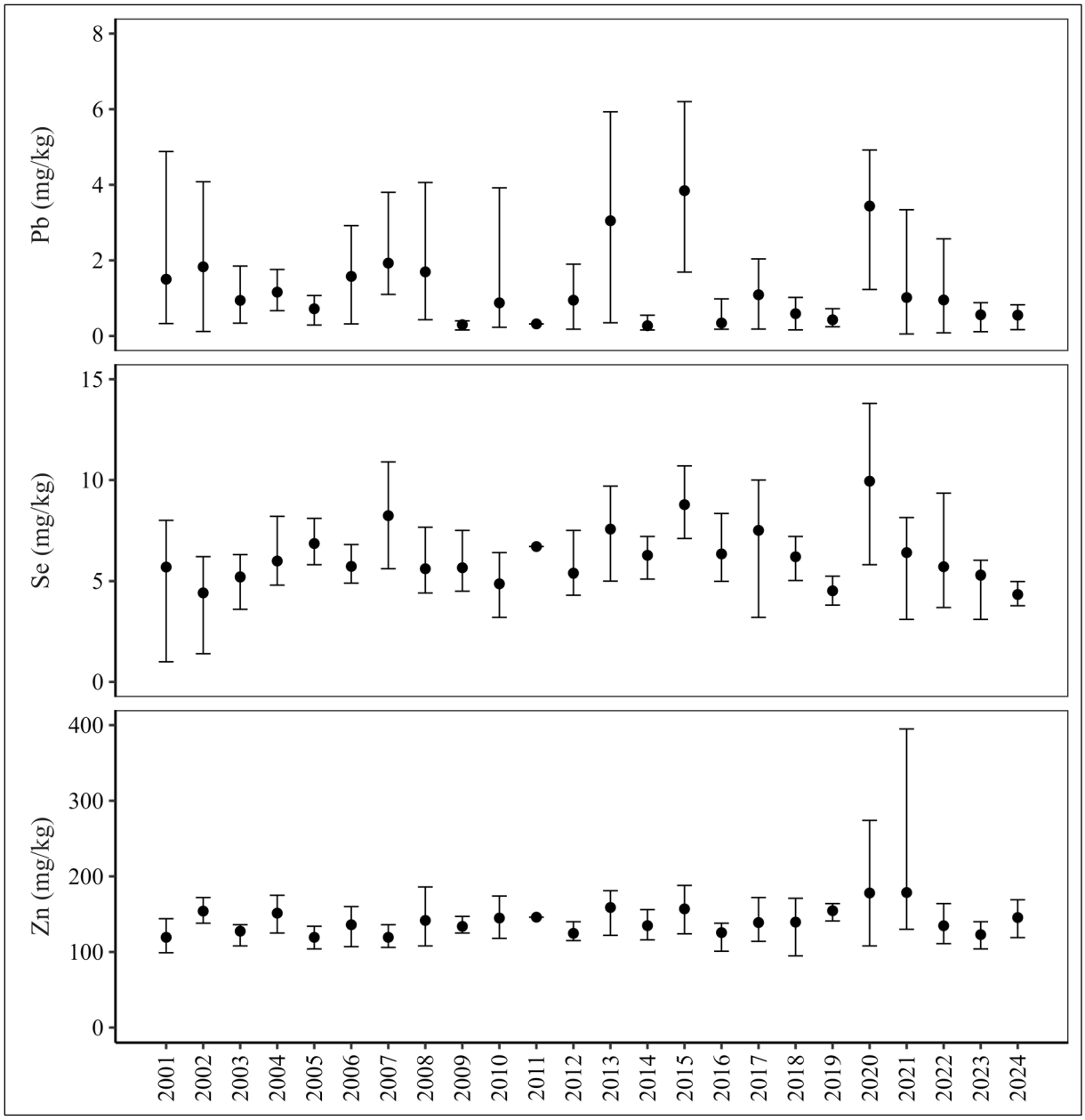


Figure 35.–Tributary Creek Site 9 whole body Dolly Varden Pb, Se, and Zn concentrations, 2001–2024.

Note: Minimum, mean, and maximum concentrations presented.

Sediment Element Concentrations

The 2024 Tributary Creek Site 9 sediment samples contained As, Cr, and Ni concentrations near or above the TEC freshwater sediment toxicity guidelines (Table 10). All other element concentrations were below the TEC and PEC freshwater sediment toxicity guidelines.

Table 10.–Tributary Creek Site 9 mean sediment element concentrations, 2024.

Element	Al	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
Concentration (mg/kg)	14,033	10.4	0.49	53.50	22.47	9.02	0.035	42.9	1.2	0.071	94

TRIBUTARY CREEK SITE 1847

On July 10, 2024, we sampled Tributary Creek Site 1847. Hecla environmental staff measured basic water quality at 1035 hours and we did not collect discharge due to equipment malfunction (Table 11).

Table 11.–Tributary Creek Site 1847 water quality data, 2024.

Sample Date	Temperature (°C)	Conductivity (µS/cm)	pH
07/10/2024	12.7	76.9	7.32

Periphyton: Chlorophyll Density and Composition

The 2024 Tributary Creek Site 1847 estimate mean density of Chl-*a* was 9.51 mg/m^2, within the middle range of mean densities observed 2018–2023 (Figure 34). The samples contained about 93% Chl-*a*, 7% Chl-*c*, and 0% Chl-*b*, consistent with composition observed in previous years (Figure 36, 37).

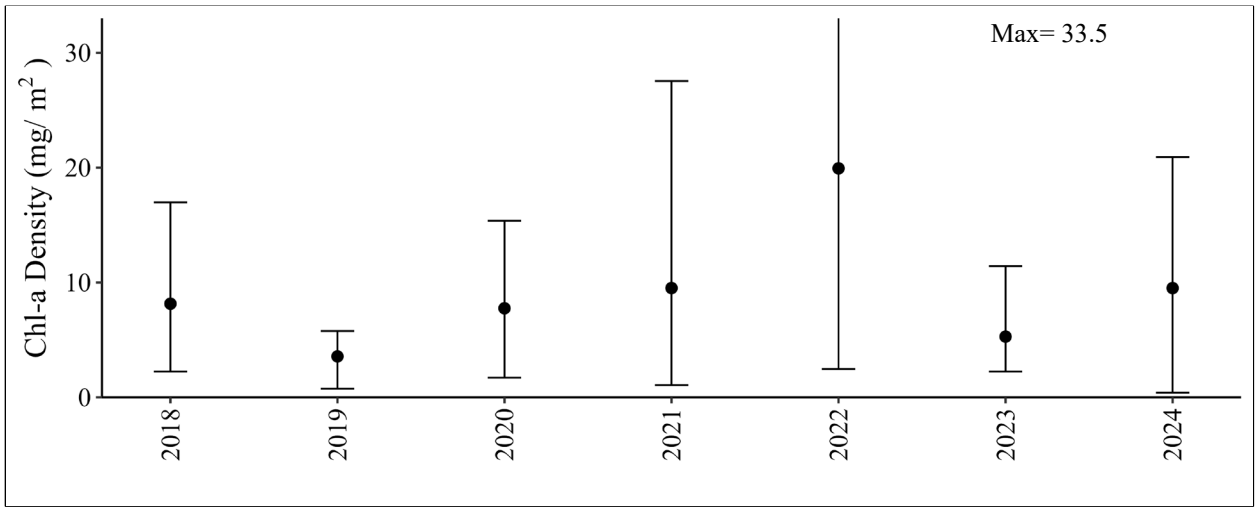


Figure 36.–Tributary Creek Site 1847 mean, minimum, and maximum chlorophyll-a densities, 2018–2024.

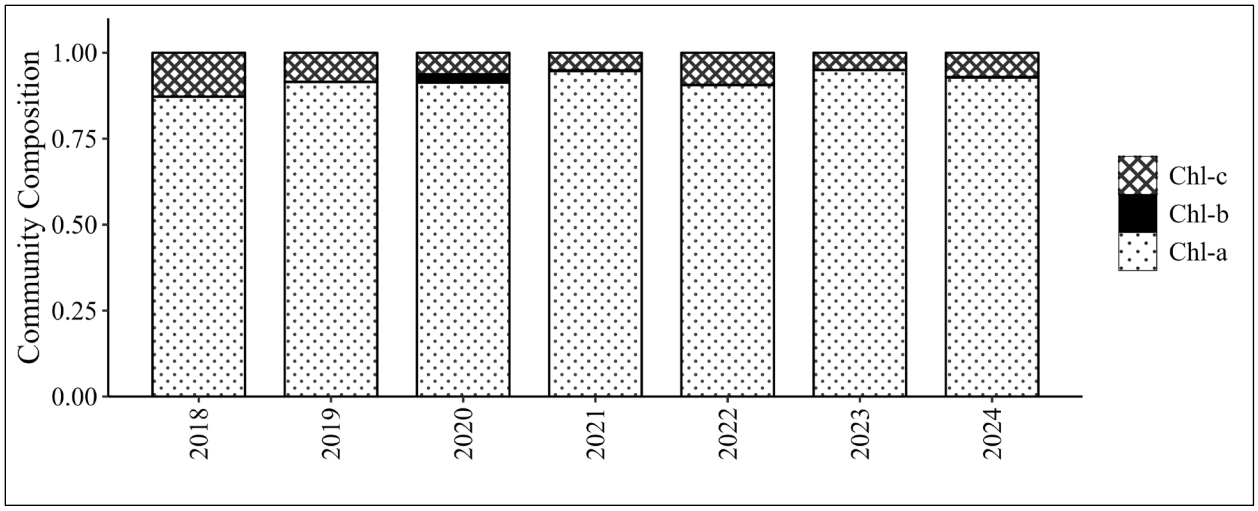


Figure 37.–Tributary Creek Site 1847 mean proportions of chlorophylls a, b, and c (2018–2024).

Benthic Macroinvertebrate Density and Community Composition

The 2024 Tributary Creek Site 1847 BMI estimate mean density is 3,086 BMI/m^2 and we identified 29 taxa, within the middle range of BMI densities and taxa observed 2018–2023 (Table 12; Figures 38, 39). We estimate mean EPT density at 2,253 EPT/m^2, within the middle range observed, accounting for 73% of the samples. Dominant taxa were Ephemeroptera of the genus C*inygmula* (47%) and Diptera of the genus *Prosimulium* (17%).

Table 12.–Tributary Creek Site 1847 benthic macroinvertebrate data summary, 2018–2024.

	2018	2019	2020	2021	2022	2023	2024
Mean EPT density (per m^2)	1,161	2,449	1,064	1,932	2,397	2,144	2,253
Mean BMI density (per m^2)	2,192	3,555	2,517	2,860	3,653	3,962	3,086
Number of EPT Taxa	15	13	15	13	19	19	16
Number of BMI Taxa	29	28	29	25	33	33	29
% EPT	53	69	42	68	54	54	73

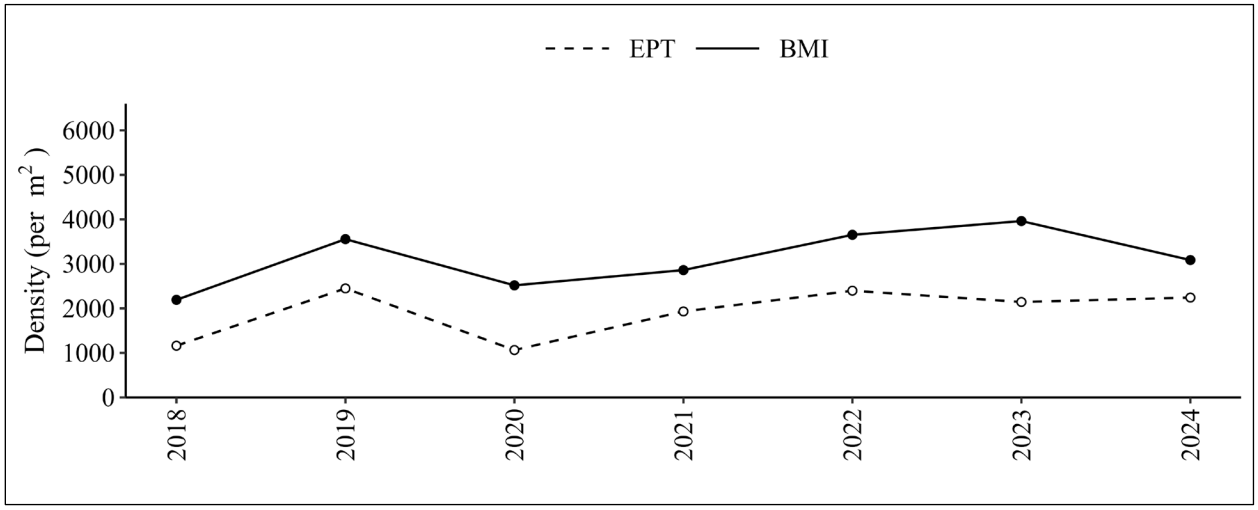


Figure 38.–Tributary Creek Site 1847 mean EPT and BMI densities 2018–2024.

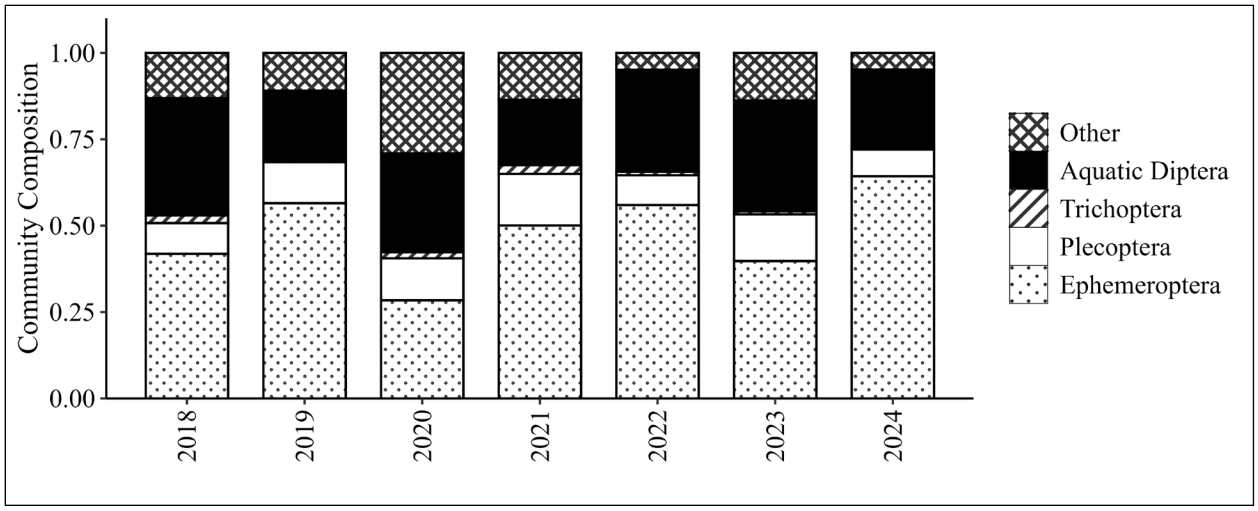


Figure 39.–Tributary Creek Site 1847 mean BMI community composition, 2018–2024.

Sediment Element Concentrations

The 2024 Tributary Creek Site 1847 sediment samples contained As, Cr, and Ni concentrations near or above the TEC freshwater sediment toxicity guidelines (Table 13). All other element concentrations were below the TEC and PEC freshwater sediment toxicity guidelines.

Table 13.–Tributary Creek Site 1847 mean sediment element concentrations, 2024.

Element	Al	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
Concentration (mg/kg)	9,723	13.3	0.35	39.40	11.35	8.01	0.024	26.9	1.1	0.043	71

TRIBUTARY CREEK SITE 808

On July 10, 2024, we sampled Tributary Creek Site 808. Hecla environmental staff measured basic water quality at 1035 hours and we did not measure discharge due to equipment malfunction (Table 14).

Table 14.–Tributary Creek Site 808 water quality data, 2024.

Sample Date	Temperature (°C)	Conductivity (µS/cm)	pH
07/10/2024	13.6	108.5	6.69

Sediment element concentrations

The 2024 Tributary Creek Site 808 sediment samples contained As, Cr, Ni, and Zn concentrations near or above the TEC freshwater sediment toxicity guidelines (Table 15). All other element concentrations were below the TEC and PEC freshwater sediment toxicity guidelines. Concentrations of Pb were elevated compared to Site 9 and 1847.

Table 15.– Tributary Creek Site 808 mean sediment element concentrations, 2024.

Element	Al	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
Concentration (mg/kg)	12,667	27.2	0.57	48.97	20.47	31.87	0.061	36.3	1.9	0.270	128

ZINC CREEK SITE 371

On July 8, 2024, we sampled Zinc Creek Site 371. Hecla environmental staff measured basic water quality at 0930 hours (Table 16).

Table 16.–Zinc Creek Site 371 water quality data, 2024.

Sample Date	Temperature (°C)	Conductivity (µS/cm)	pH	Discharge (ft^3/s)
07/8/2024	10.4	110.0	7.71	1.63

Periphyton: Chlorophyll Density and Composition

The 2024 Zinc Creek Site 371 mean Chl-*a* density was 7.17 mg/m^2 and samples contained about 90% Chl-*a*, 10% Chl-*c*, and 0% Chl-*b*.

Benthic Macroinvertebrate Density and Community Composition

The 2024 Zinc Creek Site 371 BMI mean density estimate is 1,625 BMI/m^2 and we identified 23 taxa. We estimate mean EPT density at 1,432 EPT/m^2 accounting for 88% of the samples. Dominant taxa were Ephemeroptera (mayflies) of the genera *Cinygmula* (26%) and *Baetis* (23%).

Juvenile Fish Abundance and Condition

In 2024 at Zinc Creek Site 371, we initiated juvenile fish trapping and captured 39 Dolly Varden (60–123 mm FL). Mean fish condition factor for Dolly Varden was 1.0. The range of length frequencies observed suggests at least two age classes present.

Juvenile Fish Element Concentrations

In 2024 at Zinc Creek Site 371, we retained 10 Dolly Varden (100–123 mm FL) for whole body element analysis (Table 17).

Table 17.–Zinc Creek Site 371 juvenile fish element concentrations, 2024.

Element	Ag	Cd	Cu	Hg	Pb	Se	Zn
Concentration (Mg/kl)	0.027	0.42	3.56	0.218	0.109	2.91	209

Sediment Element Concentrations

The 2024 Zinc Creek Site 371 sediment samples contained As, Cr, and Ni above the PEC freshwater sediment toxicity guidelines and Cd, Cu, and Zn concentrations were near or above the TEC (Table 18). Concentrations of elements were below the TEC and PEC freshwater sediment toxicity guidelines.

Table 18.–Zinc Creek Site 371 mean sediment element concentrations, 2024.

Element	Al	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
Concentration (mg/kg)	11,933	42.1	2.13	201.00	52.13	11.45	0.048	154.7	1.4	0.301	320

ZINC CREEK SITE 10

On July 8, 2024, we sampled Zinc Creek Site 10. We measured a stream discharge of 1.63 ft^3/s and Hecla environmental staff measured basic water quality at 1050 hours (Table 19).

Table 19.–Zinc Creek Creek Site 10 water quality data, 2024.

Sample Date	Temperature (°C)	Conductivity (µS/cm)	pH
07/10/2024	13.2	121.4	7.42

Periphyton: Chlorophyll Density and Composition

The 2024 Zinc Creek Site 10 mean Chl-*a* density was 7.65 mg/m^2 and samples contained about 90% Chl-*a*, 10% Chl-*c*, and 0% Chl-*b*.

Benthic Macroinvertebrate Density and Community Composition

The 2024 Zinc Creek Site 10 BMI mean density estimate is 2,637 BMI/m^2 (nearly twice the density than at Site 371) and we identified 24 taxa. We estimate mean EPT density at 2,373 EPT/m^2 accounting for 90% of the samples, similar to the Site 371 sample results. Dominant taxa were Ephemeroptera (mayflies) of the genera *Cinygmula* (42%) and *Ameletus* (16%).

Juvenile Fish Abundance and Condition

In 2024 at Zinc Creek Site 10, we initiated juvenile fish trapping and captured 43 Dolly Varden (67–111 mm FL) and 54 juvenile coho salmon (39–92) mm FL. Mean fish condition factor for Dolly Varden was 1.0 and 1.5 for juvenile coho salmon. The range of length frequencies observed suggests at least two age classes for Dolly Varden, like Zinc Creek Site 371.

Juvenile Fish Element Concentrations

In 2024 at Zinc Creek Site 10, we retained 10 Dolly Varden (94–111 mm FL) for whole body element analysis (Table 20). Values were like those upstream at Site 371.

Table 20.–Zinc Creek Site 10 juvenile fish element concentrations, 2024.

Element	Ag	Cd	Cu	Hg	Pb	Se	Zn
Concentration (Mg/kl)	0.038	0.72	3.34	0.2033	0.265	4.12	151

Sediment Element Concentrations

The 2024 Zinc Creek Site 10 sediment samples contained Ni above the PEC freshwater sediment toxicity guidelines and As, Cr, Cd, Cu, and Zn concentrations were near or above the TEC (Table 21; As and Cr were elevated above PEC guidelines upstream at Site 371). Concentrations of all other elements were below the TEC and PEC freshwater sediment toxicity guidelines.

Table 21.–Zinc Creek Site 10 mean sediment element concentrations, 2024.

Element	Al	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
Concentration (mg/kg)	11,800	26.8	1.27	98.97	25.50	11.18	0.030	104.2	1.2	0.084	243

GREENS CREEK DELTA

On July 8, 2024, we sampled the Greens Creek Delta site.

Sediment Element Concentrations

The 2024 Greens Creek Delta sediment samples contained Ni above the PEC freshwater sediment toxicity guidelines and As. Cd, Cr, Cu, and Zn concentrations were near or above the TEC (Table 23). Concentrations of other elements were below the TEC and PEC freshwater sediment toxicity guidelines.

Table 22.–Greens Creek Delta Site mean sediment element concentrations, 2024.

Element	Al	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
Concentration (mg/kg)	10,347	27.8	1.60	92.10	24.30	11.77	0.023	95.8	1.1	0.072	256

CANNERY CREEK SITE 37

On July 10, 2024, we sampled Cannery Creek Site 37. Hecla environmental staff measured basic water quality on July 15 at 10:35 hours (Table 24).

Table 23.–Cannery Creek Site 37 water quality data, 2024.

Sample Date	Temperature (°C)	Conductivity (µS/cm)	pH
07/10/2024	11.3	38.4	7.13

Sediment Element Concentrations

The 2024 Cannery Creek Site 37 sediment samples contained As above the PEC freshwater sediment toxicity guidelines and Ni and Zn concentrations were near or above the TEC (Table 25). All other element concentrations were below the TEC and PEC freshwater sediment toxicity guidelines.

Table 24.–Cannery Creek Site 37 mean sediment element concentrations, 2024.

Element	Al	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
Concentration (mg/kg)	10,317	49.5	0.58	16.35	20.57	13.00	0.024	20.3	1.2	0.056	114

FOWLER CREEK SITE

On July 10, 2024, we sampled the Fowler Creek Site. Hecla environmental staff measured basic water quality at 1425 hours (Table 26).

Table 25.–Fowler Creek site water quality data, 2024.

Sample Date	Temperature (°C)	Conductivity (µS/cm)	pH
07/10/2024	7.51	59.3	7.47

Sediment Element Concentrations

The 2024 Fowler Creek Site sediment samples contained As and Ni concentrations near or above the TEC (Table 27). Concentrations of other elements were below the TEC and PEC freshwater sediment toxicity guidelines.

Table 26.–Fowler Creek Site mean sediment element concentrations, 2024.

Element	Al	As	Cd	Cr	Cu	Pb	Hg	Ni	Se	Ag	Zn
Concentration (mg/kg)	11,733	18.1	0.13	25.07	14.27	7.27	0.025	20.9	1.2	0.029	64

COMPARISONS AMONG SITES

Periphyton: Chlorophyll Density and Composition

For all sites sampled in 2024, mean Chl-a density was in the middle range observed since 2001, possibly a result of near average rainfall and minimal peak streamflow events prior to sampling. In 2024, mean Chl-*a* density at Greens Creek Site 63 (8.50 mg/m^2) was higher than Site 54 (5.94 mg/m^2). The Tributary Creek Site 9 mean Chl-*a* density (9.16 mg/m^2) was similar to Site 1847 (9.51 mg/m^2). Mean Chl-*a* density at Zinc Creek Site 371 (7.17 mg/m$^{2)}$ was similar to Site 10 (7.65 mg/m^2). Periphyton samples collected at all sites generally contained about 90% Chl-*a*, nearly 0% Chl-*b*, and about 10% Chl-*c* each year.

Greens Creek mean Chl-*a* densities at Sites 48/63 and 54 followed a similar trend since 2001, except higher Chl-*a* concentrations observed at Site 54 2020–2022 (Figure 40). Despite the environmental, geomorphic, hydrologic and overall stream characteristic differences between Tributary and Greens Creeks watersheds, the Tributary Creek Site 9 mean Chl-*a* densities generally followed the same trend as the Greens Creek data between 2001 and 2024. Tributary Creek samples had less variability than Greens Creek.

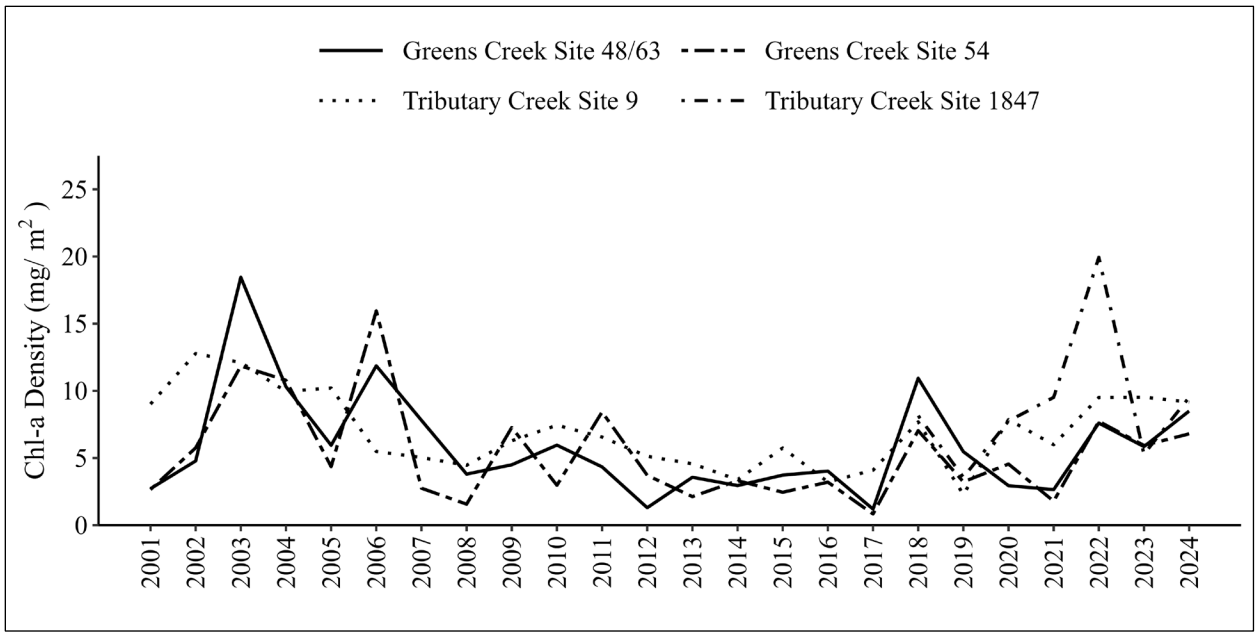


Figure 40.–Greens Creek and Tributary Creek mean chlorophyll-a densities, 2001–2024.
Note: Site 48 data collected 2001–2017, and Site 63 data collected 2018–2024.

Benthic Macroinvertebrate Density and Community Composition

For all sites sampled in 2024, EPT density was in the middle range observed 2001–2024, possibly a result of near average rainfall and minimal peak streamflow events prior to sampling. In 2024, EPT density at Greens Creek Site 63 (3,087 EPT/m^2) was similar to Site 54 (3,259

EPT/m^2). Tributary Creek Site 9 EPT density (1,500 EPT/m^2) was less than Site 1847 (2,253 EPT/m^2). Zinc Creek Site 371 EPT density (1,432 EPT/m^2) was less than Site 10 (2,373 EPT/m^2). The percentage of EPT per sample is similar for Greens and Zinc Creeks near 90% while Tributary Creek was about 65%. At Greens Creek sites, EPT insects usually composed about 90% of samples, whereas in Tributary Creek EPT insects usually composed less than 65%.

Greens Creek EPT densities at Sites 48/63 and 54 followed a similar trend since 2001, while following the same trend Site 54 typically has higher highs and lower lows of EPT densities (Figure 41, 42). We continue to observe high BMI taxa at both Greens Creek sites. Tributary Creek EPT densities at Sites 9 and 1847 followed a similar trend since 2018, with a similar high number of BMI taxa observed. Despite the difference in stream conditions among Tributary and Greens Creeks, we generally observed mean EPT densities following a similar trend 2001–2024. Tributary Creek Site 9 has less variability and generally lower EPT densities than Greens Creek Sites.

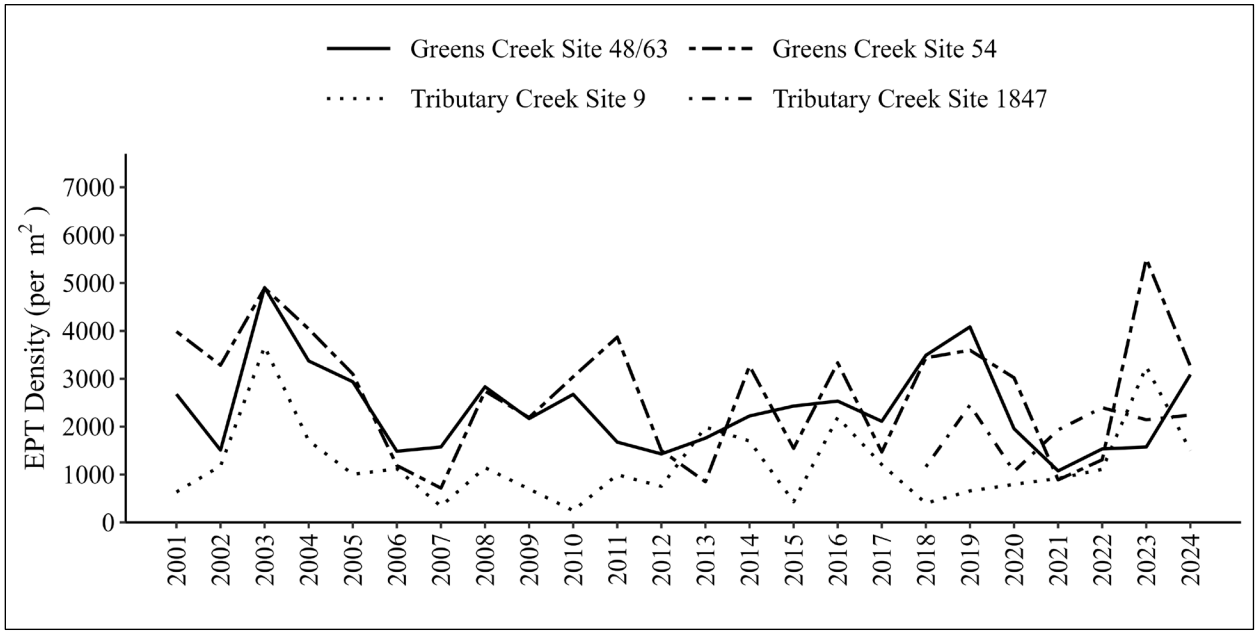


Figure 41.–Greens Creek and Tributary Creek mean EPT densities, 2001–2024.
Note: Site 48 data collected 2001–2017; Site 63 data collected 2018–2024.

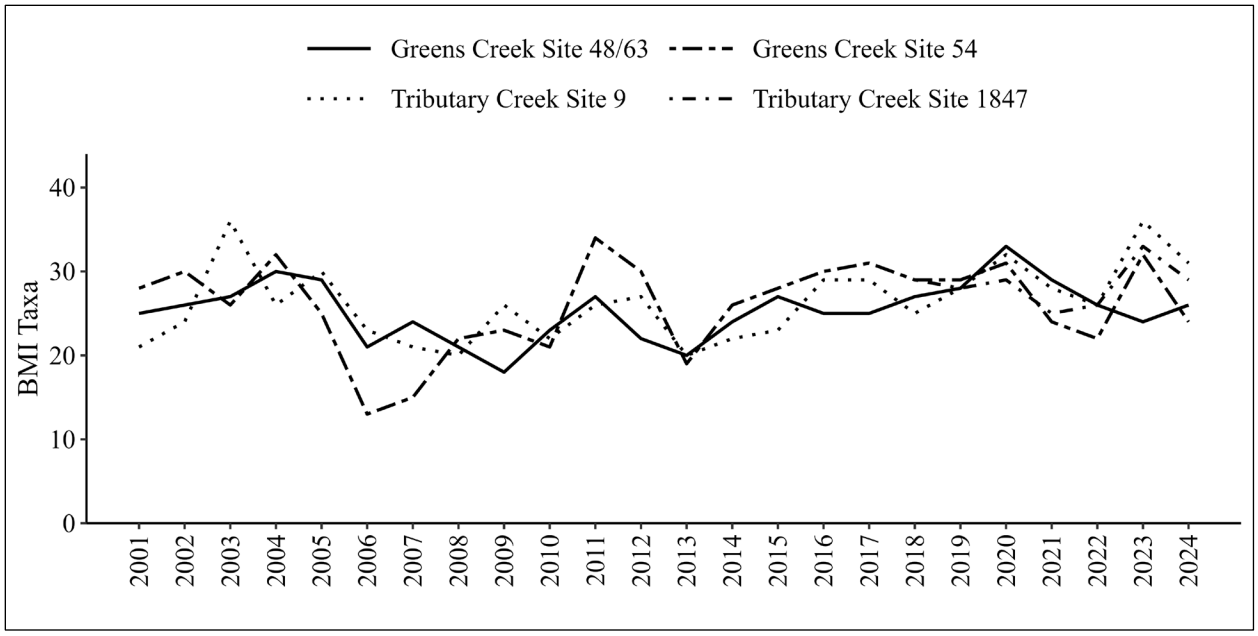


Figure 42.–Greens Creek and Tributary Creek BMI taxa richness, 2001–2024.
Note: Site 48 data collected 2001–2017; Site 63 data collected 2018–2024.

Juvenile Fish Abundance and Condition

In 2024, for Greens Creek sites Dolly Varden capture was in the upper range while Tributary Creek Site 9 Dolly Varden capture was in the middle range. For Greens Creek Sites 48/63 and 54 from 2001–2024, the number of Dolly Varden captured during a single trapping event followed a similar trend, with occasionally more captures at Site 54 (Figure 43). We capture more juvenile coho salmon than Dolly Varden at Tributary Creek Site 9 each year.

At all sites most years, we captured several age classes of Dolly Varden, and the mean fish condition was about 1.0 for both Dolly Varden and coho salmon, with the exception of juvenile coho salmon captured at Tributary Creek Site 9, which had an average fish condition of 0.93. We captured juvenile coho salmon at Site 63 in 2023 and 2024, indicating adult coho salmon passed the weir near the mine portal, which has been a fish passage block since construction in the late 1980s.

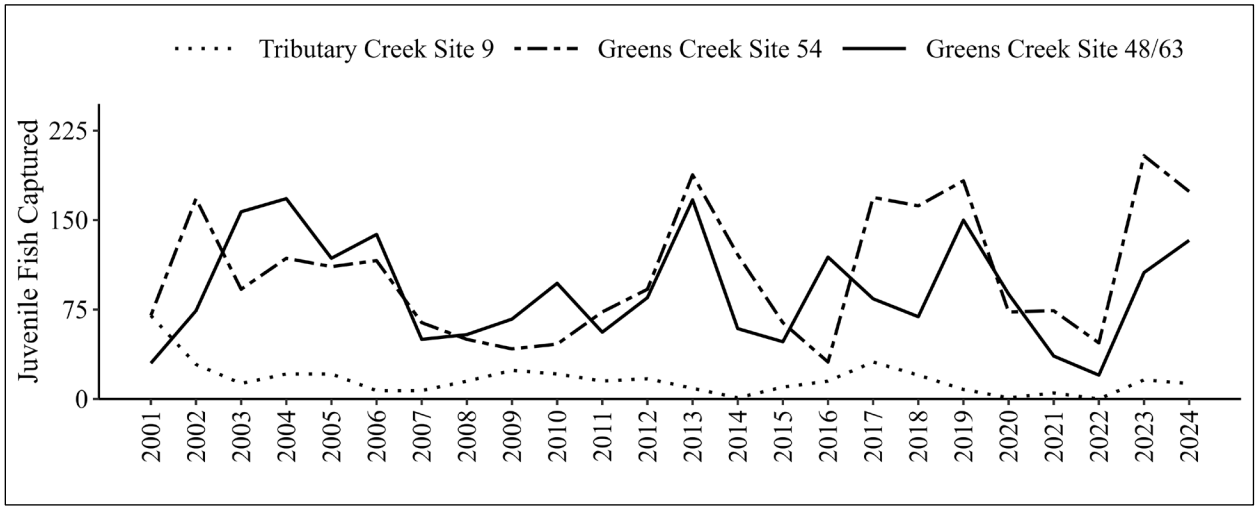


Figure 43.–Greens Creek and Tributary Creek Dolly Varden captured, 2001–2023.

Note: Site 54 2001–2010 data extrapolated to 50 m sample reach for comparison. Site 48 data collected 2001–2017, and Site 63 data collected 2018–2024.

Juvenile Fish Element Concentrations

In 2024, samples collected at Tributary Creek had a greater mean Hg concentration than the Greens Creek and Zinc Creek samples, and mostly lower mean concentrations of Cd, Cu, and Zn (Figure 44). At all sites, most mean element concentrations were within ranges observed in whole body Dolly Varden sample sites within mining-related influence elsewhere in Alaska (Legere and Timothy 2016).

For Greens Creek Sites 48/63 and 54 from 2001–2024, Dolly Varden element concentrations followed a similar trend, with the exception of Site 54 which had a Pb concentration spike in 2022. Greens Creek sites have higher Zn concentrations compared to Tributary Creek Site 9, however Site 9 Dolly Varden element concentrations 2001–2024 are higher in Ag and Hg and more variable in Cd, Pb, and Se compared to Greens Creek samples (Figures 44, 45).

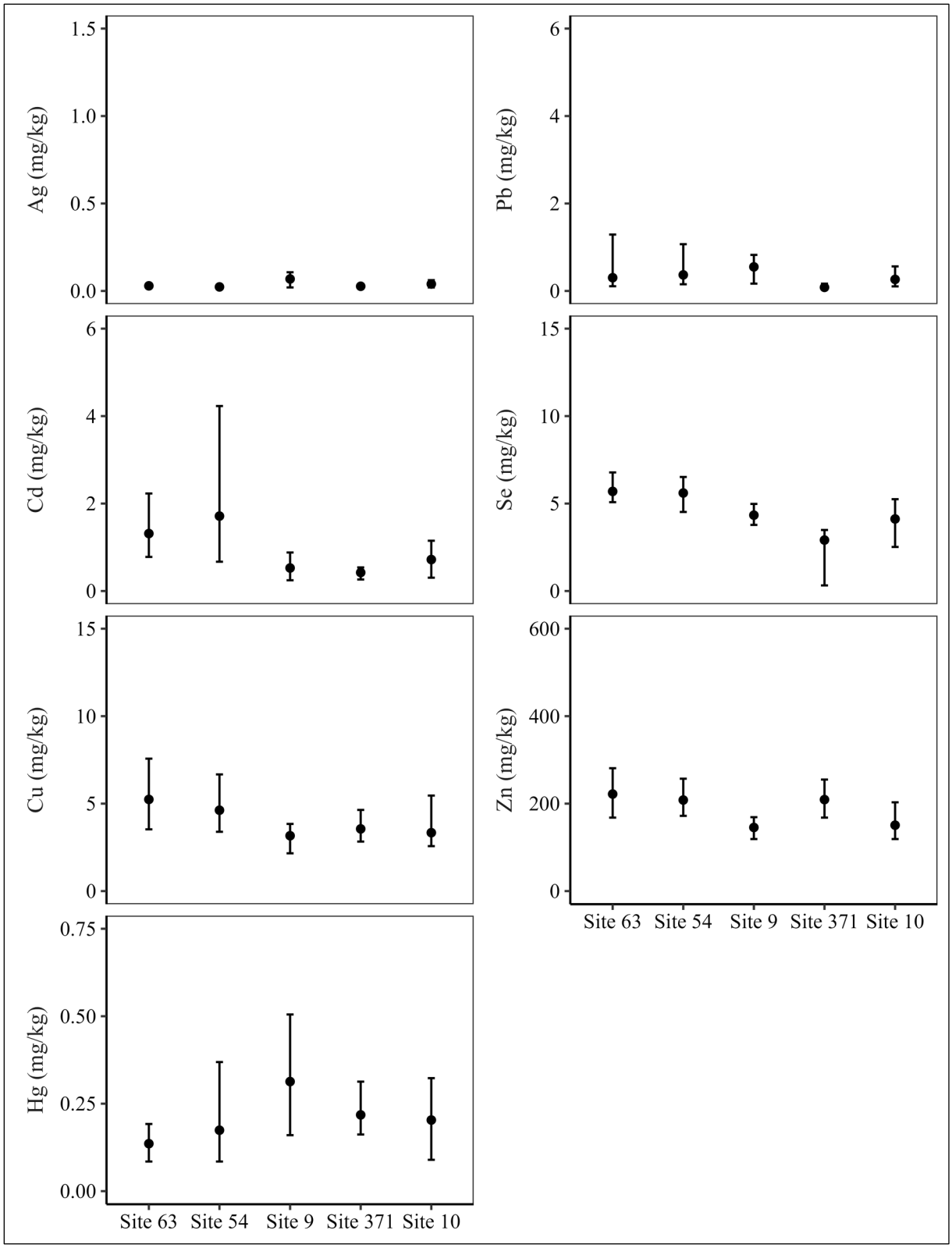


Figure 44.–Greens Creek, Tributary Creek, and Zinc Creek whole body Dolly Varden element concentrations, 2024.

Note: Minimum, mean, and maximum concentrations presented.

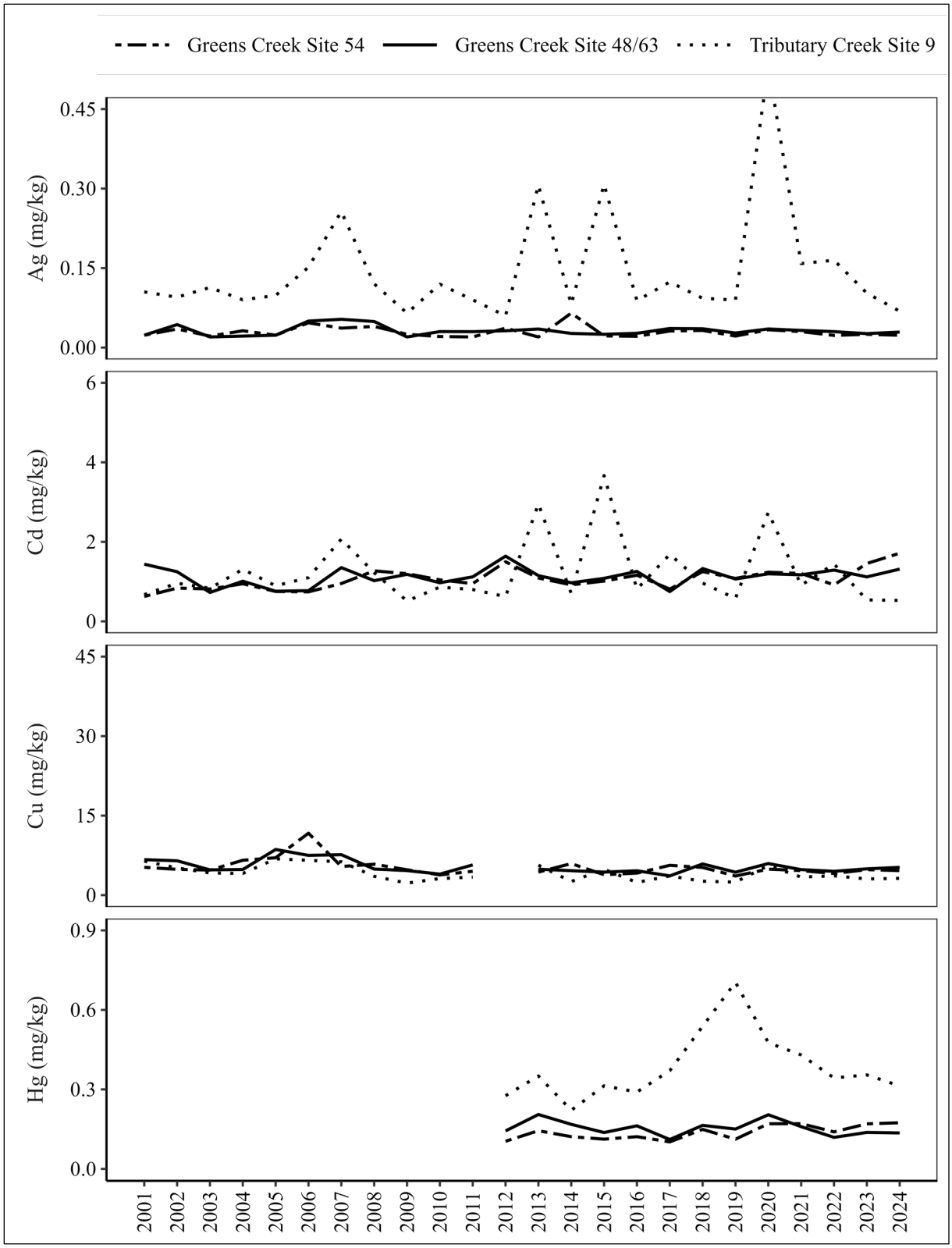


Figure 45.–Greens Creek and Tributary Creek whole body Dolly Varden median Ag, Cd, and Cu concentrations, 2001–2024, and median Hg concentrations, 2012–2023.

Note: Solid line 2001–2017 is Site 48; 2018–2023 is Site 63; data for Cu in 2012 omitted for potential laboratory contamination.

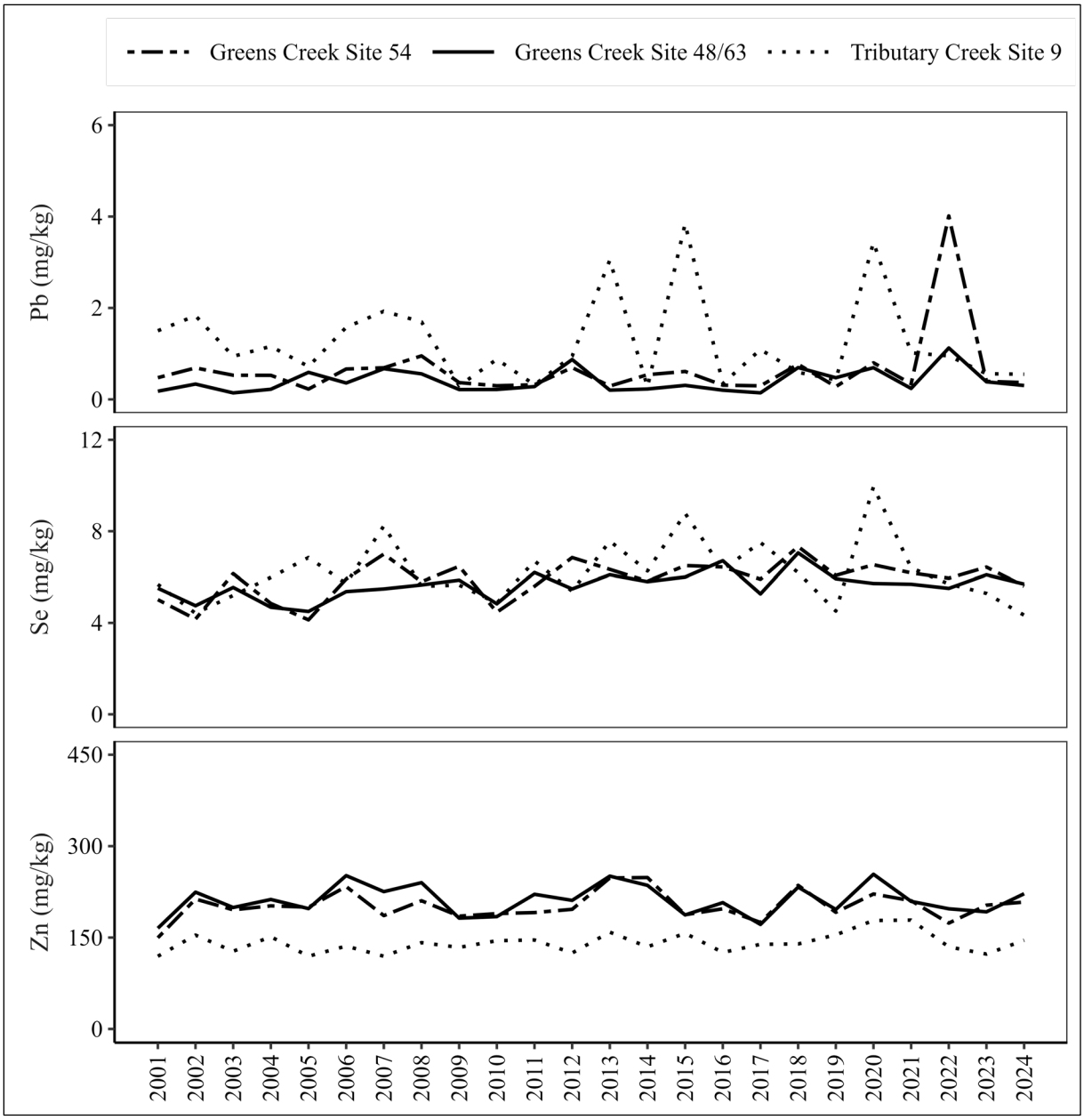


Figure 46.–Greens Creek and Tributary Creek whole body Dolly Varden median Pb, Se, and Zn concentrations, 2001–2043.

Note: Solid line 2001–2017 is Site 48; 2018–2023 is Site 63.

Sediment Element Concentrations

In 2024, reference site Greens Creek Site 63 mean sediment element concentrations of As, Cd, Cu, Ni, and Zn were naturally near or above the TEC freshwater sediment toxicity guidelines. Similarly for Zinc Creek 371, sediment element concentrations of Cd, Cu, and Zn were near or above the TEC while As, Cr, and Ni were naturally above the PEC freshwater sediment toxicity guidelines. Zinc Creek Site 10 sediment element concentrations of As, Cd, Cu, and Zn were near or above the TEC while Cr, and Ni were near or above the PEC, similar to Site 371. The Greens Creek Delta, located just above tidal influence on Zinc Creek, contained these same six elevated sediment element concentrations, As, Cd, Cr, Cu, Zn, near or above the TEC and Ni above the PEC (Figure

47).

In 2024, Tributary Creek Site 9 mean sediment element concentrations of As, Cr, and Ni near or above the TEC freshwater sediment toxicity guidelines. Similarly for Site 1847 concentrations of As, Cr, and Ni were near or above the TEC. For Tributary Creek Site 808, located at the lowest beaver pond just above Site 9, mean sediment element concentrations of As, Cr, Pb, Ni, and Zn were near or above the TEC with As and Pb having about three times higher element concentrations compared to Tributary Creek Sites 9 and 1847.

Cannery Creek Site 37 mean sediment element concentrations of Ni and Zn were near or above the TEC, while As was above the PEC. Fowler Creek mean sediment element concentrations of As, Ni, and Zn were near or above the TEC.

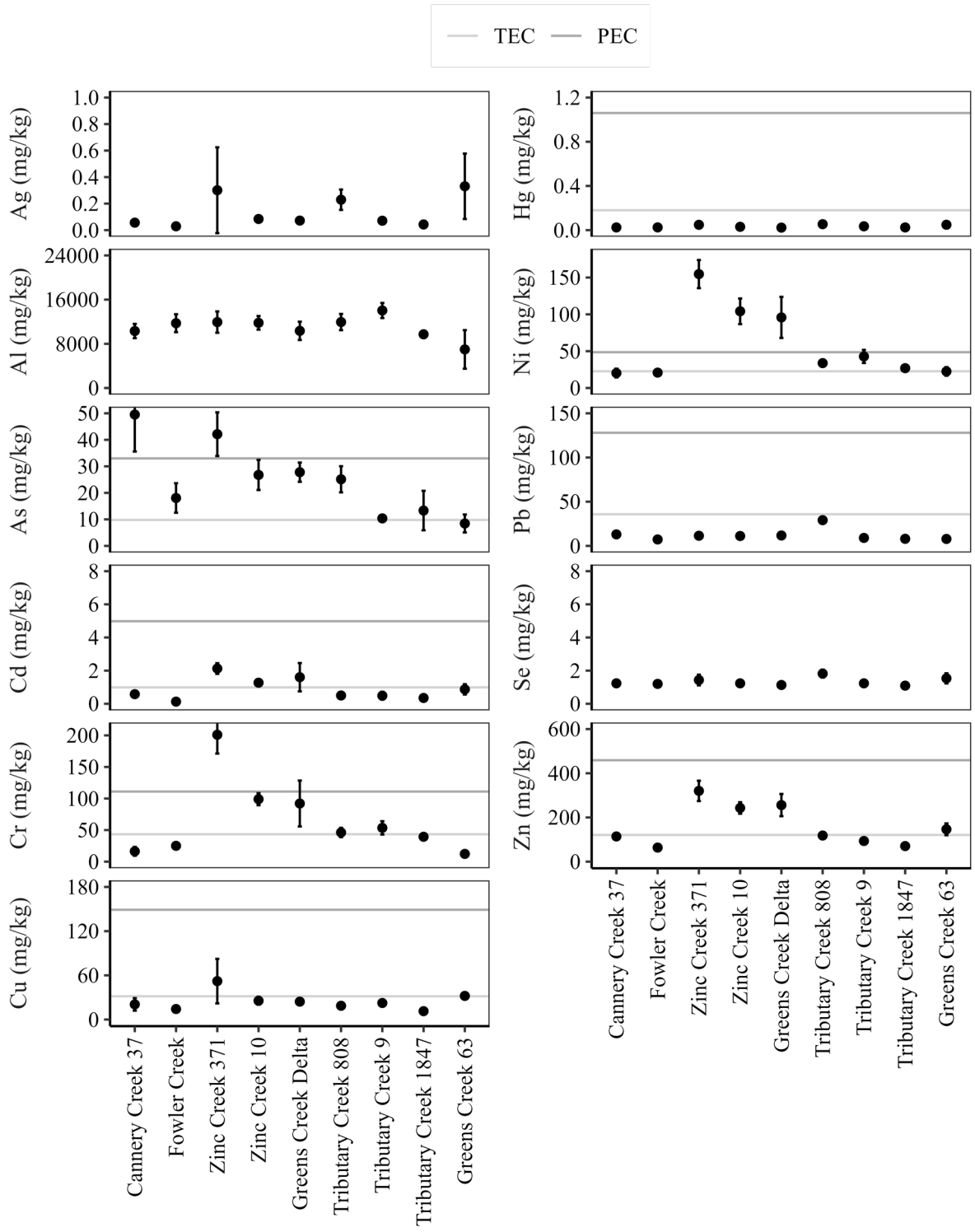


Figure 47.– Cannery Creek, Fowler Creek, Zinc Creek, Tributary Creek, and Greens Creek mean sediment element concentrations ± 1 SD, 2024.

Note: Elements undetected (o) are presented at the method reporting limit. TEC and PEC guidelines are not published for Ag, Al, or Se (Buchman 2008).

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APPENDIX A: CHLOROPHYLL DATA

Appendix A.1.–Greens Creek Site 48 chlorophylls a, b, and c densities, 2001–2017.

	7/23/2001			7/23/2002			7/22/2003			7/21/2004		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	1.91	0.01	0.14	5.34	0.00	0.29	12.92	0.00	1.26	18.05	0.00	2.03
	1.83	0.00	0.18	4.27	0.00	0.21	8.65	0.03	1.57	6.73	0.00	0.69
	5.61	0.00	0.69	6.62	0.00	0.71	3.84	0.09	0.39	8.97	0.00	0.90
	0.31	0.08	0.06	2.99	0.00	0.25	12.18	0.01	0.64	12.82	0.00	1.45
	2.96	0.04	0.36	5.34	0.00	0.75	17.19	0.00	0.72	5.45	0.00	0.62
	5.44	0.00	0.62	6.62	0.00	0.75	17.19	0.02	0.86	20.40	0.00	2.15
	3.38	0.00	0.47	6.09	0.00	0.73	33.21	0.00	2.14	6.30	0.00	0.45
	1.87	0.03	0.15	ND	ND	ND	24.24	0.13	0.99	11.64	0.00	1.38
	2.63	0.14	0.14	2.99	0.00	0.36	19.76	0.00	0.57	7.48	0.00	0.65
	1.23	0.02	0.16	2.78	0.00	0.15	35.35	0.00	0.89	5.23	0.00	0.55
mean	2.72	0.03	0.30	4.78	0.00	0.47	18.45	0.03	1.00	10.31	0.00	1.09
minimum	0.31	0.00	0.06	2.78	0.00	0.15	3.84	0.00	0.39	5.23	0.00	0.45
maximum	5.61	0.14	0.69	6.62	0.00	0.75	35.35	0.13	2.14	20.40	0.00	2.15

	7/22/2005			7/20/2006			7/20/2007			7/22/2008		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.85	0.00	0.01	8.33	0.00	0.80	6.62	0.00	0.16	1.50	0.00	0.09
	4.70	0.00	0.51	11.43	0.00	0.71	5.55	0.00	0.23	4.70	0.00	0.16
	6.62	0.00	0.27	10.68	0.00	1.25	7.48	0.00	0.33	2.67	0.00	0.24
	6.19	0.00	0.51	20.08	0.00	2.04	11.64	0.00	1.39	2.14	0.00	0.17
	11.11	0.00	0.92	10.57	0.00	0.98	6.94	0.00	0.47	0.85	0.00	0.02
	5.66	0.00	0.51	14.10	0.00	1.72	11.11	0.00	0.54	12.60	0.00	0.33
	7.69	0.00	0.53	16.98	0.00	1.76	11.75	0.01	0.60	2.78	0.00	0.19
	5.13	0.00	0.29	5.23	0.00	1.74	4.81	0.00	0.29	6.30	0.00	0.74
	2.46	0.02	0.28	16.87	0.00	1.73	8.12	0.00	1.10	1.28	0.00	0.14
	9.08	0.00	0.63	4.38	0.00	0.54	4.06	0.00	0.43	3.20	0.00	0.37
mean	5.95	0.00	0.45	11.87	0.00	1.33	7.81	0.00	0.55	3.80	0.00	0.25
minimum	0.85	0.00	0.01	4.38	0.00	0.54	4.06	0.00	0.16	0.85	0.00	0.02
maximum	11.11	0.02	0.92	20.08	0.00	2.04	11.75	0.01	1.39	12.60	0.00	0.74

	7/21/2009			7/20/2010			7/21/2011			7/21/2012		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	3.20	0.00	0.49	8.54	0.00	0.44	4.49	0.00	0.50	**0.36**	ND	ND
	1.50	0.00	0.25	4.59	0.00	0.61	6.51	0.00	0.59	0.69	0.00	0.10
	4.17	0.11	0.59	5.13	0.00	0.27	2.88	0.00	0.30	1.29	0.00	0.12
	5.66	0.07	0.73	3.10	0.00	0.26	2.59	0.17	0.05	2.56	0.00	0.39
	3.42	0.06	0.50	7.58	0.00	0.29	3.31	0.00	0.36	0.85	0.00	0.00
	8.22	0.13	0.95	5.55	0.00	0.55	5.13	0.00	0.55	1.60	0.00	0.26
	0.43	0.11	0.11	10.68	0.00	0.64	7.16	0.00	1.06	1.82	0.00	0.29
	1.39	0.18	0.29	7.69	0.00	0.41	5.66	0.00	0.49	1.92	0.00	0.28
	7.80	0.00	0.89	3.63	0.00	0.25	0.85	0.00	0.11	0.32	0.00	0.08
	9.18	0.17	1.19	3.10	0.02	0.15	4.81	0.00	0.49	1.60	0.00	0.16
mean	4.50	0.08	0.60	5.96	0.00	0.39	4.34	0.02	0.45	1.30	0.00	0.19
minimum	0.43	0.00	0.11	3.10	0.00	0.15	0.85	0.00	0.05	0.32	0.00	0.00
maximum	9.18	0.18	1.19	10.68	0.02	0.64	7.16	0.17	1.06	2.56	0.00	0.39

Note: Bold values are the spectrophotometer estimated detection limit; chlorophyll-a not detected.

-continued-

	7/24/2013			7/24/2014			7/15/2015			7/12/2016		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	2.03	0.00	0.12	4.81	0.00	0.31	2.14	0.00	0.18	4.38	0.00	0.60
	1.50	0.00	0.11	0.60	0.00	0.12	11.96	0.00	0.90	3.84	0.00	0.43
	4.59	0.00	0.33	1.60	0.00	0.10	4.70	0.00	0.31	7.58	0.00	0.88
	2.03	0.00	0.19	6.62	0.00	0.00	3.31	0.00	0.24	6.51	0.00	0.75
	6.94	0.00	0.38	ND	ND	ND	5.55	0.00	0.25	2.24	0.00	0.26
	6.62	0.00	0.39	5.66	0.00	0.33	2.46	0.00	0.18	2.99	0.00	0.47
	1.60	0.00	0.26	0.55	0.00	0.02	1.38	0.00	0.08	3.20	0.00	0.45
	1.39	0.00	0.07	0.43	0.00	0.07	2.35	0.00	0.05	2.35	0.00	0.31
	3.74	0.00	0.46	1.24	0.00	0.03	2.99	0.00	0.22	2.67	0.00	0.31
	5.23	0.00	0.70	5.02	0.24	0.38	0.43	0.00	0.03	4.49	0.00	0.61
mean	3.57	0.00	0.30	2.95	0.03	0.15	3.73	0.00	0.24	4.03	0.00	0.51
minimum	1.39	0.00	0.07	0.43	0.00	0.00	0.43	0.00	0.03	2.24	0.00	0.26
maximum	6.94	0.00	0.70	6.62	0.24	0.38	11.96	0.00	0.90	7.58	0.00	0.88

	7/12/2017		
mg/m^2	Chl-a	Chl-b	Chl-c
	0.55	0.00	0.02
	0.64	0.00	0.07
	0.43	0.01	0.04
	2.99	0.00	0.39
	0.96	0.00	0.09
	0.64	0.00	0.16
	2.14	0.00	0.28
	1.70	0.00	0.26
	0.96	0.00	0.09
	0.96	0.00	0.10
mean	1.20	0.00	0.15
minimum	0.43	0.00	0.02
maximum	2.99	0.01	0.39

Appendix A.2.–Greens Creek Site 63 chlorophylls a, b, and c densities, 2018–2024.

	7/11/2018			7/9/2019			7/16/2020			7/12/2021		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	ND	ND	ND	4.17	0.00	0.33	3.10	0.00	0.38	1.82	0.00	0.25
	5.45	0.00	0.79	4.59	0.00	0.29	**0.25**	ND	ND	3.84	0.00	0.59
	9.29	0.00	1.77	2.89	0.00	0.30	2.06	0.00	0.25	6.62	0.00	1.00
	7.37	0.00	0.87	4.73	0.00	0.35	3.44	0.00	0.32	1.60	0.00	0.17
	ND	ND	ND	2.78	0.00	0.13	3.74	0.00	0.58	1.39	0.00	0.12
	23.07	0.00	4.01	5.34	0.00	0.48	0.32	0.00	0.08	3.63	0.00	0.55
	8.22	0.00	0.96	2.88	0.00	0.21	5.66	0.00	0.71	1.60	0.00	0.26
	4.38	0.00	0.64	13.03	0.00	1.09	6.94	0.00	0.52	1.17	0.00	0.13
	15.06	0.00	2.28	5.98	0.00	0.75	1.88	0.00	0.21	1.71	0.00	0.31
	14.63	0.00	2.28	8.33	0.00	0.47	2.02	0.00	0.28	3.10	0.00	0.48
mean	10.93	0.00	1.70	5.47	0.00	0.44	2.94	0.00	0.37	2.65	0.00	0.39
minimum	4.38	0.00	0.64	2.78	0.00	0.13	0.25	0.00	0.08	1.17	0.00	0.12
maximum	23.07	0.00	4.01	13.03	0.00	1.09	6.94	0.00	0.71	6.62	0.00	1.00

	7/12/2022			7/11/2023			7/9/2024		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	2.94	0.00	0.29	11.11	0.00	1.30	7.12	0.00	0.81
	12.02	0.00	1.56	7.48	0.00	1.29	8.99	0.00	1.28
	8.01	0.00	1.04	5.32	0.00	0.73	7.71	0.00	1.00
	7.52	0.00	1.12	3.85	0.00	0.5	3.11	0.00	0.40
	4.49	0.00	0.44	13.35	0.00	1.79	9.50	0.00	1.28
	6.09	0.00	0.98	3.74	0.00	0.62	14.08	0.00	1.61
	9.61	0.00	1.23	2.44	0.00	0.26	8.86	0.00	1.64
	13.24	0.00	1.90	3.52	0.00	0.54	11.85	0.00	1.45
	6.73	0.00	0.68	6.19	0.00	0.93	4.06	0.00	0.57
	5.34	0.00	1.08	1.50	0.00	0.21	9.68	0.00	1.19
mean	7.60	0.00	1.03	5.85	0.00	0.82	8.50	0.00	1.12
minimum	2.94	0.00	0.29	1.50	0.00	0.21	3.11	0.00	0.40
maximum	13.24	0.00	1.90	13.35	0.00	1.79	14.08	0.00	1.64

Note: Bold values are the spectrophotometer estimated detection limit; chlorophyll-a not detected.

Appendix A.3.–Greens Creek Site 54 chlorophylls a, b, and c densities, 2001–2024.

	7/23/2001			7/23/2002			7/22/2003			7/21/2004		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	1.60	0.01	0.15	2.88	0.00	0.30	13.24	0.00	1.05	17.19	0.00	2.02
	3.10	0.05	0.41	9.61	0.00	1.02	8.33	0.00	0.79	9.72	0.00	0.93
	3.61	0.00	0.21	8.12	0.00	0.24	14.20	0.00	1.45	8.76	0.00	0.67
	2.97	0.00	0.29	4.49	0.00	0.38	6.09	0.00	0.62	32.04	0.00	3.66
	1.88	0.00	0.01	5.34	0.00	0.53	15.49	0.00	1.74	5.23	0.00	0.42
	1.78	0.00	0.19	2.46	0.87	1.26	10.68	0.00	1.06	3.74	0.00	0.31
	4.95	0.00	0.22	6.51	0.00	0.64	5.55	0.00	0.39	12.82	0.00	1.35
	1.46	0.00	0.10	4.91	0.00	0.40	16.34	0.00	1.72	1.92	0.03	0.09
	1.69	0.00	0.14	4.81	0.00	0.45	12.60	0.00	1.07	10.47	0.00	1.09
	3.48	0.00	0.16	8.44	0.00	0.79	16.02	0.00	1.75	5.98	0.00	0.53
mean	2.65	0.01	0.19	5.76	0.09	0.60	11.85	0.00	1.16	10.79	0.00	1.11
minimum	1.46	0.00	0.01	2.46	0.00	0.24	5.55	0.00	0.39	1.92	0.00	0.09
maximum	4.95	0.05	0.41	9.61	0.87	1.26	16.34	0.00	1.75	32.04	0.03	3.66

	7/22/2005			7/20/2006			7/20/2007			7/22/2008		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	10.36	0.00	0.54	19.54	0.00	1.62	0.43	0.04	0.04	2.99	0.00	0.29
	2.56	0.00	0.26	5.66	0.00	0.76	**0.24**	ND	ND	1.17	0.02	0.00
	3.31	0.00	0.17	28.73	0.00	1.19	1.39	0.04	0.11	1.50	0.00	0.19
	2.88	0.00	0.12	23.28	0.00	2.63	4.27	0.00	0.48	1.71	0.00	0.13
	5.66	0.00	0.38	4.59	0.00	0.47	**0.24**	ND	ND	2.24	0.00	0.09
	2.99	0.00	0.13	27.34	0.00	2.22	3.31	0.00	0.38	2.14	0.00	0.11
	4.27	0.00	0.18	4.27	0.00	0.38	8.01	0.00	0.98	2.46	0.00	0.25
	4.38	0.00	0.31	8.86	0.00	0.94	**0.24**	ND	ND	0.96	0.00	0.01
	4.06	0.00	0.16	31.72	0.00	3.17	2.99	0.00	0.39	**0.24**	ND	ND
	3.10	0.00	0.16	5.55	0.00	0.68	6.41	0.00	0.81	**0.24**	ND	ND
mean	4.36	0.00	0.24	15.95	0.00	1.41	2.75	0.01	0.46	1.57	0.00	0.13
minimum	2.56	0.00	0.12	4.27	0.00	0.38	0.24	0.00	0.04	0.24	0.00	0.00
maximum	10.36	0.00	0.54	31.72	0.00	3.17	8.01	0.04	0.98	2.99	0.02	0.29

	7/21/2009			7/20/2010			7/21/2011			7/21/2012		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	8.01	0.11	1.06	2.67	0.00	0.29	9.61	0.00	0.64	5.54	0.00	0.24
	7.58	0.11	1.13	6.73	0.00	0.69	0.43	0.00	0.06	0.11	0.00	0.04
	6.84	0.07	0.89	4.38	0.00	0.74	3.42	0.00	0.32	2.65	0.00	0.11
	9.18	0.09	0.96	2.14	0.00	0.25	3.42	0.00	0.33	1.82	0.00	0.10
	ND	ND	ND	5.23	0.00	0.67	41.76	0.00	3.02	1.07	0.00	0.04
	8.33	0.15	1.11	1.71	0.04	0.25	5.23	0.00	0.64	1.17	0.00	0.13
	11.32	0.20	1.57	1.39	0.02	0.11	10.36	0.00	0.45	0.75	0.00	0.06
	5.34	0.17	0.66	3.20	0.00	0.46	7.16	0.00	0.53	19.54	0.00	1.10
	4.49	0.10	0.63	2.04	0.00	0.21	0.64	0.00	0.07	4.06	0.00	0.30
	4.38	0.10	0.43	0.21	0.01	0.05	2.24	0.00	0.29	0.43	0.01	0.04
mean	7.27	0.12	0.94	2.97	0.01	0.37	8.43	0.00	0.64	3.71	0.00	0.22
minimum	4.38	0.07	0.43	0.21	0.00	0.05	0.43	0.00	0.06	0.11	0.00	0.04
maximum	11.32	0.20	1.57	6.73	0.04	0.74	41.76	0.00	3.02	19.54	0.01	1.10

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	7/12/2017			7/10/2018			7/10/2019			7/16/2020		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	1.17	0.00	0.08	10.57	0.00	2.03	2.56	0.00	0.19	8.44	0.00	0.61
	0.19	ND	ND	7.05	0.00	1.13	0.75	0.00	0.05	6.93	0.00	0.58
	0.64	0.00	0.11	9.93	0.00	1.57	3.72	0.00	0.28	8.26	0.00	1.05
	2.99	0.00	0.38	8.12	0.00	1.55	8.22	0.00	0.80	2.24	0.00	0.27
	0.43	0.00	0.07	6.84	0.00	0.84	4.62	0.00	0.50	4.78	0.00	0.47
	0.96	0.00	0.09	1.51	0.00	0.29	5.98	0.00	0.90	3.74	0.00	0.50
	0.85	0.00	0.11	8.54	0.00	1.03	0.96	0.00	0.09	7.62	0.00	0.78
	0.19	ND	ND	6.09	0.00	0.98	1.82	0.00	0.13	2.02	0.00	0.19
	0.37	0.00	0.18	3.63	0.00	0.50	1.82	0.00	0.05	0.55	0.00	0.02
	0.55	0.00	0.12	8.12	0.00	1.16	1.82	0.00	0.09	0.96	0.00	0.09
mean	0.83	0.00	0.14	7.04	0.00	1.11	3.23	0.00	0.31	4.55	0.00	0.46
minimum	0.19	0.00	0.07	1.51	0.00	0.29	0.75	0.00	0.05	0.55	0.00	0.02
maximum	2.99	0.00	0.38	10.57	0.00	2.03	8.22	0.00	0.90	8.44	0.00	1.05

	7/12/2021			7/12/2022			7/13/2023			7/9/2024		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	0.85	0.00	0.03	2.88	0.00	0.33	11.64	0.00	1.63	10.04	0.00	1.25
	0.56	0.00	0.06	14.74	0.00	1.77	6.41	0.00	0.84	6.28	0.00	0.83
	0.97	0.00	0.13	2.88	0.00	0.67	7.90	0.00	0.99	5.45	0.00	0.75
	2.65	0.00	0.43	14.20	0.00	2.12	5.79	0.00	0.73	3.10	0.00	0.55
	1.07	0.00	0.04	9.40	0.00	1.48	4.96	0.00	0.51	3.85	0.00	0.66
	1.39	0.00	0.13	12.07	0.00	1.68	5.55	0.00	0.89	5.41	0.00	0.68
	1.50	0.00	0.20	6.94	0.00	1.85	2.25	0.00	0.32	8.90	0.00	0.93
	0.75	0.00	0.05	5.98	0.00	0.66	7.05	0.00	0.95	10.68	0.00	1.41
	1.51	0.00	0.22	5.23	0.00	1.04	4.81	0.00	0.52	9.61	0.00	1.36
	6.62	0.00	0.99	2.99	0.00	0.55	2.99	0.00	0.26	4.70	0.00	0.61
mean	1.79	0.00	0.23	7.73	0.00	1.22	5.94	0.00	0.76	6.80	0.00	0.90
minimum	0.56	0.00	0.03	2.88	0.00	0.33	2.25	0.00	0.26	3.10	0.00	0.55
maximum	6.62	0.00	0.99	14.74	0.00	2.12	11.64	0.00	1.63	10.68	0.00	1.41

Note: Bold values are the spectrophotometer estimated detection limit; chlorophyll-a not detected.

Appendix A.4.–Tributary Creek Site 9 chlorophylls a, b, and c densities, 2001–2024.

	7/23/2001			7/23/2002			7/23/2003			7/21/2004		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	6.62	0.00	0.79	8.91	0.00	0.52	9.61	0.00	1.26	9.40	0.22	0.80
	11.15	0.00	1.20	16.43	0.95	1.28	17.19	0.00	0.79	5.77	0.00	0.42
	15.05	0.00	1.47	12.65	0.17	0.00	7.69	0.00	0.29	5.45	0.00	0.48
	16.58	0.23	1.51	5.44	0.45	0.07	8.76	0.00	1.11	6.09	0.03	0.38
	3.15	0.00	0.33	23.72	1.21	0.84	10.47	0.00	1.92	14.52	0.02	1.40
	2.59	0.06	0.28	12.75	0.40	0.22	10.79	0.00	1.88	6.51	0.17	0.40
	1.61	0.00	0.01	32.53	0.00	1.89	22.64	0.00	3.98	10.36	0.13	0.80
	6.66	0.00	0.43	4.40	1.50	0.00	12.39	0.00	2.43	6.84	0.04	0.36
	15.21	0.81	1.44	2.94	0.30	0.17	8.54	0.00	1.69	26.17	0.51	2.61
	11.55	0.00	1.51	8.01	1.47	0.27	13.03	0.00	3.86	8.44	0.22	0.53
mean	9.02	0.11	0.90	12.78	0.65	0.53	12.11	0.00	1.92	9.96	0.13	0.82
minimum	1.61	0.00	0.01	2.94	0.00	0.00	7.69	0.00	0.29	5.45	0.00	0.36
maximum	16.58	0.81	1.51	32.53	1.50	1.89	22.64	0.00	3.98	26.17	0.51	2.61

	7/23/2005			7/21/2006			7/20/2007			7/23/2008		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	6.09	0.00	0.25	3.42	0.25	0.19	ND	ND	ND	2.35	0.00	0.12
	8.01	1.28	0.18	4.08	0.40	0.20	5.45	0.08	0.23	6.94	0.00	0.27
	1.82	0.13	0.07	6.94	0.00	0.40	7.26	0.00	0.54	6.30	0.24	0.34
	9.08	0.06	0.29	4.11	0.01	0.32	ND	ND	ND	6.41	0.00	0.25
	4.70	0.00	0.10	4.17	0.00	0.39	ND	ND	ND	2.46	0.12	0.19
	4.70	0.00	0.12	4.78	0.00	0.29	0.85	0.16	0.11	6.19	0.05	0.39
	7.80	0.00	0.20	14.16	0.00	0.57	6.41	0.06	0.24	4.06	0.00	0.13
	14.85	0.00	0.46	4.34	0.01	0.21	7.05	0.24	0.65	4.59	0.00	0.37
	36.10	0.10	1.12	5.23	0.00	0.56	5.02	0.00	0.26	1.60	0.00	0.00
	8.97	0.00	0.26	3.66	0.37	0.26	3.20	0.00	0.23	3.74	0.00	0.28
mean	10.21	0.16	0.31	5.49	0.10	0.34	5.03	0.08	0.32	4.46	0.04	0.23
minimum	1.82	0.00	0.07	3.42	0.00	0.19	0.85	0.00	0.11	1.60	0.00	0.00
maximum	36.10	1.28	1.12	14.16	0.40	0.57	7.26	0.24	0.65	6.94	0.24	0.39

	7/22/2009			7/20/2010			7/20/2011			7/26/2012		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	2.03	0.10	0.16	12.82	0.00	0.39	4.81	0.47	0.08	3.63	0.00	0.25
	5.45	0.17	0.38	6.62	0.00	0.39	3.84	0.00	0.12	8.97	0.00	0.33
	4.38	0.24	0.30	7.69	0.00	0.43	4.91	0.00	0.34	10.68	0.00	0.48
	7.05	0.58	0.33	5.66	0.12	0.32	10.47	0.03	0.50	3.74	0.00	0.25
	9.08	0.36	0.49	9.72	0.88	0.40	5.13	0.00	0.37	1.28	0.00	0.04
	8.76	0.41	0.62	5.98	0.00	0.20	1.71	0.00	0.01	1.71	0.00	0.12
	2.14	0.08	0.09	5.55	0.00	0.40	6.30	0.00	0.44	5.66	0.00	0.29
	18.37	0.66	0.78	10.57	0.28	0.34	9.61	0.00	0.35	6.09	0.00	0.26
	2.35	0.18	0.16	4.06	0.05	0.16	12.50	0.00	0.87	2.14	0.00	0.21
	3.20	0.20	0.33	5.77	0.00	0.32	6.30	0.00	0.17	7.37	0.00	0.40
mean	6.28	0.30	0.36	7.44	0.13	0.34	6.56	0.05	0.33	5.13	0.00	0.26
minimum	2.03	0.08	0.09	4.06	0.00	0.16	1.71	0.00	0.01	1.28	0.00	0.04
maximum	18.37	0.66	0.78	12.82	0.88	0.43	12.50	0.47	0.87	10.68	0.00	0.48

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	7/11/2017			7/12/2018			7/11/2019			7/15/2020		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	12.82	0.00	1.07	15.59	0.00	1.74	ND	ND	ND	4.91	0.00	0.23
	1.39	0.00	0.02	4.49	0.00	0.51	1.32	0.00	0.15	11.96	0.00	0.51
	1.50	0.00	0.07	20.40	0.00	2.90	0.21	0.00	0.03	5.98	0.00	0.55
	8.44	0.00	0.56	0.21	0.00	0.00	2.75	0.00	0.06	4.38	0.00	0.22
	3.31	0.07	0.15	5.13	0.00	0.61	ND	ND	ND	14.63	0.00	0.77
	1.39	0.00	0.03	10.25	0.00	1.80	4.59	0.00	0.25	6.19	0.00	0.25
	0.43	0.00	0.00	11.64	0.00	1.82	2.56	0.00	0.12	7.80	0.00	0.36
	0.96	0.00	0.06	7.80	0.00	1.31	ND	ND	ND	3.52	0.00	0.11
	3.10	0.00	0.28	0.43	0.01	0.04	ND	ND	ND	7.37	0.00	0.48
	7.58	0.00	0.69	0.96	0.00	0.05	ND	ND	ND	11.85	0.00	0.57
mean	4.09	0.01	0.29	7.69	0.00	1.08	2.29	0.00	0.12	7.86	0.00	0.41
minimum	0.43	0.00	0.00	0.21	0.00	0.00	0.21	0.00	0.03	3.52	0.00	0.11
maximum	12.82	0.07	1.07	20.40	0.01	2.90	4.59	0.00	0.25	14.63	0.00	0.77

	7/13/2021			7/11/2022			7/12/2023			7/10/2024		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	14.31	0.00	0.73	4.91	0.00	0.41	15.06	0.00	0.75	14.42	0.00	1.16
	2.46	0.30	0.40	4.06	0.00	0.37	6.51	0.00	0.58	8.65	0.00	0.62
	11.96	0.00	0.73	17.84	0.00	1.04	10.47	0.00	0.58	16.45	0.00	1.29
	2.99	0.00	0.18	7.69	0.00	0.55	12.39	0.00	0.79	5.13	0.00	0.41
	3.74	0.00	0.21	6.41	0.00	0.60	3.84	0.00	0.23	4.91	0.00	0.19
	5.55	0.00	0.20	4.81	0.00	0.27	5.45	0.00	0.42	9.40	0.00	0.46
	3.20	0.00	0.16	11.32	0.00	0.76	17.19	0.00	0.77	6.19	0.23	0.53
	2.78	0.00	0.14	13.24	0.00	1.12	12.60	0.00	0.83	3.30	0.00	0.34
	5.23	0.00	0.23	17.94	0.00	1.03	7.48	0.00	0.57	15.17	0.00	0.81
	7.69	0.00	0.38	6.84	0.00	0.37	4.27	0.00	0.26	8.01	0.00	0.71
mean	5.99	0.03	0.34	9.51	0.00	0.65	9.53	0.00	0.58	9.16	0.02	0.65
minimum	2.46	0.00	0.14	4.06	0.00	0.27	3.84	0.00	0.23	3.30	0.00	0.19
maximum	14.31	0.30	0.73	17.94	0.00	1.12	17.19	0.00	0.83	16.45	0.23	1.29

Note: Bold values are the spectrophotometer estimated detection limit; chlorophyll-a not detected.

Appendix A.5.–Tributary Creek Site 1847 chlorophylls a, b, and c densities, 2018–2024.

	7/12/2018			**7/11/2019**			**7/15/2020**			**7/13/2021**		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	16.98	0.00	3.10	3.95	0.00	0.40	15.38	1.55	1.02	16.34	0.00	0.74
	9.29	0.00	1.66	2.78	0.00	0.25	5.23	0.00	0.26	8.04	0.00	0.36
	6.09	0.00	0.70	0.75	0.00	0.05	12.50	0.00	1.28	27.55	0.00	1.40
	3.63	0.00	0.28	4.70	0.00	0.52	2.46	0.51	0.13	6.51	0.00	0.47
	12.82	0.00	2.14	5.77	0.00	0.58	8.12	0.00	0.54	1.07	0.04	0.17
	3.63	0.02	0.57	4.49	0.00	0.43	6.41	0.00	0.30	6.11	0.00	0.46
	2.24	0.00	0.33	1.92	0.00	0.09	8.44	0.00	0.61	1.13	0.16	0.05
	ND	ND	ND	4.17	0.00	0.32	6.41	0.00	0.52	15.17	0.00	0.87
	8.01	0.00	0.66	ND	ND	ND	1.71	0.00	0.11	1.92	0.00	0.08
	10.68	0.00	1.29	ND	ND	ND	10.89	0.00	0.58	11.32	0.00	0.55
mean	8.15	0.00	1.19	3.57	0.00	0.33	7.76	0.21	0.54	9.52	0.02	0.52
minimum	2.24	0.00	0.28	0.75	0.00	0.05	1.71	0.00	0.11	1.07	0.00	0.05
maximum	16.98	0.02	3.10	5.77	0.00	0.58	15.38	1.55	1.28	27.55	0.16	1.40

	7/13/2022			**7/13/2022**			**7/12/2023**			**7/10/2024**		
mg/m^2	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c	Chl-a	Chl-b	Chl-c
	34.07	0.00	4.74	34.07	0.00	4.74	4.81	0.00	0.26	0.41	0.00	0.08
	23.39	0.00	1.83	23.39	0.00	1.83	5.87	0.00	0.44	18.16	0.00	1.83
	6.51	0.00	1.01	6.51	0.00	1.01	5.24	0.00	0.24	3.10	0.07	0.21
	15.59	0.00	1.21	15.59	0.00	1.21	8.76	0.00	0.42	18.07	0.00	0.91
	29.48	0.00	3.20	29.48	0.00	3.20	5.43	0.00	0.28	10.47	0.00	0.82
	34.50	0.00	2.97	34.50	0.00	2.97	2.24	0.00	0.10	5.55	0.00	0.53
	2.46	0.00	0.25	2.46	0.00	0.25	3.10	0.00	0.15	16.66	0.00	1.18
	11.43	0.00	1.00	11.43	0.00	1.00	2.25	0.00	0.12	0.60	0.00	0.02
	37.70	0.00	4.14	37.70	0.00	4.14	3.74	0.00	0.15	20.93	0.00	1.55
	4.27	0.00	0.29	4.27	0.00	0.29	11.43	0.00	0.63	1.17	0.13	0.08
mean	19.94	0.00	2.06	19.94	0.00	2.06	5.29	0.00	0.28	9.51	0.02	0.72
minimum	2.46	0.00	0.25	2.46	0.00	0.25	2.24	0.00	0.10	0.41	0.00	0.02
maximum	37.70	0.00	4.74	37.70	0.00	4.74	11.43	0.00	0.63	20.93	0.13	1.83

Note: Bold values are the spectrophotometer estimated detection limit; chlorophyll-a not detected.

Appendix A.6.–Zinc Creek Site 10 chlorophylls a, b, and c densities, 2024.

	7/8/2024		
mg/m^2	Chl-a	Chl-b	Chl-c
	4.70	0.00	0.38
	2.04	0.10	0.16
	1.17	0.00	0.13
	10.79	0.00	1.17
	18.69	0.00	2.09
	8.22	0.00	0.86
	10.03	0.00	1.60
	1.60	0.00	0.07
	5.13	0.00	0.44
	14.10	0.18	1.56
mean	7.65	0.03	0.85
minimum	1.17	0.00	0.07
maximum	18.69	0.18	2.09

Appendix A.7.–Zinc Creek Site 371 chlorophylls a, b, and c densities, 2024.

	7/8/2024		
mg/m^2	Chl-a	Chl-b	Chl-c
	6.02	0.00	0.57
	4.21	0.00	0.26
	8.08	0.00	1.11
	10.79	0.00	1.69
	7.90	0.00	0.66
	8.59	0.00	0.78
	1.07	0.03	0.27
	7.74	0.00	0.63
	5.68	0.00	0.39
	11.64	0.00	1.67
mean	7.17	0.00	0.80
minimum	1.07	0.00	0.26
maximum	11.64	0.03	1.69

APPENDIX B: BENTHIC MACROINVERTEBRATE DATA

Appendix B.1.–Greens Creek Site 48 (2001–2017) and 63 (2018–2024) BMI data summary.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total BMI Taxa	25	26	27	30	29	21	24	21	18	23	27	22	20	24	27	25	25	27	28	33	29	26	24	26
Mean BMI Taxa / Sample	12	13	18	19	16	11	13	13	10	15	17	13	12	13	17	13	15	14	16	14	16	13	11	14
Total Ephemeroptera Taxa	6	6	7	6	6	6	7	6	7	7	7	7	7	7	8	8	7	8	8	9	8	9	8	8
Total Plecoptera Taxa	7	11	6	9	8	4	5	3	5	6	7	7	5	6	6	5	6	7	6	8	6	7	6	7
Total Trichoptera Taxa	2	2	4	2	4	2	1	2	1	1	2	2	1	1	2	2	3	2	5	3	3	4	1	1
Ephemeroptera	1,094	599	1,897	1,034	902	495	428	887	852	937	558	555	618	844	1,488	1,520	1,300	2,271	2,715	1,237	663	993	980	1,996
Plecoptera	49	41	191	74	36	10	75	20	40	81	151	55	131	98	122	209	128	110	65	80	61	43	98	117
Trichoptera	7	9	20	22	15	7	8	24	1	4	12	5	8	14	62	14	22	20	30	29	16	20	5	11
Aquatic Diptera	31	39	206	169	101	38	34	79	15	71	193	73	86	184	291	352	146	144	220	234	105	83	132	164
Other	3	16	53	25	5	10	15	11	2	8	68	5	12	16	65	28	18	26	21	31	112	24	36	13
% Ephemeroptera	92.4	85.1	80.1	78.8	85.5	88.3	79.7	87	93.1	85.6	56.8	80.1	72.3	73.1	73.4	72	81	88.3	89	76.8	69.3	85.4	78.3	86.7
% Plecoptera	4.1	5.8	8.1	5.7	3.4	2.6	11.2	2.5	4.5	6.8	15.4	7.9	15.3	8.5	6	10.1	8	4.3	2.1	5	6.4	3.7	7.8	5.1
% Trichoptera	0.6	1.3	0.8	1.8	1.6	1.3	1.5	2	0.2	0.3	1.2	0.7	0.9	1.2	3.1	0.7	1.4	0.8	1	1.8	1.7	1.7	0.4	0.5
% Aquatic Diptera	2.6	5.5	8.7	11.9	9	6.3	5.6	7.7	1.8	6.2	19.7	10.5	10.1	15.9	14.3	16.6	9	5.6	7.2	14.5	11	7.1	10.6	7.1
% Other	0.3	2.3	2.2	1.8	0.5	1.4	2	0.8	0.4	1.1	6.9	0.7	1.4	1.2	3.2	1.3	1.1	1	0.7	1.9	11.7	2.1	2.9	0.6
% EPT	97	92	89	86	90	92	92	92	98	93	73	89	89	83	82	82	90	93	92	84	77	91	87	92
% Chironomidae	1	4	7	11	8	3	4	6	1	5	17	9	9	15	9	14	9	5	7	12	6	5	10	7
% Dominant Taxon	41	35	30	28	30	37	36	58	46	31	21	37	25	31	28	27	24	39	38	39	32	43	36	36
Total BMI	1,184	704	2,367	1,679	1,396	693	733	1,331	953	1,240	982	693	855	1,156	2,028	2,123	1,614	2,571	3,051	1,611	957	1,163	1,251	2,301
Total Terrestrial Invertebrates	0	4	5	1	24	5	2	8	2	11	4	0	14	32	6	4	27	4	6	10	0	2	7	4
Total Invertebrates	1,184	708	2,372	1,680	1,420	698	735	1,339	955	1,251	986	693	869	1,188	2,034	2,127	1,641	2,575	3,057	1,621	957	1,165	1,258	2,305
% Sample BMI	100	99	99	99	98	99	99	99	99	99	99	100	98	97	99	99	98	100	100	99	100	100	99	100
% Sample Terrestrial	0	1	1	1	2	1	1	1	1	1	1	0	2	3	1	1	2	0	0	1	0	0	1	0
Total Sample Area (m^2)	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Total Invertebrates /m^2	2,753	1,647	5,516	3,907	3,302	1,623	1,709	3,114	2,221	2,909	2,293	1,612	2,021	2,763	2,956	3,092	2,385	3,743	4,443	2,356	1,391	1,693	1,828	3,350
Total BMI/m^2	2,753	1,637	5,505	3,905	3,247	1,612	1,705	3,095	2,216	2,884	2,284	1,612	1,988	2,688	2,948	3,086	2,346	3,737	4,435	2,342	1,391	1,690	1,818	3,344
±1 SD	1,435	434	1,579	677	1,441	807	648	980	1,939	1,530	630	872	526	1,043	892	1,219	1,034	1,240	1,708	1,899	768	808	494	764

Appendix B.2.–Greens Creek Site 54 BMI data summary, 2001–2024.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total BMI Taxa	28	30	26	32	25	13	15	22	23	21	34	30	19	26	28	30	31	29	29	31	24	22	32	24
Mean BMI Taxa / Sample	15	14	16	19	15	9	8	14	13	13	18	14	9	11	14	15	14	14	15	15	12	11	14	14
Total Ephemeroptera Taxa	7	6	7	6	8	5	6	8	7	6	8	7	5	7	7	8	8	8	9	8	7	7	8	8
Total Plecoptera Taxa	7	7	7	10	7	3	4	4	7	5	7	10	6	7	6	6	8	7	7	9	4	6	8	6
Total Trichoptera Taxa	2	2	1	3	3	2	0	2	2	2	5	4	1	3	2	3	4	3	3	2	1	2	3	1
Ephemeroptera	1,627	1,352	2,011	1,601	1,265	477	286	1,105	895	1,247	1,536	591	308	1,277	941	2,072	917	2,249	2,328	1,959	568	839	3,603	2,013
Plecoptera	80	54	82	117	37	30	22	65	43	53	96	49	54	109	99	204	72	105	129	91	39	56	177	223
Trichoptera	7	6	12	19	31	4	0	9	4	8	32	9	3	15	24	18	22	11	17	29	4	5	8	6
Aquatic Diptera	53	39	173	184	65	13	10	85	32	61	203	81	52	177	182	201	111	134	282	399	98	65	330	196
Other	15	15	57	46	4	1	1	13	5	8	46	24	19	24	52	22	14	10	18	22	26	17	80	16
% Ephemeroptera	91.3	92.2	86.1	81.4	90.2	90.9	89.7	86.5	91.4	90.6	80.3	78.1	70.6	79.7	72.5	82.1	81.2	89.6	83.9	78.4	77.3	85.4	85.8	82
% Plecoptera	4.5	3.7	3.5	5.9	2.6	5.7	6.9	5.1	4.4	3.8	5.1	6.4	12.4	6.8	7.6	8.1	5.8	4.2	4.7	3.6	5.3	5.7	4.2	9.1
% Trichoptera	0.4	0.4	0.5	1	2.2	0.8	0	0.7	0.4	0.6	1.7	1.2	0.7	0.9	1.8	1	1.9	0.4	0.6	1.2	0.5	0.5	0.2	0.2
% Aquatic Diptera	3	2.7	7.4	9.4	4.6	2.5	3.1	6.7	3.3	4.4	10.6	10.7	11.9	11	14	8	9.8	5.3	10.2	16	13.3	6.6	7.9	8
% Other	0.8	1	2.4	2.3	0.3	0.2	0.3	1	0.5	0.6	2.4	3.5	4.4	1.5	4	0.9	1.2	0.4	0.6	0.9	3.5	1.7	1.9	0.7
% EPT	96	96	90	88	95	97	97	92	96	95	87	86	84	87	82	91	89	94	89	83	83	92	90	91
% Chironomidae	2	2	6	8	4	2	2	5	2	3	8	9	10	10	11	6	8	5	9	15	4	4	7	8
% Dominant Taxon	52	43	40	38	40	31	34	52	40	35	43	30	30	35	32	25	23	37	43	39	45	53	33	29
Total BMI	1,782	1,466	2,335	1,967	1,402	525	319	1,277	979	1,377	1,913	754	436	1,607	1,298	2,517	1,136	2,509	2,774	2,500	735	982	4,198	2,454
Total Terrestrial Invertebrates	0	4	7	1	3	1	6	1	8	9	14	5	8	12	6	3	24	4	1	3	0	2	10	1
Total Invertebrates	1,782	1,470	2,342	1,968	1,405	526	325	1,278	987	1,386	1,927	759	444	1,619	1,304	2,520	1,160	2,513	2,775	2,503	735	984	4,208	2,455
% Sample BMI	100	99	99	99	99	99	98	100	99	99	99	99	98	99	99	99	98	100	100	100	100	100	100	100
% Sample Terrestrial	0	1	1	1	1	1	2	0	1	1	1	1	2	1	1	1	2	0	0	0	0	0	0	0
Total Sample Area (m^2)	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Total Invertebrates /m^2	4,144	3,419	5,447	4,577	3,267	1,223	756	2,972	2,295	3,223	4,481	1,765	1,033	3,765	1,895	3,663	1,686	3,653	4,033	3,638	1,068	1,430	6,116	3,568
Total BMI/m^2	4,144	3,409	5,430	4,575	3,260	1,221	742	2,970	2,277	3,202	4,449	1,753	1,014	3,737	1,887	3,658	1,651	3,647	4,032	3,634	1,068	1,427	6,102	3,567
±1 SD	1,464	1,148	1,422	1,540	1,016	345	293	1,855	297	772	2,668	738	642	1,253	1,065	1,139	809	973	978	2,454	553	1,029	2,947	1,031

Appendix B.3.–Tributary Creek Site 9 BMI data summary, 2001–2024.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Total BMI Taxa	21	24	36	26	30	23	21	20	26	22	26	27	20	22	23	29	29	25	28	32	28	26	36	31
Mean BMI Taxa / Sample	14	15	21	14	14	11	10	14	13	10	12	15	11	12	11	18	16	14	15	14	15	16	19	18
Total Ephemeroptera Taxa	6	7	8	5	9	7	5	7	8	7	6	5	7	6	6	7	7	8	7	8	7	6	9	8
Total Plecoptera Taxa	5	5	5	6	5	2	3	4	5	5	6	6	4	3	6	4	5	3	4	3	3	4	4	5
Total Trichoptera Taxa	0	2	3	3	4	1	2	1	0	0	2	3	1	3	0	5	3	2	3	4	4	4	6	4
Ephemeroptera	205	436	981	562	334	444	104	441	203	89	277	245	726	565	137	1,128	452	143	311	279	283	494	1,150	757
Plecoptera	68	69	593	166	95	35	37	50	97	17	138	69	130	166	160	359	365	128	119	261	342	252	1,033	261
Trichoptera	0	2	7	5	4	2	4	1	0	0	13	10	2	8	0	22	7	4	22	6	7	16	54	14
Aquatic Diptera	86	66	256	66	60	42	21	206	141	52	196	179	135	181	73	1,449	727	427	314	683	634	716	1,424	539
Other	150	175	679	233	35	102	52	55	38	40	232	106	36	146	145	896	255	153	140	313	319	125	209	85
% Ephemeroptera	40.3	58.3	39	54.5	63.3	71	47.7	58.6	42.4	44.9	32.4	40.2	70.6	53	26.6	29.3	25.1	16.7	34.3	18.1	17.9	30.8	29.7	45.7
% Plecoptera	13.4	9.2	23.6	16.1	18	5.6	17	6.6	20.3	8.6	16.1	11.3	12.6	15.6	31.1	9.3	20.2	15	13.1	16.9	21.6	15.7	26.7	15.8
% Trichoptera	0	0.3	0.3	0.5	0.8	0.3	1.8	0.1	0	0	1.5	1.6	0.2	0.8	0	0.6	0.4	0.5	2.4	0.4	0.4	1	1.4	0.8
% Aquatic Diptera	16.9	8.8	10.2	6.4	11.4	6.7	9.6	27.4	29.4	26.3	22.9	29.4	13.1	17	14.2	37.6	40.2	49.9	34.7	44.3	40	44.7	36.8	32.5
% Other	29.5	23.4	26.9	22.6	6.6	16.3	23.9	7.3	7.9	20.2	27.1	17.4	3.5	13.7	28.2	23.2	14.1	17.9	15.5	20.3	20.1	7.8	5.4	5.1
% EPT	54	68	63	71	82	77	67	65	63	54	50	53	83	69	58	39	46	32	50	35	40	48	58	62
% Chironomidae	7	5	5	5	8	4	1	1	22	23	21	26	11	14	11	29	24	35	15	40	36	16	15	9
% Dominant Taxon	26	29	26	44	37	40	26	33	32	32	24	30	38	30	28	29	24	45	31	43	37	35	28	25
Total BMI	509	748	2,516	1,032	528	625	218	753	479	198	856	609	1,029	1,066	515	3,854	1,806	855	906	1,542	1,585	1,603	3,870	1,656
Total Terrestrial Invertebrates	0	5	15	3	12	33	1	5	50	22	2	9	13	13	6	18	3	8	2	4	2	0	15	7
Total Invertebrates	509	753	2,531	1,035	540	658	219	758	529	220	858	618	1,042	1,079	521	3,872	1,809	863	908	1,546	1,587	1,603	3,885	1,663
% Sample BMI	100	99	99	99	98	95	99	99	91	90	99	99	99	99	99	99	99	99	100	100	100	100	100	100
% Sample Terrestrial	0	1	1	1	2	5	1	1	10	11	1	1	1	1	1	1	1	1	0	0	0	0	0	0
Total Sample Area (m^2)	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Total Invertebrates /m^2	1,184	1,751	5,886	2,407	1,256	1,530	509	1,763	1,230	512	1,995	1,437	2,423	2,509	757	5,628	2,629	1,254	1,320	2,247	2,307	2,330	5,647	2,417
Total BMI/m^2	1,184	1,740	5,851	2,400	1,228	1,453	507	1,751	1,114	460	1,991	1,416	2,393	2,479	749	5,602	2,625	1,243	1,317	2,241	2,304	2,330	5,625	2,407
±1 SD	1,148	620	1,579	851	357	878	268	631	636	463	447	615	1,897	727	348	3,133	1,059	464	855	1,409	879	1,296	2,583	1,126

Appendix B.4.–Tributary Creek Site 1847 BMI data summary, 2018–2024.

	2018	2019	2020	2021	2022	2023	2024
Total BMI Taxa	29	28	29	25	26	33	29
Mean BMI Taxa / Sample	18	18	16	15	17	16	18
Total Ephemeroptera Taxa	7	7	8	5	8	8	8
Total Plecoptera Taxa	4	3	4	3	4	6	4
Total Trichoptera Taxa	4	3	3	5	3	5	4
Ephemeroptera	631	1,382	492	985	1,406	1,084	1,365
Plecoptera	134	291	210	294	217	368	164
Trichoptera	34	12	30	50	26	23	14
Aquatic Diptera	512	493	496	372	740	875	477
Other	197	268	504	267	124	376	103
% Ephemeroptera	41.8	56.5	28.4	50.1	55.9	39.8	64.3
% Plecoptera	8.9	11.9	12.1	14.9	8.6	13.5	7.7
% Trichoptera	2.3	0.5	1.7	2.5	1	0.8	0.7
% Aquatic Diptera	34	20.2	28.6	18.9	29.4	32.1	22.5
% Other	13.1	11	29.1	13.6	4.9	13.8	4.9
% EPT	53	69	42	68	66	54	73
% Chironomidae	29	14	25	16	23	29	2
% Dominant Taxon	38	35	36	37	34	36	54
Total BMI	1,508	2,446	1,732	1,968	2,513	2,726	2,123
Total Terrestrial Invertebrates	5	1	2	5	3	2	1
Total Invertebrates	1,513	2,447	1,734	1,973	2,516	2,728	2,124
% Sample BMI	100	100	100	100	100	100	100
% Sample Terrestrial	0	0	0	0	0	0	0
Total Sample Area (m^2)	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Total Invertebrates /m^2	2,199	3,557	2,520	2,868	3,657	3,965	3,087
Total BMI/m^2	2,192	3,555	2,517	2,860	3,653	3,962	3,086
±1 SD	1,248	2,417	762	1,209	1,581	1,703	1,223

Appendix B.5.–Zinc Creek Site 10 BMI data summary, 2024.

	2024
Total BMI Taxa	24
Mean BMI Taxa / Sample	16
Total Ephemeroptera Taxa	8
Total Plecoptera Taxa	4
Total Trichoptera Taxa	2
Ephemeroptera	1,369
Plecoptera	261
Trichoptera	3
Aquatic Diptera	107
Other	74
% Ephemeroptera	75.5
% Plecoptera	14.4
% Trichoptera	0.2
% Aquatic Diptera	5.9
% Other	4.1
% EPT	90
% Chironomidae	4
% Dominant Taxon	44
Total BMI	1,814
Total Terrestrial Invertebrates	5
Total Invertebrates	1,819
% Sample BMI	100
% Sample Terrestrial	0
Total Sample Area (m^2)	0.69
Total Invertebrates /m^2	2,644
Total BMI/m^2	2,637
±1 SD	989

Appendix B.6.–Zinc Creek Site 371 BMI data summary, 2024.

	2024
Total BMI Taxa	23
Mean BMI Taxa / Sample	16
Total Ephemeroptera Taxa	8
Total Plecoptera Taxa	5
Total Trichoptera Taxa	2
Ephemeroptera	840
Plecoptera	143
Trichoptera	2
Aquatic Diptera	97
Other	36
% Ephemeroptera	75.1
% Plecoptera	12.8
% Trichoptera	0.2
% Aquatic Diptera	8.7
% Other	3.2
% EPT	88
% Chironomidae	6
% Dominant Taxon	31
Total BMI	1,118
Total Terrestrial Invertebrates	2
Total Invertebrates	1,120
% Sample BMI	100
% Sample Terrestrial	0
Total Sample Area (m^2)	0.69
Total Invertebrates /m^2	1,628
Total BMI/m^2	1,625
1 SD	766

APPENDIX C: JUVENILE FISH DATA

Appendix C.1.–Greens Creek Site 48 (2001-2017) and 63 (2018-2024) Dolly Varden capture data, 2001–2017.

Year	Species	FL (mm)	Fish Captured (n)	Condition Factor
2001	DV	48–139	30	ND
2002	DV	45–160	74	ND
2003	DV	54–153	157	ND
2004	DV	58–156	168	ND
2005	DV	53–149	118	ND
2006	DV	49–150	138	ND
2007	DV	60–154	50	ND
2008	DV	80–137	54	ND
2009	DV	54–142	67	ND
2010	DV	62–163	97	ND
2011	DV	57–155	56	ND
2012	DV	68–156	85	1.00
2013	DV	38–149	167	1.00
2014	DV	52–146	59	1.10
2015	DV	58–146	48	1.00
2016	DV	50–148	119	1.20
2017	DV	52–156	84	1.10
2018	DV	59–144	69	1.03
2019	DV	63–176	150	1.03
2020	DV	59–149	88	0.94
2021	DV	70–136	36	0.98
2022	DV	52–124	20	1.10
2023	DV	49-144	106	0.99
2024	DV	52-142	133	1.00

Appendix C.2.–Greens Creek Site 54 resident fish capture data, 2001–2024.

Year	Species	FL (mm)	Fish Captured (n)	Condition Factor
2001	DV	27–138	70	ND
2002	DV	43–160	168	ND
2003	DV	54–184	92	ND
2004	DV	55–161	118	ND
2005	DV	56–134	111	ND
2006	DV	50–138	116	ND
2007	DV	58–125	64	ND
	CT	102–104	2	ND
2008	DV	45–131	50	ND
	CT	101–106	2	ND
2009	DV	48–141	42	ND
2010	DV	60–151	46	ND
2011	DV	57–150	73	ND
2012	DV	53–143	92	1.00
2013	DV	50–150	188	1.10
2014	DV	58–158	121	1.00
2015	DV	54–150	64	1.00
2016	DV	59–140	31	1.10
2017	DV	48–150	169	1.10
2018	DV	52–133	162	0.98
2019	DV	61–154	183	1.02
2020	DV	63–158	73	0.97
	RT	135	1	1.03
2021	DV	47–169	74	1.00
2022	DV	58–150	47	1.00
2023	DV	48-143	204	1.07
2024	DV	54-146	174	1.09

Appendix C.3.–Greens Creek Site 54 coho salmon capture data, 2001–2023.

Year	Species	FL (mm)	Fish Captured (n)	Condition Factor
2001	CO	44–95	2	ND
2002	CO	59–85	14	ND
2003	CO	44–51	5	ND
2004	CO	74–95	9	ND
2005	CO	68–91	33	ND
2006	CO	66–88	6	ND
2007	CO	ND	0	ND
2008	CO	53–69	4	ND
2009	CO	67–71	2	ND
2010	CO	77	1	ND
2011	CO	ND	0	ND
2012	CO	ND	0	ND
2013	CO	ND	0	ND
2014	CO	70–85	10	1.20
2015	CO	45–100	15	1.10
2016	CO	69–88	14	1.20
2017	CO	ND	0	ND
2018	CO	38–90	17	1.17
2019	CO	44–95	54	1.20
2020	CO	64–94	18	1.12
2021	CO	63	1	1.48
2022	CO	61–86	12	1.20
2023	CO	46-90	11	1.13
2024	CO	61-83	23	1.23

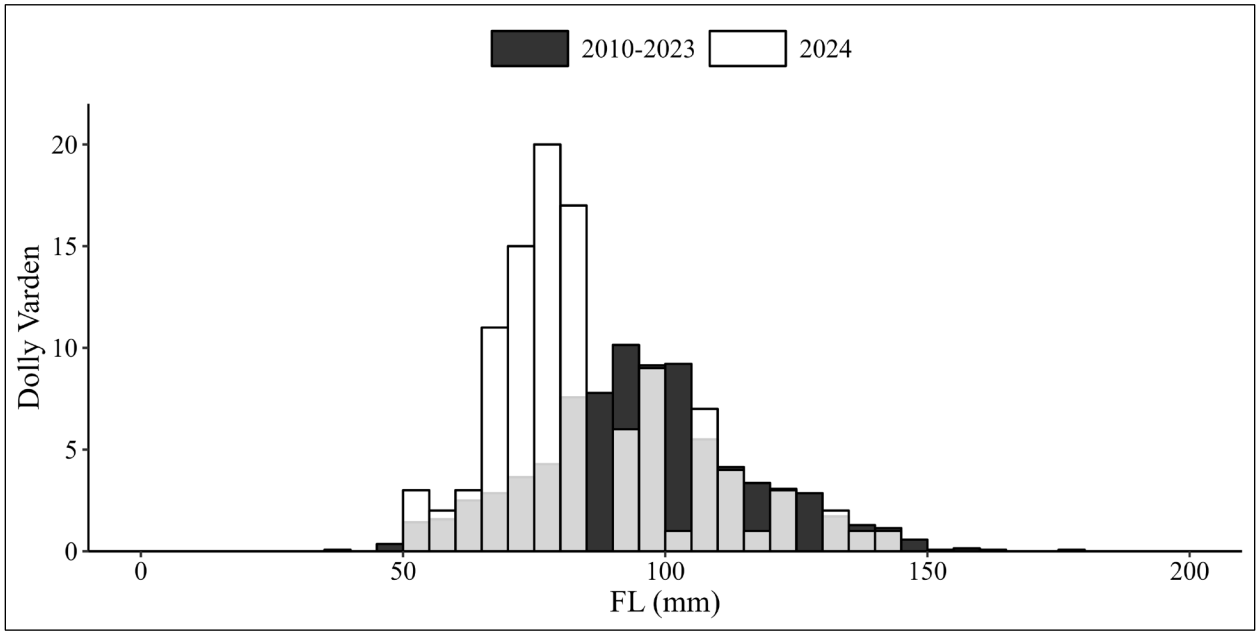
Appendix C.4.–Tributary Creek Site 9 resident fish capture data, 2001–2023.

Year	Species	FL (mm)	Fish Captured (n)	Condition Factor
2001	DV	61–110	70	ND
	CT	124	1	ND
2002	DV	70–147	29	ND
2003	DV	68–114	13	ND
	CT	122	1	ND
2004	DV	68–109	21	ND
	CT	122	1	ND
	RT	86–106	3	ND
2005	DV	59–131	21	ND
	CT	103	1	ND
2006	DV	85–117	7	ND
2007	DV	81–158	7	ND
2008	DV	60–92	15	ND
	CT	109	1	ND
2009	DV	48–91	24	ND
	CT	97	1	ND
2010	DV	58–108	21	ND
	CT	64–89	4	ND
2011	DV	50–115	15	ND
	CT	115	1	ND
2012	DV	74–122	17	1.00
	CT	63–93	4	1.00
2013	DV	52–92	9	1.20
2014	DV	105	1	1.10
	RT	110	1	0.40
2015	DV	55–80	10	1.20
2016	DV	76–114	15	1.00
2017	DV	55–117	31	1.20
2018	DV	58–106	20	1.04
2019	DV	59–102	8	1.12
2020	DV	112	1	0.97
2021	DV	64–77	5	1.10
2022	DV	ND	0	ND
2023	DV	60-95	16	1.10
2024	DV	80-102	13	0.98

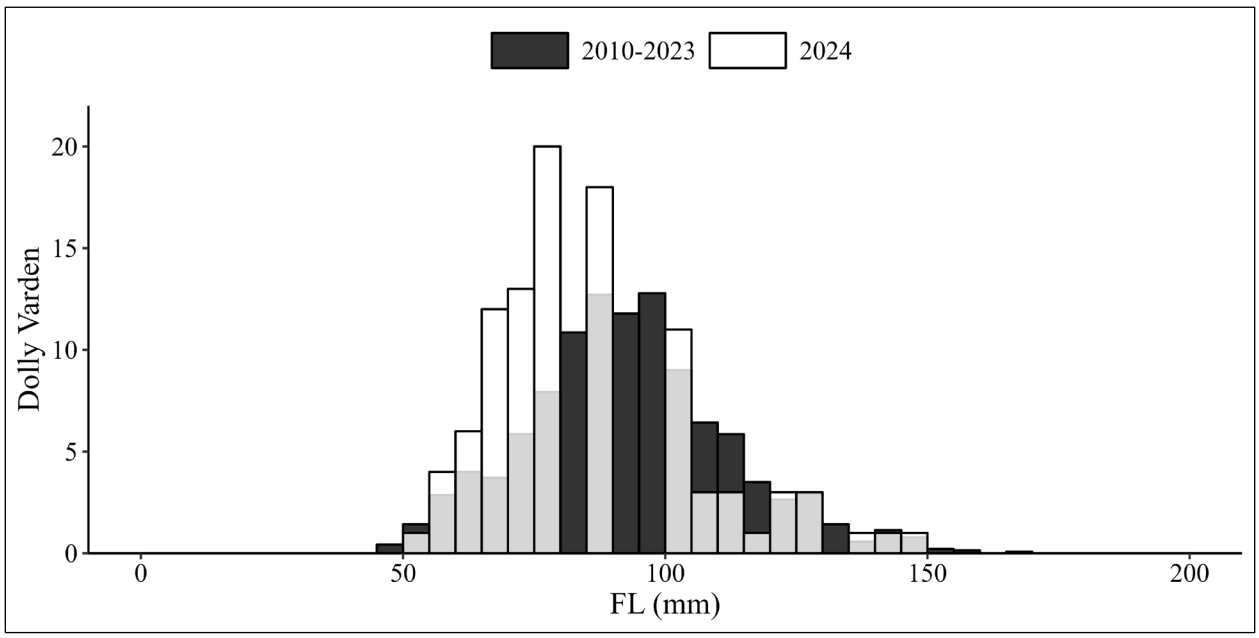
Appendix C.5.–Tributary Creek Site 9 coho salmon capture data, 2001–2023.

Year	Species	FL (mm)	Fish Captured (n)	Condition Factor
2001	CO	40–101	89	ND
2002	CO	34–85	29	ND
2003	CO	46–88	37	ND
2004	CO	42–94	23	ND
2005	CO	39–98	82	ND
2006	CO	82–92	5	ND
2007	CO	39–107	50	ND
2008	CO	48–100	72	ND
2009	CO	38–116	42	ND
2010	CO	41–85	77	ND
2011	CO	42–95	18	ND
2012	CO	46–105	39	1.10
2013	CO	50–90	9	1.40
2014	CO	39–91	86	1.20
2015	CO	38–90	36	1.30
2016	CO	45–95	75	1.30
2017	CO	35–94	67	1.30
2018	CO	39–92	32	1.11
2019	CO	45–85	46	1.19
2020	CO	51–83	7	1.28
2021	CO	40–94	70	1.24
2022	CO	41–95	26	1.24
2023	CO	31-93	69	1.22
2024	CO	45-91	38	0.93

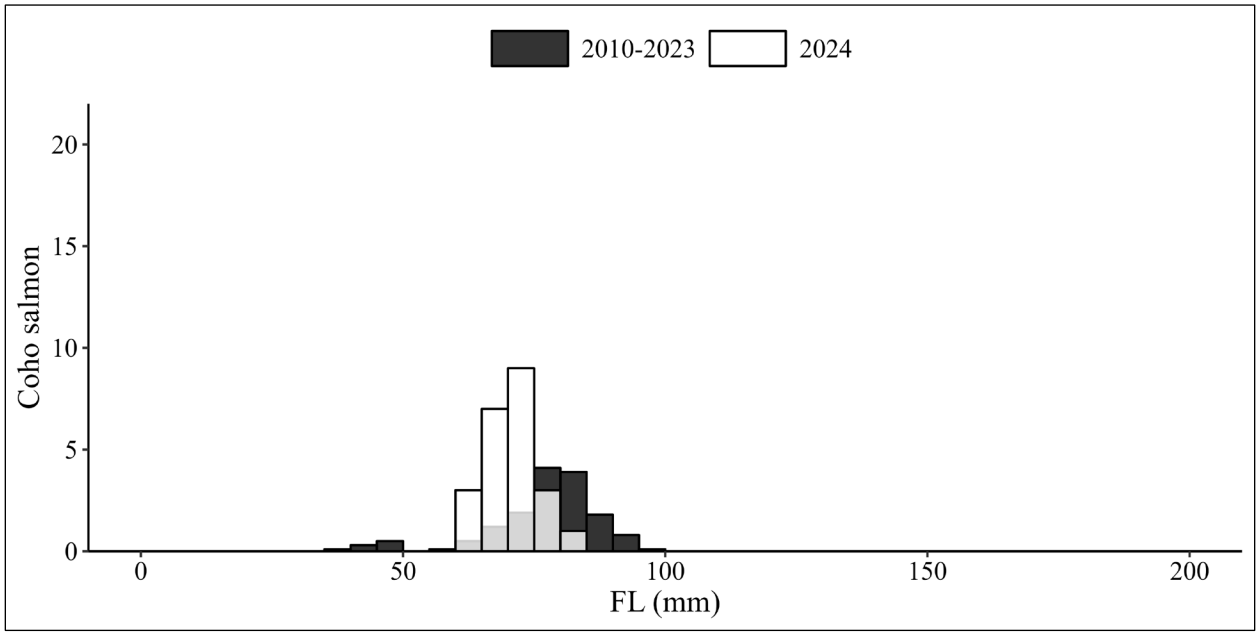
Appendix C.6.–Greens Creek Site 48 and Site 63 Dolly Varden length frequency distributions, 2010–2023 and 2024.



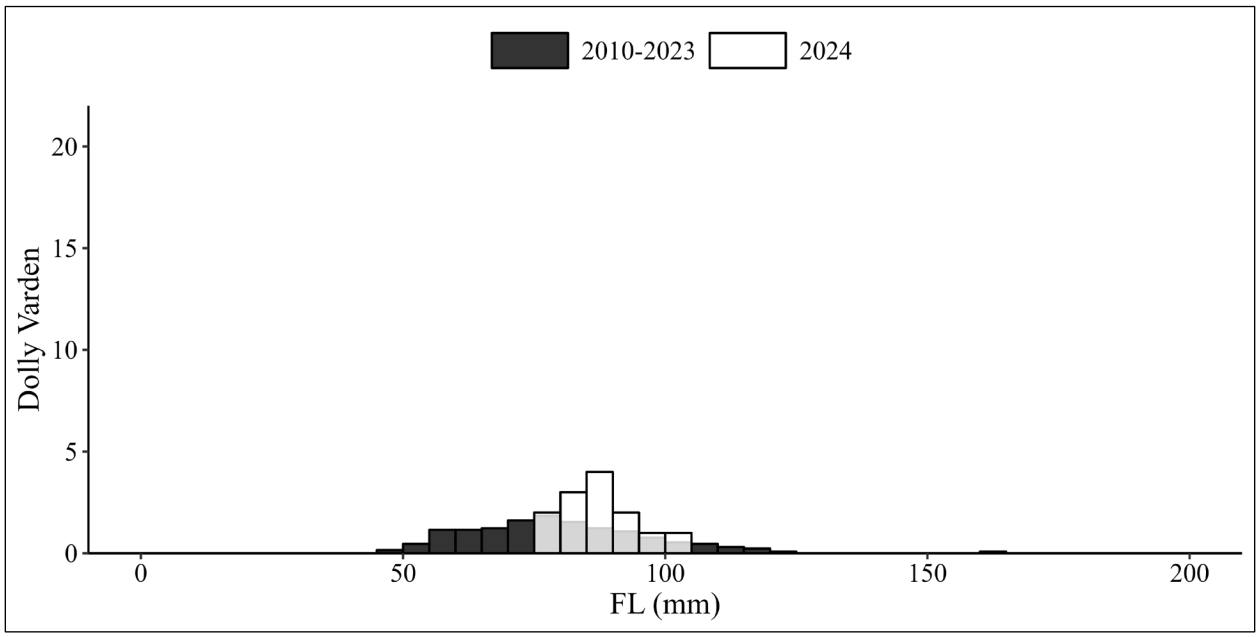
Appendix C.7.–Greens Creek Site 54 Dolly Varden length frequency distributions, 2010–2023 and 2024.



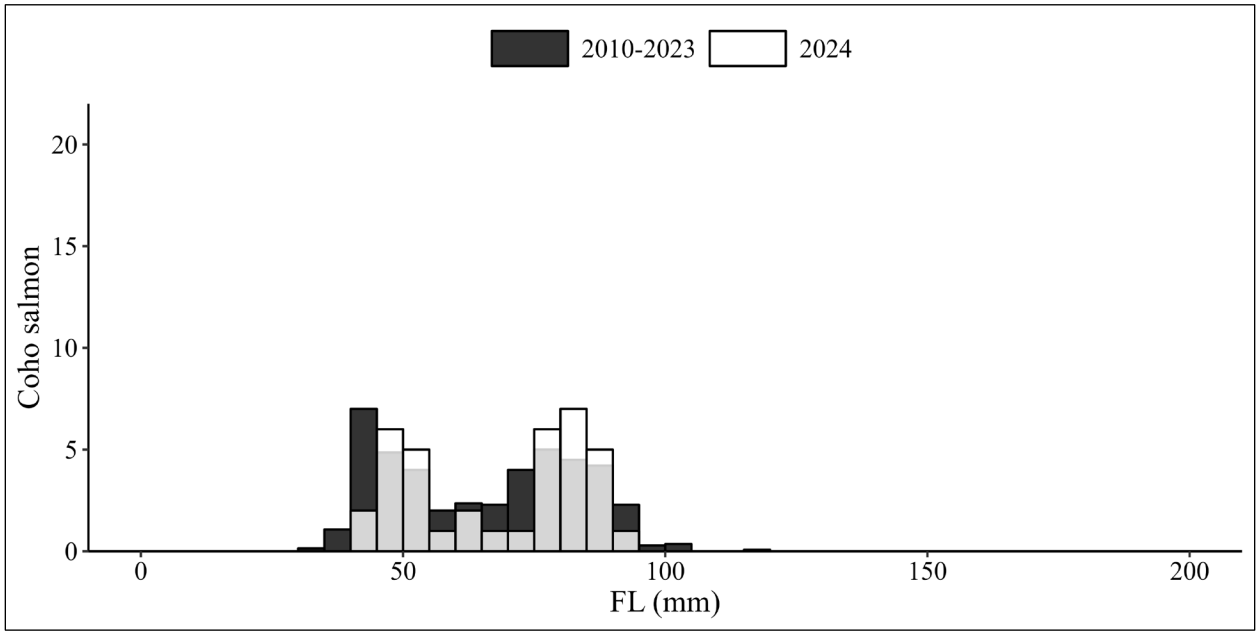
Appendix C.8.–Greens Creek Site 54 coho salmon length frequency distributions, 2010–2023 and 2024.



Appendix C.9.–Tributary Creek Site 9 Dolly Varden length frequency distributions, 2010–2023 and 2024.



Appendix C.10.–Tributary Creek Site 9 coho salmon length frequency distributions, 2010–2023 and 2024.



APPENDIX D: JUVENILE FISH ELEMENT CONCENTRATIONS DATA AND LAB REPORT

Appendix D.1.–Greens Creek Site 48 (2001-2017) and Site 63 (2018-2024) Dolly Varden element concentrations.

Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/23/2001	131	26	0.020	1.76	8.30	ND	0.200	6.10	180
	137	28.8	0.030	0.89	7.20	ND	0.170	4.60	146
	119	18.8	0.020	2.27	5.70	ND	0.200	6.20	189
	121	21.1	0.020	1.56	6.90	ND	0.170	5.20	182
	111	13.7	0.030	0.89	4.70	ND	0.230	5.40	138
	121	21.1	<0.020	1.26	7.40	ND	0.100	5.60	157
7/24/2002	133	23.2	0.030	1.64	6.80	ND	0.720	4.80	239
	120	15	0.070	0.85	7.00	ND	0.280	4.10	210
	122	17.5	0.030	0.74	4.30	ND	0.170	4.90	162
	127	20.8	0.040	1.40	6.10	ND	0.160	4.70	185
	134	24.8	0.050	1.30	7.90	ND	0.460	4.30	208
	128	21.7	0.040	1.56	6.80	ND	0.220	5.70	343
7/22/2003	90	8.9	<0.020	0.65	4.20	ND	0.140	5.60	191
	98	9.9	<0.020	0.90	5.10	ND	0.220	5.50	180
	103	12.1	<0.020	0.82	5.60	ND	0.160	5.40	241
	112	12.5	<0.020	0.78	6.10	ND	0.110	6.10	192
	108	11.9	<0.020	0.63	3.90	ND	0.140	5.20	174
	100	10.5	<0.020	0.58	3.70	ND	0.080	5.50	218
7/22/2004	96	8.6	<0.020	0.63	4.70	ND	0.150	4.30	206
	88	6.8	<0.020	0.83	5.60	ND	0.260	4.00	175
	101	11.5	<0.020	1.54	4.60	ND	0.210	4.10	183
	98	9.3	<0.020	0.80	5.20	ND	0.280	3.70	168
	93	7.6	<0.020	1.25	4.40	ND	0.140	6.40	220
	91	7.5	0.030	1.01	4.50	ND	0.290	5.60	323
7/22/2005	103	19.7	0.020	0.66	4.40	ND	0.440	4.20	183
	96	13.1	<0.020	0.84	14.50	ND	0.980	4.80	220
	119	15.6	0.020	0.89	4.40	ND	0.660	4.80	226
	114	17.1	0.020	0.59	6.00	ND	0.320	4.80	178
	111	15.3	0.030	1.10	18.80	ND	0.790	4.60	217
	125	16.9	0.030	0.47	3.60	ND	0.360	3.80	161
7/20/2006	110	15.8	0.040	0.56	8.50	ND	0.370	5.40	244
	110	15.4	0.050	1.20	8.30	ND	0.310	6.00	217
	113	16.1	0.040	0.65	6.30	ND	0.240	5.40	264
	132	25	0.060	0.63	8.10	ND	0.660	5.20	232
	104	12.8	0.080	0.96	8.50	ND	0.370	5.10	283
	114	16.7	0.030	0.63	5.30	ND	0.200	5.10	270

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Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/21/2007	122	17.9	0.030	1.16	5.50	ND	0.170	5.50	221
	95	10.4	0.020	1.42	3.90	ND	0.290	5.80	165
	135	22.8	0.090	1.35	14.10	ND	1.370	5.30	166
	98	9.9	0.030	0.96	5.70	ND	0.270	5.20	269
	105	13.2	0.110	1.79	11.40	ND	1.620	5.40	323
	99	10	0.040	1.43	5.20	ND	0.310	5.70	208
7/22/2008	112	16.4	0.069	1.23	5.20	ND	0.950	5.72	289
	123	21.3	0.039	0.79	3.90	ND	0.570	4.56	194
	105	14	0.079	0.82	4.60	ND	0.520	5.88	199.5
	124	20.6	0.041	0.87	4.90	ND	0.420	6.31	244
	115	16.9	0.030	1.36	5.30	ND	0.510	5.36	254
	122	19.8	0.037	1.07	5.60	ND	0.380	6.11	260
7/21/2009	120	20.1	<0.020	1.05	5.20	ND	0.220	5.90	186
	121	20.7	<0.020	1.40	5.30	ND	0.440	5.70	173
	119	17.9	0.020	1.10	4.50	ND	0.130	5.90	182
	108	13.6	<0.020	1.20	4.10	ND	0.150	5.70	162
	109	14.6	<0.020	1.50	4.90	ND	0.170	5.90	186
	110	15.2	<0.020	0.84	3.80	ND	0.180	6.10	202
7/21/2010	103	11.9	0.020	1.56	4.80	0.090	0.160	5.00	226
	109	16.1	<0.019	0.51	3.00	0.150	0.200	5.60	168
	108	13.9	0.040	0.91	4.20	0.170	0.300	5.00	180
	105	13.8	<0.020	0.98	3.40	0.130	0.090	4.60	163
	98	10.8	0.062	0.90	4.80	0.140	0.460	4.80	213
	93	9.1	<0.020	0.96	3.60	0.100	0.090	4.00	156
7/22/2011	NA	NA	0.030	1.12	5.70	ND	0.280	6.20	221
7/24/2012	109	11.3	0.030	2.26	ND	0.134	0.160	5.50	186
	123	18.3	0.030	1.37	ND	0.122	0.100	5.70	184
	110	9.8	0.030	1.83	ND	0.159	2.590	5.60	275
	103	10.6	0.030	0.99	ND	0.175	0.300	5.10	189
	104	10.7	0.030	2.66	ND	0.122	1.050	6.30	242
	116	15.8	0.040	0.73	ND	0.148	1.030	4.70	190
7/25/2013	145	20.6	<0.020	0.68	3.70	0.214	0.170	5.30	237
	115	17.9	0.070	0.97	6.10	0.238	0.240	5.80	239
	115	14.3	<0.020	0.81	4.00	0.180	0.080	6.70	258
	105	11.4	<0.020	0.68	3.20	0.213	0.140	6.40	213
	109	13	0.040	2.01	6.60	0.113	0.360	6.20	271
	105	12.4	0.040	1.75	5.70	0.274	0.220	6.20	287

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Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/25/2014	110	13	0.040	0.55	4.50	0.146	0.110	5.30	234
	100	10.5	<0.020	0.93	4.20	0.148	0.190	6.90	213
	106	10.7	<0.020	1.22	4.80	0.199	0.380	5.70	232
	105	11.3	<0.020	1.45	4.20	0.122	0.440	6.10	193
	100	10.4	<0.020	0.92	4.50	0.134	0.060	4.90	237
	120	14.8	0.040	0.75	5.50	0.260	0.180	5.90	305
7/16/2015	105	12.4	<0.020	0.60	2.50	0.114	0.130	6.20	159
	104	11.7	0.040	1.11	10.70	0.100	1.300	5.80	205
	100	11.7	0.030	1.05	3.80	0.152	0.140	6.10	187
	105	11.3	0.030	1.39	4.20	0.154	0.360	6.10	198
	105	12.7	<0.020	1.06	4.00	0.128	0.120	5.70	169
	100	10.4	0.020	1.49	3.90	0.165	0.370	5.40	191
	104	9.6	<0.020	0.85	3.10	0.091	0.090	5.20	175
	85	8.6	0.030	0.90	3.60	0.139	0.270	5.90	172
	102	10.3	<0.020	1.51	3.70	0.180	0.150	7.20	192
	120	16.3	<0.020	0.86	4.00	0.150	0.140	6.40	223
7/14/2016	84	7.3	<0.020	1.28	4.72	0.180	0.157	7.63	252
	82	6.1	0.023	0.92	4.82	0.160	0.147	5.83	222
	98	10.1	0.021	1.09	3.99	0.108	0.150	6.30	189
	93	7.9	<0.020	1.44	4.49	0.163	0.205	6.77	197
	88	6.9	0.035	1.50	4.65	0.243	0.493	7.63	185
	84	7.3	0.023	0.68	4.12	0.150	0.088	6.42	200
	94	8.8	0.065	1.21	4.69	0.172	0.143	7.19	194
	86	7.6	0.022	1.89	4.96	0.210	0.295	7.27	251
	93	9.4	<0.020	1.23	4.85	0.127	0.193	5.80	205
	101	9.8	<0.020	1.32	4.72	0.114	0.134	6.28	178
7/13/2017	95	8.7	0.054	0.65	3.74	0.115	0.189	5.79	172
	91	8	0.097	1.51	3.86	0.118	0.417	5.98	169
	102	10	0.024	0.75	3.92	0.092	0.089	5.37	168
	105	13.1	0.022	1.00	4.98	0.143	0.237	6.78	194
	94	8.6	<0.020	0.46	2.81	0.106	0.064	4.50	166
	99	9.9	0.023	1.03	3.93	0.111	0.087	5.39	200
	98	10.8	0.022	0.46	2.68	0.101	0.064	4.40	168
	124	18.8	0.034	0.66	3.77	0.123	0.087	5.02	154
	99	10.7	<0.020	0.67	3.48	0.089	0.067	4.69	165
	95	9.8	0.044	0.30	3.18	0.112	0.126	4.73	159

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Appendix D.1.–Page 4 of 5.

Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/13/2018	92	7	0.038	1.55	6.52	0.175	0.635	7.50	283
	95	8	0.056	1.13	5.15	0.169	0.906	6.56	236
	105	11.5	0.045	1.63	7.10	0.181	1.290	7.50	250
	87	6.5	0.021	1.65	4.65	0.127	0.263	7.40	244
	97	8.2	0.044	1.44	5.42	0.157	1.540	7.38	244
	90	6.8	0.026	1.18	4.60	0.149	0.324	7.00	195
	105	10.6	0.025	1.10	5.33	0.178	0.172	6.20	247
	95	8.1	<0.020	1.43	4.89	0.134	0.187	8.00	189
	110	13	0.037	0.96	9.61	0.146	0.340	6.60	190
	104	10.1	0.043	1.21	5.57	0.228	1.300	6.40	250
7/9/2019	105	10.3	<0.019	1.22	5.43	0.132	0.594	6.31	255
	121	16.5	0.029	0.89	4.24	0.192	0.537	5.75	209
	95	8.7	0.020	1.02	3.78	0.138	0.382	5.99	203
	110	16.5	0.031	0.55	3.15	0.163	0.327	6.93	126
	101	10.8	0.022	0.80	3.34	0.134	0.266	6.08	169
	99	12.8	0.037	1.40	5.05	0.135	1.000	6.10	207
	100	12	<0.019	1.40	4.64	0.131	0.218	5.44	201
	120	16.8	0.032	1.32	5.63	0.143	0.329	6.27	182
	95	10.1	0.034	1.34	4.10	0.162	0.514	5.46	229
	107	14.2	0.032	0.71	3.94	0.174	0.570	4.93	180
7/16/2020	125	20.6	0.027	1.31	4.70	0.267	0.590	5.90	271
	125	18.1	0.034	0.91	4.90	0.244	0.210	5.40	224
	100	10.5	0.029	1.18	5.20	0.153	0.210	5.20	219
	124	17.4	0.058	1.15	12.40	0.174	1.810	4.70	204
	129	18.8	0.039	1.04	4.90	0.190	0.610	5.20	204
	109	11.4	0.053	1.33	4.70	0.195	1.280	6.30	290
	119	14.3	0.040	1.09	6.40	0.240	0.770	5.80	269
	95	7.8	0.023	1.03	4.60	0.203	0.500	7.20	190
	97	7.5	0.027	1.57	6.00	0.176	0.620	5.30	357
	105	12.7	0.021	1.35	5.80	0.202	0.330	6.20	311
7/12/2021	119	12.6	0.027	0.78	4.41	0.163	0.291	6.30	212
	94	7.5	0.048	1.45	6.35	0.116	0.264	5.20	188
	93	7.6	0.025	1.44	5.07	0.163	0.207	6.04	228
	114	12.7	0.034	0.83	4.12	0.193	0.341	5.79	215
	113	9.9	0.022	0.85	3.91	0.114	0.093	5.05	148
	95	7.3	0.038	1.14	4.10	0.192	0.150	6.16	222
	105	12.1	0.040	0.76	6.99	0.109	0.376	5.28	180
	102	8.2	0.030	1.85	4.86	0.220	0.226	5.47	278
	113	13.8	0.035	0.81	4.04	0.179	0.210	5.97	194
	92	6.5	0.025	1.79	4.28	0.146	0.229	5.62	228

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Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/12/2022	94	13	0.035	0.78	4.37	0.115	1.330	5.35	209
	94	9	0.034	1.72	4.41	0.117	1.060	5.44	223
	93	9.3	0.028	1.13	4.35	0.144	1.030	5.57	193
	117	15.9	0.036	1.65	6.03	0.150	0.736	5.61	240
	97	9.7	0.020	1.44	4.95	0.099	1.140	5.44	199
	98	10	0.020	0.92	3.57	0.089	0.868	5.89	162
	99	10	0.054	1.76	5.13	0.143	2.740	5.43	235
	98	8.4	0.025	0.76	4.21	0.121	0.682	5.30	163
	95	8.9	0.024	0.72	3.93	0.094	0.781	5.51	168
	124	22.1	0.025	2.01	4.01	0.118	0.882	5.53	180
7/11/2023	115	16.3	0.020	1.27	4.32	0.144	0.435	5.55	206
	112	10.1	0.020	1.29	5.12	0.167	0.472	5.98	231
	123	16.3	0.050	1.57	5.98	0.118	0.644	6.08	212
	105	11	0.026	0.89	4.27	0.119	0.289	5.06	160
	110	13.3	0.031	0.96	5.57	0.190	0.311	5.90	218
	98	9.3	0.021	1.68	5.89	0.119	0.444	6.95	179
	114	14.8	0.023	0.91	4.57	0.133	0.180	6.07	175
	100	9.1	0.031	0.99	5.18	0.133	0.540	6.24	180
	95	9.6	0.020	0.85	4.36	0.126	0.262	6.54	168
	93	8.7	0.021	0.77	4.34	0.128	0.264	6.60	193
7/9/2024	115	16.7	0.035	1.71	7.57	0.163	1.290	5.55	260
	94	8.5	0.021	1.51	5.05	0.100	0.193	5.47	194
	90	8.1	0.027	0.78	4.07	0.121	0.163	5.16	209
	97	8.2	0.034	1.23	5.09	0.166	0.410	5.41	254
	97	9.1	0.039	2.23	6.38	0.192	0.244	5.73	272
	90	7.8	0.024	1.19	5.41	0.085	0.160	6.78	182
	92	8.4	0.024	1.09	3.70	0.100	0.108	5.64	177
	106	13	0.043	1.03	5.39	0.148	0.112	6.57	222
	107	12.7	<0.020	0.79	3.53	0.117	0.129	5.08	168
	121	18.3	0.026	1.58	6.21	0.166	0.225	5.56	281

Appendix D.2.–Greens Creek Site 54 Dolly Varden element concentrations, 2001–2024.

Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/23/2001	121	21.5	0.030	0.46	4.30	ND	0.330	5.70	126
	119	19.3	0.020	0.21	3.20	ND	0.220	3.60	82
	107	15.7	0.030	0.73	6.30	ND	0.590	4.70	144
	109	13.6	0.020	0.82	5.40	ND	0.860	4.90	172
	105	13.5	<0.020	0.79	6.50	ND	0.450	5.80	203
	138	27.5	<0.020	0.74	5.80	ND	0.400	5.40	171
7/24/2002	118	18	0.030	0.50	4.40	ND	0.940	3.40	363
	128	22.3	0.030	0.52	4.50	ND	0.350	4.70	150
	115	17.7	0.050	0.95	6.00	ND	0.660	4.40	161
	115	18.9	0.030	1.03	5.20	ND	0.660	4.20	216
	124	21.1	0.050	1.32	5.20	ND	0.740	3.90	194
	123	20.9	0.020	0.70	3.90	ND	0.780	4.40	195
7/22/2003	123	21.1	0.030	0.85	6.40	ND	1.400	6.10	188
	101	10.6	<0.020	0.67	4.20	ND	0.320	6.40	174
	88	9.2	<0.020	0.75	4.30	ND	0.350	6.50	186
	109	14.8	<0.020	1.11	5.80	ND	0.380	5.70	188
	95	10.6	<0.020	0.59	3.50	ND	0.290	5.70	174
	92	9.7	<0.020	0.91	4.10	ND	0.430	6.50	263
7/21/2004	103	9.9	0.020	0.79	11.00	ND	0.570	4.60	232
	104	10	<0.020	0.88	5.50	ND	0.540	5.00	206
	86	6.6	<0.020	1.26	5.10	ND	0.360	5.30	164
	96	9.3	0.030	0.79	5.90	ND	0.280	5.40	191
	93	9.9	<0.020	0.83	5.00	ND	0.480	3.90	202
	104	12.9	0.080	1.12	7.00	ND	0.930	4.90	217
7/22/2005	120	12.3	0.030	0.72	5.00	ND	0.270	4.00	160
	106	12.1	0.020	0.63	4.50	ND	0.130	3.90	200
	113	20.8	<0.020	0.73	8.80	ND	0.170	4.70	223
	114	17.9	<0.020	0.82	9.70	ND	0.170	3.90	222
	112	16.1	0.030	1.06	8.80	ND	0.220	4.40	209
	118	22.3	0.020	0.55	5.50	ND	0.390	3.90	185
7/20/2006	137	27.3	0.060	0.42	4.80	ND	0.510	5.70	208
	112	14.9	0.040	0.75	16.00	ND	0.950	7.20	223
	102	12	0.020	0.93	22.20	ND	0.520	6.30	239
	114	19.6	0.040	1.03	7.60	ND	0.850	5.30	252
	98	12.3	0.080	0.54	10.90	ND	0.480	5.40	223
	115	16.9	0.040	0.78	8.60	ND	0.680	5.60	257

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Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/20/2007	102	11.8	0.040	0.88	5.30	ND	0.540	5.60	157
	125	21.1	0.030	0.97	5.20	ND	0.830	7.50	234
	97	10.7	0.060	0.81	5.70	ND	0.890	8.60	185
	123	19.7	0.020	0.75	4.40	ND	0.500	7.10	175
	104	12.5	0.030	0.92	5.60	ND	0.570	7.80	174
	110	15.1	0.040	1.38	6.20	ND	0.820	5.40	191
7/22/2008	123	21.9	0.039	0.66	5.30	ND	0.260	5.53	185
	94	10.8	0.039	1.04	5.10	ND	0.280	6.07	203
	123	21.5	0.028	1.53	4.90	ND	3.460	6.29	261
	97	11.2	0.029	1.34	5.00	ND	0.170	5.90	198.5
	108	16	0.045	1.98	6.30	ND	0.230	5.97	220
	108	14.2	0.059	1.07	8.40	ND	1.310	5.03	195
7/21/2009	132	26.9	0.040	1.10	4.80	ND	0.330	5.40	213
	141	32.3	0.020	0.71	4.50	ND	0.450	7.90	143
	116	17.9	<0.020	0.99	4.20	ND	0.400	6.30	153
	117	17.7	0.030	1.00	5.90	ND	0.390	6.80	200
	119	22.1	<0.020	1.20	4.00	ND	0.280	6.50	176
	103	13	0.020	2.20	5.30	ND	0.350	5.90	226
7/20/2010	115	16	<0.019	0.80	3.40	0.080	0.370	4.60	159
	112	12.8	0.022	0.67	3.10	0.090	0.340	3.70	154
	118	12.6	<0.020	0.98	3.60	0.120	0.250	5.20	190
	108	10.6	<0.019	1.31	3.80	0.100	0.160	4.10	212
	115	12.3	<0.020	1.73	5.00	0.120	0.360	4.40	222
	94	9	0.025	0.77	4.00	0.140	0.310	4.80	199
7/21/2011	NA	NA	<0.020	0.95	4.50	ND	0.320	5.60	191
7/23/2012	132	24.2	0.020	0.85	ND	0.077	0.410	9.20	144
	118	17.3	0.040	1.03	ND	0.109	0.570	6.30	199
	109	13.1	0.060	2.04	ND	0.112	1.320	7.40	215
	97	9.1	0.030	2.04	ND	0.126	0.500	6.20	227
	115	15.4	0.040	1.22	ND	0.123	1.100	6.90	202
	119	18.3	0.030	1.81	ND	0.080	0.270	5.10	191
7/24/2013	117	16.9	<0.020	1.39	4.20	0.131	0.300	5.60	247
	117	17.6	0.020	0.74	3.90	0.183	0.390	7.00	297
	94	11.3	<0.020	1.27	4.30	0.172	0.280	6.60	262
	118	18.9	<0.020	0.89	3.90	0.145	0.330	6.00	211
	105	10.3	0.020	1.18	5.30	0.108	0.270	6.40	245
	116	15.3	0.020	1.07	4.50	0.126	0.180	6.40	225

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Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/24/2014	125	21.2	0.080	0.93	12.70	0.121	1.550	5.70	212
7/25/2014	104	10.8	0.040	1.15	4.50	0.111	0.370	4.80	247
	110	11.5	0.210	0.85	4.30	0.119	0.300	6.20	291
	110	14.9	<0.020	0.69	4.80	0.113	0.250	5.90	248
	104	10.5	<0.020	1.03	5.00	0.106	0.280	5.70	250
	135	24.1	0.020	0.86	4.40	0.160	0.490	6.60	243
7/15/2015	110	11.3	0.020	0.92	4.70	0.121	0.590	6.30	236
	105	11.5	<0.020	0.52	2.50	0.116	0.360	7.00	117
	110	11.7	<0.020	0.67	3.00	0.106	0.360	6.40	171
	105	12	0.030	1.16	3.80	0.109	1.620	7.30	221
	100	10.7	<0.020	2.06	4.90	0.106	0.370	6.60	198
	95	8.4	<0.020	0.91	3.40	0.096	0.380	5.50	176
	100	8.2	<0.020	0.60	3.60	0.119	0.490	5.80	219
	92	9.9	0.020	0.84	4.70	0.072	0.470	6.50	153
	90	7.1	0.030	1.32	3.90	0.159	1.080	7.20	204
	88	6.2	0.020	1.13	4.00	0.119	0.390	6.40	179
7/12/2016	127	21.5	<0.020	0.91	3.24	0.096	0.194	4.29	122
	113	16.2	0.024	1.01	3.49	0.130	0.295	6.23	154
	117	15.8	<0.020	1.44	4.22	0.146	0.232	7.03	210
	104	12.1	<0.019	0.63	3.39	0.153	0.220	6.18	173
	101	9	<0.020	1.49	4.57	0.129	0.305	6.66	257
	95	8.7	<0.020	0.56	3.26	0.101	0.226	6.01	194
	99	11.1	0.029	1.89	5.98	0.110	0.820	7.47	210
	86	8.8	0.022	1.52	5.21	0.101	0.359	6.48	226
	107	10	<0.020	0.98	3.60	0.127	0.239	7.10	182
	97	8.9	<0.019	1.18	4.60	0.124	0.215	6.93	244
7/12/2017	103	11.5	0.028	0.74	3.39	0.100	0.189	6.36	173
	96	8.8	0.030	0.77	3.69	0.103	0.327	5.90	160
	93	8.1	0.039	0.49	3.25	0.116	0.468	5.10	133
	96	10.4	0.020	0.67	3.30	0.107	0.173	5.70	177
	84	6.5	0.028	0.72	3.72	0.110	0.403	5.18	192
	109	14.1	0.033	0.45	3.29	0.088	0.212	5.05	150
	90	9	0.035	1.30	5.34	0.093	0.281	7.16	227
	97	9.9	0.029	0.89	3.79	0.090	0.246	6.30	178
	101	10.6	0.031	0.87	4.27	0.104	0.222	6.40	167
	115	14.1	0.039	1.20	22.20	0.109	0.444	5.90	191

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Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/12/2018	125	18.7	0.024	1.11	5.65	0.171	0.325	6.30	230
	90	6.3	<0.020	2.17	6.05	0.154	1.150	7.86	260
	90	7.5	0.032	1.75	5.47	0.139	1.080	8.00	225
	95	8.1	0.037	0.73	3.37	0.183	1.700	6.46	278
	110	14.1	0.040	0.64	3.82	0.156	0.568	6.40	208
	95	9.7	0.026	1.28	7.36	0.119	0.769	7.32	258
	95	7.1	0.023	1.31	4.78	0.130	0.452	7.20	234
	85	6.9	0.029	0.73	4.22	0.118	0.675	6.84	206
	100	10.1	0.056	1.35	5.40	0.186	0.421	7.99	241
	105	12.9	0.036	1.45	6.08	0.136	0.538	8.90	217
7/10/2019	100	10.4	0.037	1.28	4.77	0.149	0.828	5.91	201
	90	7.2	<0.020	1.65	4.55	0.142	0.318	6.25	270
	95	8.7	<0.020	1.06	3.53	0.081	0.231	6.05	188
	111	13.4	<0.020	0.98	3.75	0.073	0.274	5.53	150
	89	7.7	<0.020	1.07	3.61	0.116	0.340	6.00	181
	87	4.2	<0.020	1.01	3.62	0.078	0.178	6.40	178
	101	10.3	<0.020	0.64	3.42	0.117	0.114	7.50	168
	103	9.9	<0.020	0.66	2.74	0.156	0.227	5.60	168
	96	9.5	<0.020	1.58	3.09	0.105	0.157	6.28	194
	94	8.5	<0.020	0.86	3.05	0.106	0.114	5.20	216
7/16/2020	92	7.1	0.027	1.97	4.95	0.192	0.279	5.83	304
	98	9.6	0.035	1.88	6.50	0.193	0.322	4.83	241
	100	10.7	0.022	0.87	3.66	0.132	0.330	9.22	198
	126	17.7	0.022	1.05	4.13	0.148	0.729	7.39	211
	116	14.2	0.035	1.61	4.43	0.224	0.581	6.76	193
	92	7.6	0.033	0.88	4.50	0.153	3.970	5.50	207
	112	14.2	0.037	0.96	5.10	0.197	0.352	6.08	212
	110	11.8	0.035	0.90	5.23	0.183	0.257	6.27	251
	104	11.9	0.052	1.23	5.85	0.175	0.721	6.33	210
	102	9.8	0.037	1.02	4.68	0.108	0.463	7.13	188
7/12/2021	88	7.5	0.042	1.26	5.96	0.184	0.418	5.91	227
	93	9.9	0.025	1.08	4.28	0.150	0.291	7.01	183
	83	5.3	0.035	1.04	4.00	0.161	0.797	5.75	222
	105	11.6	0.038	1.43	4.96	0.182	0.334	6.12	230
	90	6.8	0.027	0.79	3.43	0.205	0.272	5.60	157
	99	8	0.020	0.81	3.44	0.175	0.203	5.78	189
	92	7.9	0.028	2.11	7.63	0.163	0.265	7.16	282
	96	8.2	0.020	0.86	3.10	0.161	0.304	5.57	151
	91	6.8	0.031	0.93	4.57	0.165	0.409	5.99	203
	92	7.2	0.035	1.74	4.89	0.161	0.128	6.92	261

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Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/12/2022	100	10	0.021	1.66	5.19	0.306	2.010	6.07	234
	110	14.6	0.023	1.14	4.28	0.084	3.570	7.67	184
	118	19.4	0.020	0.65	3.22	0.188	1.550	5.33	171
	124	24.2	0.024	0.75	4.56	0.106	1.170	5.70	132
	108	11.6	0.028	0.51	4.35	0.120	3.320	5.18	151
	103	10.9	0.021	0.84	3.67	0.140	6.760	5.48	139
	116	17.9	0.025	0.89	3.71	0.119	3.870	6.19	182
	113	14.5	0.020	0.82	3.96	0.121	1.650	6.15	173
	101	11.6	0.027	1.03	4.82	0.104	9.950	6.31	186
	93	8.8	0.020	0.88	3.09	0.110	6.290	5.40	185
7/13/2023	112	15	0.033	2.18	5.90	0.183	0.324	6.73	234
	109	13	0.029	1.16	4.67	0.217	0.400	6.13	222
	94	8.7	0.024	1.14	4.25	0.104	0.377	6.07	157
	94	8.8	0.020	1.39	5.10	0.131	0.198	6.83	231
	111	13.2	0.020	1.48	3.92	0.181	0.257	6.88	211
	93	9.1	0.025	1.91	4.93	0.147	0.410	5.48	179
	98	9.1	0.025	2.04	5.64	0.182	0.277	6.47	203
	115	14.9	0.027	1.05	4.69	0.228	0.520	7.21	195
	116	14.8	0.020	1.44	4.64	0.154	0.962	5.27	234
	103	10.5	0.027	0.76	4.32	0.174	0.222	7.26	165
7/9/2024	128	19.85	0.021	0.90	3.44	0.264	0.335	6.23	201
	121	16.9	0.023	4.23	6.67	0.115	0.217	5.72	241
	96	9.7	0.023	1.76	5.21	0.151	0.528	6.52	197
	113	13.4	0.035	1.37	5.58	0.369	0.422	4.81	215
	91	7.9	<0.019	1.47	4.18	0.137	0.177	5.58	182
	92	10.2	0.020	3.47	6.15	0.166	0.282	4.93	257
	96	8.6	0.024	1.42	3.78	0.141	0.278	6.26	196
	93	7.2	<0.020	0.67	3.41	0.162	0.214	4.52	185
	101	8.3	0.027	0.99	4.42	0.152	1.070	6.46	236
	94	9.5	<0.020	0.85	3.39	0.085	0.153	5.01	172

Appendix D.3.–Tributary Creek Site 9 Dolly Varden element concentrations, 2001–2024.

Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/21/2001	97	9.1	0.090	0.35	4.30	ND	0.560	6.80	127
	97	9.7	0.100	0.77	5.20	ND	0.670	8.00	118
	97	9.5	0.150	0.92	5.40	ND	4.880	5.30	144
	98	10.4	0.150	0.86	6.70	ND	2.190	1.00	99
	86	6.4	0.080	0.76	4.90	ND	0.330	6.20	106
	93	7.8	0.060	0.37	12.00	ND	0.380	6.80	122
7/24/2002	103	10.8	0.020	0.22	3.70	ND	0.120	1.40	144
	97	10.4	0.070	1.20	5.50	ND	1.660	3.30	172
	100	11.2	0.130	1.06	6.10	ND	3.400	5.00	138
	90	7.9	0.230	1.29	7.10	ND	4.080	5.20	168
	90	9.2	0.080	1.15	5.20	ND	1.390	6.20	150
	100	9.3	0.040	0.84	3.20	ND	0.330	5.40	152
7/23/2003	106	10.7	0.060	0.46	2.80	ND	0.340	6.30	134
	89	6.8	0.100	1.01	4.00	ND	0.820	6.00	131
	112	17.4	0.160	1.35	4.40	ND	1.850	5.70	108
	95	11.6	0.190	0.69	5.60	ND	1.300	3.60	136
	91	9.5	0.050	0.72	4.40	ND	0.560	4.90	131
	84	8.4	0.120	0.76	3.90	ND	0.780	4.70	125
7/21/2004	84	5.5	0.100	0.96	3.20	ND	1.190	5.40	169
	96	8.5	0.100	1.24	3.80	ND	0.670	5.90	138
	105	14.1	0.100	2.02	4.00	ND	1.760	5.80	125
	85	5.8	0.040	0.47	3.70	ND	0.930	4.80	175
	81	6.4	0.090	2.34	4.30	ND	1.440	8.20	140
	86	10.4	0.110	0.83	5.50	ND	0.970	5.80	161
7/23/2005	97	11.1	0.060	0.70	10.40	ND	0.290	6.40	104
	113	16.8	0.100	0.63	4.70	ND	0.970	6.10	122
	115	18.8	0.070	0.52	6.30	ND	0.530	5.80	109
	117	20.5	0.190	0.79	9.90	ND	1.070	6.70	117
	101	11.7	0.070	1.44	5.20	ND	1.000	8.10	130
	107	13.7	0.100	1.29	4.60	ND	0.460	8.00	134
7/21/2006	99	12.9	0.120	0.74	4.00	ND	0.320	6.30	120
	96	11.6	0.120	0.76	7.70	ND	1.320	6.80	157
	94	10.9	0.180	1.59	10.30	ND	2.480	4.90	160
	100	10.9	0.110	1.34	8.50	ND	1.460	5.20	142
	97	11.7	0.140	0.88	4.60	ND	0.960	5.20	107
	117	20.8	0.240	1.29	4.30	ND	2.920	5.90	130

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Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/20/2007	98	12.4	0.110	0.91	2.70	ND	1.100	7.80	106
	89	8.9	0.120	1.72	3.30	ND	1.800	5.60	136
	114	14.1	0.150	2.76	3.40	ND	1.280	8.70	122
	81	7.1	0.140	1.90	4.20	ND	2.030	7.00	114
	114	14.6	0.880	3.63	3.90	ND	1.560	10.90	131
	93	10.6	0.140	1.50	20.30	ND	3.800	9.40	107
7/23/2008	103	12.9	0.224	1.99	4.20	ND	3.470	7.66	169
	108	14.8	0.095	0.96	3.20	ND	0.860	5.82	143
	88	8.9	0.076	0.93	3.30	ND	0.750	4.41	186
	86	9.3	0.220	1.91	5.70	ND	4.060	5.71	119
	92	9.6	0.073	1.01	2.70	ND	0.610	5.20	125
	90	8.7	0.033	0.54	2.20	ND	0.430	4.80	108
7/22/2009	83	6.9	0.040	0.29	1.70	ND	0.240	5.40	127
	91	8.6	0.060	0.55	2.10	ND	0.160	5.10	137
	91	8.5	0.110	0.36	2.00	ND	0.230	7.50	138
	98	10.3	0.090	0.81	3.40	ND	0.380	5.80	147
	91	8.6	0.030	0.47	2.20	ND	0.400	4.50	125
	90	7.8	0.060	0.60	2.20	ND	0.380	5.60	129
7/20/2010	87	7.4	0.293	1.61	5.40	0.430	3.920	6.40	151
	94	10.9	0.124	0.82	2.50	0.580	0.240	5.70	174
	90	8.5	0.084	0.73	2.90	0.350	0.290	5.30	125
	90	8.2	0.059	0.60	2.30	0.270	0.330	4.70	151
	108	13.5	0.081	0.66	2.60	0.540	0.250	3.20	118
	105	11.6	0.076	0.75	3.10	0.270	0.230	3.90	150
7/21/2011	NA	NA	0.090	0.80	3.40	ND	0.320	6.70	146
7/26/2012	89	7.3	<0.020	0.33	ND	0.429	0.180	4.30	123
	122	16.5	0.030	0.60	ND	0.257	0.540	4.80	126
	NA	8.1	0.050	0.76	ND	0.217	1.650	4.90	140
	105	11.7	0.130	0.57	ND	0.241	0.740	7.50	128
	98	9.9	0.070	0.95	ND	0.235	1.900	5.50	115
	NA	20.2	0.060	0.53	ND	0.278	0.670	5.30	116
7/23/2013	90	10.1	0.720	6.36	7.50	0.418	5.930	9.70	179
	92	10.4	0.270	1.57	3.80	0.329	1.600	6.90	122
	85	7.8	0.190	2.41	5.80	0.297	3.900	8.60	153
	NA	8	0.050	0.59	3.30	0.439	0.350	5.00	152
	82	6.6	0.480	4.67	8.90	0.332	4.870	9.60	181
	81	5.5	0.130	2.14	4.60	0.289	1.640	5.60	166

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Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/23/2014	105	13.1	0.160	0.82	2.70	0.186	0.160	7.10	145
	105	11.5	0.020	0.69	2.30	0.188	0.180	5.10	140
	104	9.1	0.090	0.69	2.60	0.247	0.220	7.20	116
	94	8.4	0.060	1.16	2.40	0.264	0.330	6.70	156
	95	8.3	0.120	0.54	2.80	0.215	0.550	6.20	135
	105	11.4	0.040	0.30	2.60	0.228	0.190	5.30	117
7/14/2015	NA	12.4	0.220	3.92	3.80	0.285	3.300	7.10	188
	77	5.7	0.330	4.40	5.20	0.321	4.930	9.10	157
	84	7.2	0.220	2.54	5.30	0.338	2.840	7.90	134
	NA	81	0.480	4.73	6.70	0.338	6.200	10.60	173
	82	6.9	0.360	3.76	4.60	0.342	4.800	8.50	153
	NA	7.7	0.250	4.03	5.30	0.280	3.420	7.80	165
	90	9.3	0.280	1.81	3.40	0.304	1.690	9.20	124
	80	6.8	0.300	3.92	5.10	0.312	4.870	9.70	159
	NA	8.9	0.130	1.69	4.20	0.322	1.860	7.20	142
	NA	12.8	0.510	5.86	5.10	0.293	4.540	10.70	175
7/11/2016	97	8.1	0.057	0.34	1.99	0.250	0.222	6.34	136
	90	6.3	0.068	0.90	2.68	0.219	0.493	5.61	115
	105	11.5	0.139	0.44	2.23	0.315	0.333	7.48	124
	94	9.4	0.134	1.30	2.76	0.234	0.982	7.12	134
	94	10.3	0.078	0.78	2.35	0.334	0.189	6.62	125
	114	16.4	0.109	1.03	2.19	0.232	0.285	5.83	131
	87	6.5	0.051	0.49	2.09	0.363	0.190	4.99	101
	89	6.5	0.034	0.58	2.17	0.249	0.198	5.61	138
	102	11.1	0.156	0.89	3.29	0.443	0.368	5.40	127
	87	6.1	0.059	1.35	2.27	0.263	0.179	8.34	125
7/11/2017	109	12.9	0.080	1.15	2.76	0.269	0.484	10.00	114
	78	5.4	0.191	2.78	3.60	0.408	2.040	8.80	145
	78	5.7	0.089	2.34	6.71	0.310	1.570	7.89	160
	109	12.4	0.094	1.29	2.40	0.631	0.413	6.15	122
	84	6.2	0.079	1.16	2.62	0.400	0.412	7.39	121
	117	17.8	0.288	3.68	3.21	0.439	1.720	9.25	148
	87	7.4	0.191	2.02	4.01	0.261	1.300	8.60	126
	94	9.2	0.068	0.29	3.55	0.169	0.183	3.20	163
	73	4.1	0.062	0.82	3.85	0.364	0.988	5.50	172
	83	6.7	0.096	1.33	3.44	0.457	1.800	8.25	118

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Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/12/2018	105	12.4	0.096	0.70	2.31	0.490	0.385	6.30	154
	81	6.7	0.115	1.09	2.80	0.577	0.963	7.20	160
	92	9.4	0.070	0.31	2.90	0.406	0.196	5.03	109
	106	11.9	0.044	0.51	2.32	0.457	0.353	5.40	137
	85	7.5	0.085	1.30	2.80	0.353	1.020	6.00	171
	92	8.3	0.108	0.97	2.84	0.863	0.381	6.70	94.8
	85	6.4	0.093	1.36	2.73	0.364	0.871	6.31	144
	108	11.6	0.084	0.79	2.53	0.435	0.162	6.20	143
	86	5.8	0.096	1.88	2.63	0.771	0.636	6.40	128
	109	12.5	0.139	0.71	2.37	0.664	0.945	6.40	154
7/11/2019	84	12.4	0.048	0.58	2.45	0.710	0.280	4.15	147
	102	6.7	0.078	0.62	2.04	0.727	0.385	4.91	161
	97	9.4	0.114	0.81	3.32	0.489	0.695	3.81	164
	91	11.9	0.093	0.60	2.35	0.775	0.245	5.23	152
	124	7.5	0.147	0.30	2.57	0.550	0.723	4.09	141
	NA	8.3	0.058	0.55	2.03	0.975	0.244	4.92	162
7/15/2020	112	13.6	0.113	0.81	2.79	0.611	1.230	7.19	108
	161	41.7	0.262	1.81	3.89	0.476	1.970	5.80	176
	120	16.9	0.616	4.52	6.35	0.383	4.920	10.90	222
	98	10.2	0.381	2.72	5.99	0.462	3.190	11.20	130
	119	19.2	0.517	2.78	7.04	0.489	4.780	13.80	173
	93	7.7	1.470	4.87	6.31	0.487	4.040	11.40	274
	87	6.6	0.357	1.68	6.68	0.425	3.930	9.31	163
7/13/2021	104	11.4	0.239	1.01	3.57	0.348	1.090	6.99	138
	99	10.2	0.373	2.23	3.70	0.442	0.757	8.09	132
	123	13.5	0.056	0.97	4.47	0.358	2.390	3.10	395
	110	13.6	0.084	0.26	1.88	0.438	0.079	7.85	132
	85	7.1	0.321	1.29	5.80	0.457	3.340	7.83	142
7/20/2021	102	10.2	0.059	0.50	2.23	0.340	0.166	6.03	130
	115	11.7	0.044	0.28	2.79	0.700	0.054	3.17	192
	103	10.2	0.092	0.72	2.75	0.357	0.263	8.14	168

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Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/12/2022	94	8.4	0.039	0.21	2.12	0.213	0.084	3.69	111
	97	8.2	0.147	1.30	3.38	0.287	0.749	6.59	154
	77	4.8	0.041	0.40	3.23	0.346	0.185	4.02	128
	77	4.3	0.218	0.48	2.83	0.364	0.679	3.94	143
8/15/2022	98	15.1	0.332	4.79	5.83	0.490	1.340	9.35	164
	100	10.6	0.186	2.26	2.69	0.297	1.000	6.21	111
	104	13.8	0.103	0.95	3.48	0.325	1.040	5.11	130
	104	13.4	0.101	0.52	3.00	0.328	0.428	4.64	123
	122	23.3	0.221	0.98	6.24	0.330	2.570	7.45	129
	87	9.3	0.260	2.55	3.64	0.452	1.450	5.99	154
7/12/2023	95	7.7	0.057	0.52	2.88	0.299	0.502	5.87	128
	104	10.7	0.063	0.26	1.91	0.368	0.114	6.02	104
	94	9.2	0.092	0.55	2.34	0.499	0.881	4.68	119
	86	6.9	0.098	0.56	3.54	0.286	0.797	5.69	131
	92	7.9	0.049	0.47	3.04	0.317	0.299	5.21	118
	100	11.4	0.115	0.71	3.80	0.443	0.445	5.51	140
	90	7.6	0.128	0.92	3.34	0.354	0.857	5.98	128
	85	6.4	0.046	0.51	3.43	0.278	0.724	5.20	125
	86	6	0.284	0.56	3.15	0.357	0.675	5.63	131
	99	8.7	0.095	0.33	3.17	0.347	0.312	3.10	105
7/10/2024	90	7.56	0.050	0.35	3.62	0.322	0.654	4.55	155
	102	11.78	0.107	0.88	3.29	0.505	0.808	4.03	153
	92	7.1	0.098	0.62	3.84	0.335	0.755	4.58	150
	94	8.77	0.095	0.62	3.84	0.334	0.582	4.92	133
	89	7.83	0.053	0.51	2.16	0.290	0.168	3.91	119
	96	9.49	0.054	0.44	2.78	0.310	0.825	3.87	152
	82	5.65	0.046	0.46	2.98	0.325	0.396	4.35	138
	85	6.24	<0.020	0.25	2.55	0.265	0.578	3.78	152
	86	5.51	0.099	0.79	3.38	0.160	0.370	4.98	169
	80	4.88	0.064	0.35	3.21	0.286	0.372	4.40	134

Appendix D.4.–Zinc Creek Site 10 Dolly Varden element concentrations, 2022–2024.

Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
7/13/2021	101	12.8	0.081	1.19	3.57	0.368	0.111	5.84	158
	86	7	0.041	1.06	3.83	0.219	0.041	6.10	216
	97	9.1	0.052	1.59	3.39	0.305	0.318	4.75	176
	92	9.8	0.021	0.52	2.50	0.122	0.067	3.41	137
	99	12.5	0.106	0.79	2.85	0.510	0.152	6.47	137
	104	13.8	0.148	0.73	3.10	0.531	0.415	5.88	135
	87	7.9	0.035	0.97	3.68	0.157	0.295	3.62	182
7/20/2021	105	12.3	0.122	0.52	3.34	0.476	0.219	5.64	146
	109	11.9	0.038	0.64	3.45	0.208	0.168	3.91	171
	98	9.4	0.122	1.40	4.05	0.352	0.957	6.12	161
7/8/2024	98	8	0.058	0.88	2.99	0.145	0.435	3.49	151
	96	7.7	0.034	0.68	2.89	0.277	0.139	5.25	119
	94	8.1	0.048	0.39	3.21	0.323	0.288	4.20	156
	102	8.5	0.030	0.63	3.20	0.202	0.105	4.33	137
	108	10.4	<0.020	0.36	2.66	0.177	0.189	3.33	156
	104	8.5	0.037	0.76	3.87	0.201	0.332	4.36	161
	94	10.6	0.060	0.99	3.15	0.230	0.154	4.92	129
	98	7.4	0.029	1.15	5.46	0.175	0.562	4.36	203
	111	10.3	<0.020	0.30	2.57	0.090	0.131	2.52	150
	109	11.2	0.062	1.04	3.39	0.213	0.310	4.44	145

Appendix D.5.–Zinc Creek Site 371 Dolly Varden element concentrations, 2018, 2021, and 2024.

Date	FL (mm)	Weight (g)	Ag (mg/kg)	Cd (mg/kg)	Cu (mg/kg)	Hg (mg/kg)	Pb (mg/kg)	Se (mg/kg)	Zn (mg/kg)
5/16/2018	119	12.9	ND	1.05	5.92	0.371	0.804	3.20	287
	117	13	ND	0.98	9.79	0.285	2.210	2.70	289
	86	6.7	ND	0.48	3.02	0.186	0.092	3.10	161
	88	6.8	ND	0.69	3.15	0.274	0.166	3.20	174
	87	6.4	ND	0.45	3.25	0.178	0.068	3.33	160
	124	13.4	ND	1.04	7.80	0.325	2.040	2.35	276
7/12/2021	104	13.5	0.047	0.50	5.53	0.168	0.071	6.34	203
	110	17.3	0.054	0.60	5.41	0.245	0.060	3.55	233
	105	11.6	0.057	0.45	4.91	0.289	0.060	4.07	221
	111	13	0.070	0.65	5.99	0.287	0.056	3.50	254
	94	7.2	0.021	0.46	3.44	0.172	0.048	5.28	256
	114	17.2	0.051	0.56	4.60	0.274	0.058	4.46	229
	97	9.8	0.058	0.83	9.99	0.208	2.050	3.94	263
	106	10.7	0.063	0.41	4.71	0.252	0.034	4.00	199
	103	10.9	0.030	0.50	3.84	0.277	0.518	4.30	246
	98	10.2	0.034	0.92	3.97	0.242	0.088	4.76	303
7/8/2024	119	16.4	0.033	0.47	3.73	0.275	0.142	3.22	242
	104	10.4	0.023	0.39	3.65	0.162	0.167	3.20	204
	113	13.5	0.028	0.46	3.71	0.239	0.083	3.37	255
	121	15.5	<0.020	0.26	2.83	0.164	0.042	2.96	168
	120	15.4	<0.020	0.42	3.18	0.231	0.090	3.09	209
	103	10.2	0.026	0.54	4.64	0.174	0.029	3.02	208
	116	16.8	0.029	0.33	2.87	0.213	0.044	3.02	170
	123	17.4	0.037	0.48	3.94	0.313	0.121	3.44	233
	108	11.5	0.028	0.42	3.17	0.230	0.052	3.49	207
	100	10.4	0.024	0.46	3.84	0.179	0.058	0.32	196

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October 29, 2024 **Analytical Report for Service Request No:** K2409822

Kate Kanouse
Alaska Department of Fish and Game
Division of Habitat
802 3rd Street
P.O. Box 110024
Douglas, AK 99811-0024

RE: 2024 Greens Creek Biomonitoring

Dear Kate,

Enclosed are the results of the sample(s) submitted to our laboratory September 18, 2024
For your reference, these analyses have been assigned our service request number **K2409822.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

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Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

1317 South 13th Ave, Kelso, WA 98626 | 1-360-577-7222 | www.alsglobal.com

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Animal Tissue

Service Request: K2409822
Date Received: 09/18/2024

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Sixty three animal tissue samples were received for analysis at ALS Environmental on 09/18/2024. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Metals:

Method 6020B, 10/28/2024:The matrix spike recovery of Zinc for sample 2024GCMZC10DV10 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was appropriate.

Approved by Noe D. Davis Date 10/29/2024

Chain of Custody

ALS Environmental—Kelso Laboratory
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CHAIN OF CUSTODY

SR# 16409827

ALS Environmental
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PAGE _____ OF _____ COC# _____

PROJECT NAME	2024 Greens Creek Biomonitoring
PROJECT NUMBER	
PROJECT MANAGER	Erika King
COMPANY NAME	Alaska Department of Fish and Game
ADDRESS	802 3rd St
CITY/STATE/ZIP	Douglas, AK 99824
E-MAIL ADDRESS	erika.king@alaska.gov
PHONE #	907-465-6979 FAX #
SAMPLER'S SIGNATURE	

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐ SIM PAH☐	Volatile Organics 624☐ 8260☐ 8021☐ BTEX☐	Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐	Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐	PCBs Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081☐ 8141☐ 8151☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	Metals, Total or Dissolved (See List below) 6020A	Cyanide☐ Hex-Chrom☐	(circle) pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS, Turb.	(circle) NH_3-N, COD, TKN, TOC, DOC, NO_2+NO_3, T-Phos	TOX 9020☐ AOX 1650☐ 5060☐	Alkalinity ☐ CO_3☐ HCO_3☐	Dioxins/Furans 1613☐ 8290☐	Dissolved Gases RSK 175☐ CO_2☐ Methane☐ Ethane☐ Ethene☐	Hg-1631E			REMARKS
See attachments (3) for whole body juvenile fish individual samples.													X								X			

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
X II. Report Dup., MS, MSD as required
___ III. CLP Like Summary (no raw data)
___ IV. Data Validation Report
___ V. EDD

INVOICE INFORMATION

P.O. # Hecla Greens Creek
Bill To: Paula Lillesve
plillesve@hecla.com

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 day
X Standard (15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca **Cd** Co Cr **Cu** Fe **Pb** Mg Mn Mo Ni K **Ag** Na **Se** Sr Tl Sn V **Zn** **Hg**

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER: _____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

Please send report to Kate Kanouse (kate.kanouse@alaska.gov) and Erika King (erika.king@alaska.gov)

Please send invoice to Paula Lillesve at plillesve@hecla.com

☐ Sample Shipment contains USDA regulated soil samples (check box if applicable)

RELINQUISHED BY:		RECEIVED BY:		RELINQUISHED BY:		RECEIVED BY:	
Signature	Date/Time 9/17/24 0900	Signature	Date/Time 09/18/24 1020	Signature	Date/Time	Signature	Date/Time
Printed Name Erika King	Firm ADF&G	Printed Name AUDREY VICORITO	Firm ALS	Printed Name	Firm	Printed Name	Firm

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K2409827

Attachment 1 of 3

Project Name:	2024 Greens Creek Mine Biomonitoring		
Project Manager:	Erika King	Sample Type:	Whole body juvenile Dolly Varden char
Company Name:	Alaska Department of Fish and Game	Analysis:	Total metals, dry weight basis, report percent solids
Contact Information:	erika.king@alaska.gov / 907-465-6979		

Matrix	Sample Date	Sample Name	Sample ID	Total Metals	Fork Length (mm)	Weight (g)
Whole Body	7/9/2024	Greens Creek Site 54 DV Metals Fish #1	2024GCMGC54DV1	Ag, Cd, Cu, Hg, Pb, Se, Zn	128	19.9
Whole Body	7/9/2024	Greens Creek Site 54 DV Metals Fish #2	2024GCMGC54DV2	Ag, Cd, Cu, Hg, Pb, Se, Zn	121	16.9
Whole Body	7/9/2024	Greens Creek Site 54 DV Metals Fish #3	2024GCMGC54DV3	Ag, Cd, Cu, Hg, Pb, Se, Zn	96	9.7
Whole Body	7/9/2024	Greens Creek Site 54 DV Metals Fish #4	2024GCMGC54DV4	Ag, Cd, Cu, Hg, Pb, Se, Zn	113	13.4
Whole Body	7/9/2024	Greens Creek Site 54 DV Metals Fish #5	2024GCMGC54DV5	Ag, Cd, Cu, Hg, Pb, Se, Zn	91	7.9
Whole Body	7/9/2024	Greens Creek Site 54 DV Metals Fish #6	2024GCMGC54DV6	Ag, Cd, Cu, Hg, Pb, Se, Zn	92	10.2
Whole Body	7/9/2024	Greens Creek Site 54 DV Metals Fish #7	2024GCMGC54DV7	Ag, Cd, Cu, Hg, Pb, Se, Zn	96	8.6
Whole Body	7/9/2024	Greens Creek Site 54 DV Metals Fish #8	2024GCMGC54DV8	Ag, Cd, Cu, Hg, Pb, Se, Zn	93	7.2
Whole Body	7/9/2024	Greens Creek Site 54 DV Metals Fish #9	2024GCMGC54DV9	Ag, Cd, Cu, Hg, Pb, Se, Zn	101	8.3
Whole Body	7/9/2024	Greens Creek Site 54 DV Metals Fish #10	2024GCMGC54DV10	Ag, Cd, Cu, Hg, Pb, Se, Zn	94	9.5
Whole Body	7/9/2024	Greens Creek Site 54 CO Metals Fish #1	2024GCMGC54CO1	Ag, Cd, Cu, Hg, Pb, Se, Zn	79	5.5
Whole Body	7/9/2024	Greens Creek Site 54 CO Metals Fish #2	2024GCMGC54CO2	Ag, Cd, Cu, Hg, Pb, Se, Zn	69	5.0
Whole Body	7/9/2024	Greens Creek Site 63 DV Metals Fish #1	2024GCMGC63DV1	Ag, Cd, Cu, Hg, Pb, Se, Zn	115	16.7
Whole Body	7/9/2024	Greens Creek Site 63 DV Metals Fish #2	2024GCMGC63DV2	Ag, Cd, Cu, Hg, Pb, Se, Zn	94	8.5
Whole Body	7/9/2024	Greens Creek Site 63 DV Metals Fish #3	2024GCMGC63DV3	Ag, Cd, Cu, Hg, Pb, Se, Zn	90	8.1
Whole Body	7/9/2024	Greens Creek Site 63 DV Metals Fish #4	2024GCMGC63DV4	Ag, Cd, Cu, Hg, Pb, Se, Zn	97	8.2
Whole Body	7/9/2024	Greens Creek Site 63 DV Metals Fish #5	2024GCMGC63DV5	Ag, Cd, Cu, Hg, Pb, Se, Zn	97	9.1
Whole Body	7/9/2024	Greens Creek Site 63 DV Metals Fish #6	2024GCMGC63DV6	Ag, Cd, Cu, Hg, Pb, Se, Zn	90	7.8
Whole Body	7/9/2024	Greens Creek Site 63 DV Metals Fish #7	2024GCMGC63DV7	Ag, Cd, Cu, Hg, Pb, Se, Zn	92	8.4
Whole Body	7/9/2024	Greens Creek Site 63 DV Metals Fish #8	2024GCMGC63DV8	Ag, Cd, Cu, Hg, Pb, Se, Zn	106	13.0
Whole Body	7/9/2024	Greens Creek Site 63 DV Metals Fish #9	2024GCMGC63DV9	Ag, Cd, Cu, Hg, Pb, Se, Zn	107	12.7
Whole Body	7/9/2024	Greens Creek Site 63 DV Metals Fish #10	2024GCMGC63DV10	Ag, Cd, Cu, Hg, Pb, Se, Zn	121	18.3

K2409822

Attachment 2 of 3

Project Name:	2024 Greens Creek Mine Biomonitoring		
Project Manager:	Erika King	Sample Type:	Whole body juvenile Dolly Varden char and Coho Salmon
Company Name:	Alaska Department of Fish and Game	Analysis:	Total metals, dry weight basis, report percent solids
Contact Information:	erika.king@alaska.gov / 907-465-6979		

Matrix	Sample Date	Sample Name	Sample ID	Total Metals	Fork Length (mm)	Weight (g)
Whole Body	7/10/2024	Tributary Creek Site 9 DV Metals Fish #1	2024GCMTC9DV1	Ag, Cd, Cu, Hg, Pb, Se, Zn	90	7.56
Whole Body	7/10/2024	Tributary Creek Site 9 DV Metals Fish #2	2024GCMTC9DV2	Ag, Cd, Cu, Hg, Pb, Se, Zn	102	11.78
Whole Body	7/10/2024	Tributary Creek Site 9 DV Metals Fish #3	2024GCMTC9DV3	Ag, Cd, Cu, Hg, Pb, Se, Zn	92	7.10
Whole Body	7/10/2024	Tributary Creek Site 9 DV Metals Fish #4	2024GCMTC9DV4	Ag, Cd, Cu, Hg, Pb, Se, Zn	94	8.77
Whole Body	7/10/2024	Tributary Creek Site 9 DV Metals Fish #5	2024GCMTC9DV5	Ag, Cd, Cu, Hg, Pb, Se, Zn	89	7.83
Whole Body	7/10/2024	Tributary Creek Site 9 DV Metals Fish #6	2024GCMTC9DV6	Ag, Cd, Cu, Hg, Pb, Se, Zn	96	9.49
Whole Body	7/10/2024	Tributary Creek Site 9 DV Metals Fish #7	2024GCMTC9DV7	Ag, Cd, Cu, Hg, Pb, Se, Zn	82	5.65
Whole Body	7/10/2024	Tributary Creek Site 9 DV Metals Fish #8	2024GCMTC9DV8	Ag, Cd, Cu, Hg, Pb, Se, Zn	85	6.24
Whole Body	7/10/2024	Tributary Creek Site 9 DV Metals Fish #9	2024GCMTC9DV9	Ag, Cd, Cu, Hg, Pb, Se, Zn	86	5.51
Whole Body	7/10/2024	Tributary Creek Site 9 DV Metals Fish #10	2024GCMTC9DV10	Ag, Cd, Cu, Hg, Pb, Se, Zn	80	4.88
Whole Body	7/10/2024	Tributary Creek Site 9 CO Metals Fish #1	2024GCMTC9CO1	Ag, Cd, Cu, Hg, Pb, Se, Zn	85	6.90
Whole Body	7/10/2024	Tributary Creek Site 9 CO Metals Fish #2	2024GCMTC9CO2	Ag, Cd, Cu, Hg, Pb, Se, Zn	83	6.74
Whole Body	7/10/2024	Tributary Creek Site 9 CO Metals Fish #3	2024GCMTC9CO3	Ag, Cd, Cu, Hg, Pb, Se, Zn	83	5.33
Whole Body	7/10/2024	Tributary Creek Site 9 CO Metals Fish #4	2024GCMTC9CO4	Ag, Cd, Cu, Hg, Pb, Se, Zn	85	6.28
Whole Body	7/10/2024	Tributary Creek Site 9 CO Metals Fish #5	2024GCMTC9CO5	Ag, Cd, Cu, Hg, Pb, Se, Zn	86	6.85
Whole Body	7/10/2024	Tributary Creek Site 9 CO Metals Fish #6	2024GCMTC9CO6	Ag, Cd, Cu, Hg, Pb, Se, Zn	73	4.72
Whole Body	7/10/2024	Tributary Creek Site 9 CO Metals Fish #7	2024GCMTC9CO7	Ag, Cd, Cu, Hg, Pb, Se, Zn	82	5.63
Whole Body	7/10/2024	Tributary Creek Site 9 CO Metals Fish #8	2024GCMTC9CO8	Ag, Cd, Cu, Hg, Pb, Se, Zn	79	5.33
Whole Body	7/10/2024	Tributary Creek Site 9 CO Metals Fish #9	2024GCMTC9CO9	Ag, Cd, Cu, Hg, Pb, Se, Zn	84	6.17
Whole Body	7/10/2024	Tributary Creek Site 9 CO Metals Fish #10	2024GCMTC9CO10	Ag, Cd, Cu, Hg, Pb, Se, Zn	77	5.06

K2409822

Attachment 3 of 3

Project Name:	2024 Greens Creek Mine Biomonitoring		
Project Manager:	Erika King	Sample Type:	Whole body juvenile Dolly Varden char and Coho Salmon
Company Name:	Alaska Department of Fish and Game	Analysis:	Total metals, dry weight basis, report percent solids
Contact Information:	erika.king@alaska.gov / 907-465-6979		

Matrix	Sample Date	Sample Name	Sample ID	Total Metals	Fork Length (mm)	Weight (g)
Whole Body	7/8/2024	Zinc Creek Site 371 DV Metals Fish #1	2024GCMZC371DV1	Ag, Cd, Cu, Hg, Pb, Se, Zn	119	16.4
Whole Body	7/8/2024	Zinc Creek Site 371 DV Metals Fish #2	2024GCMZC371DV2	Ag, Cd, Cu, Hg, Pb, Se, Zn	104	10.4
Whole Body	7/8/2024	Zinc Creek Site 371 DV Metals Fish #3	2024GCMZC371DV3	Ag, Cd, Cu, Hg, Pb, Se, Zn	113	13.5
Whole Body	7/8/2024	Zinc Creek Site 371 DV Metals Fish #4	2024GCMZC371DV4	Ag, Cd, Cu, Hg, Pb, Se, Zn	121	15.5
Whole Body	7/8/2024	Zinc Creek Site 371 DV Metals Fish #5	2024GCMZC371DV5	Ag, Cd, Cu, Hg, Pb, Se, Zn	120	15.4
Whole Body	7/8/2024	Zinc Creek Site 371 DV Metals Fish #6	2024GCMZC371DV6	Ag, Cd, Cu, Hg, Pb, Se, Zn	103	10.2
Whole Body	7/8/2024	Zinc Creek Site 371 DV Metals Fish #7	2024GCMZC371DV7	Ag, Cd, Cu, Hg, Pb, Se, Zn	116	16.8
Whole Body	7/8/2024	Zinc Creek Site 371 DV Metals Fish #8	2024GCMZC371DV8	Ag, Cd, Cu, Hg, Pb, Se, Zn	123	17.4
Whole Body	7/8/2024	Zinc Creek Site 371 DV Metals Fish #9	2024GCMZC371DV9	Ag, Cd, Cu, Hg, Pb, Se, Zn	108	11.5
Whole Body	7/8/2024	Zinc Creek Site 371 DV Metals Fish #10	2024GCMZC371DV10	Ag, Cd, Cu, Hg, Pb, Se, Zn	100	10.4
Whole Body	7/8/2024	Zinc Creek Site 10 DV Metals Fish #1	2024GCMZC10DV1	Ag, Cd, Cu, Hg, Pb, Se, Zn	98	8.0
Whole Body	7/8/2024	Zinc Creek Site 10 DV Metals Fish #2	2024GCMZC10DV2	Ag, Cd, Cu, Hg, Pb, Se, Zn	96	7.7
Whole Body	7/8/2024	Zinc Creek Site 10 DV Metals Fish #3	2024GCMZC10DV3	Ag, Cd, Cu, Hg, Pb, Se, Zn	94	8.1
Whole Body	7/8/2024	Zinc Creek Site 10 DV Metals Fish #4	2024GCMZC10DV4	Ag, Cd, Cu, Hg, Pb, Se, Zn	102	8.5
Whole Body	7/8/2024	Zinc Creek Site 10 DV Metals Fish #5	2024GCMZC10DV5	Ag, Cd, Cu, Hg, Pb, Se, Zn	108	10.4
Whole Body	7/8/2024	Zinc Creek Site 10 DV Metals Fish #6	2024GCMZC10DV6	Ag, Cd, Cu, Hg, Pb, Se, Zn	104	8.5
Whole Body	7/8/2024	Zinc Creek Site 10 DV Metals Fish #7	2024GCMZC10DV7	Ag, Cd, Cu, Hg, Pb, Se, Zn	94	10.6
Whole Body	7/8/2024	Zinc Creek Site 10 DV Metals Fish #8	2024GCMZC10DV8	Ag, Cd, Cu, Hg, Pb, Se, Zn	98	7.4
Whole Body	7/8/2024	Zinc Creek Site 10 DV Metals Fish #9	2024GCMZC10DV9	Ag, Cd, Cu, Hg, Pb, Se, Zn	111	10.3
Whole Body	7/8/2024	Zinc Creek Site 10 DV Metals Fish #10	2024GCMZC10DV10	Ag, Cd, Cu, Hg, Pb, Se, Zn	109	11.2
Whole Body	7/8/2024	Zinc Creek Site 10 CO Metals Fish #1	2024GCMZC10CO1	Ag, Cd, Cu, Hg, Pb, Se, Zn	92	6.7

PM Mark

Cooler Receipt and Preservation Form

Client Alaska Dep. Fish + Game Service Request K24 Q9822

Received: 09/18/24 Opened: 09/18/24 By: AD Unloaded: 09/18/24 By: AD

1. Samples were received via? *USPS* (*Fed Ex*) *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other*_____ *NA*
3. Were custody seals on coolers? NA Y (N) If yes, how many and where? _____
4. If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp Indicate with "X"	PM Notified If out of temp	Tracking Number NA	Filed
1.6	:	IR02				2795 9444 3136	

6. Was a Temperature Blank present in cooler? NA (Y) N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA (Y) N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. (NA) Y N

If applicable, tissue samples were received: *Frozen* (*Partially Thawed*) *Thawed*

5. Packing material: *Inserts* (*Baggies*) (*Bubble Wrap*) (*Gel Packs*) *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
8. Were samples received in good condition (unbroken) NA (Y) N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA (Y) N
10. Did all sample labels and tags agree with custody papers? NA (Y) N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* (NA) Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
14. Was C12/Res negative? (NA) Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM (NA) Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? (NA) Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, Resolutions: _____

G:\SMO\2024 Forms SOP: SMO-GEN Reviewed: NP 1/3/2024

Total Solids

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 - 07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24
Analysis Method:	Freeze Dry	**Units:**	Percent
Prep Method:	None	**Basis:**	Wet

Total Solids

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
2024GCMGC54DV1	K2409822-001	**21.1**	-	-	1	10/04/24 15:38	
2024GCMGC54DV2	K2409822-002	**23.8**	-	-	1	10/04/24 15:38	
2024GCMGC54DV3	K2409822-003	**22.4**	-	-	1	10/04/24 15:38	
2024GCMGC54DV4	K2409822-004	**20.5**	-	-	1	10/04/24 15:38	
2024GCMGC54DV5	K2409822-005	**22.3**	-	-	1	10/04/24 15:38	
2024GCMGC54DV6	K2409822-006	**19.6**	-	-	1	10/04/24 15:38	
2024GCMGC54DV7	K2409822-007	**21.3**	-	-	1	10/04/24 15:38	
2024GCMGC54DV8	K2409822-008	**21.4**	-	-	1	10/04/24 15:38	
2024GCMGC54DV9	K2409822-009	**22.3**	-	-	1	10/04/24 15:38	
2024GCMGC54DV10	K2409822-010	**22.8**	-	-	1	10/04/24 15:38	
2024GCMGC54CO1	K2409822-011	**19.8**	-	-	1	10/04/24 15:38	
2024GCMGC54CO2	K2409822-012	**21.1**	-	-	1	10/04/24 15:38	
2024GCMGC63DV1	K2409822-013	**23.6**	-	-	1	10/04/24 15:38	
2024GCMGC63DV2	K2409822-014	**22.2**	-	-	1	10/04/24 15:38	
2024GCMGC63DV3	K2409822-015	**21.8**	-	-	1	10/04/24 15:38	
2024GCMGC63DV4	K2409822-016	**20.4**	-	-	1	10/04/24 15:38	
2024GCMGC63DV5	K2409822-017	**20.4**	-	-	1	10/04/24 15:38	
2024GCMGC63DV6	K2409822-018	**22.4**	-	-	1	10/04/24 15:38	
2024GCMGC63DV7	K2409822-019	**22.5**	-	-	1	10/04/24 15:38	
2024GCMGC63DV8	K2409822-020	**22.0**	-	-	1	10/04/24 15:38	
2024GCMGC63DV9	K2409822-021	**21.8**	-	-	1	10/04/24 15:38	
2024GCMGC63DV10	K2409822-022	**21.0**	-	-	1	10/04/24 15:38	
2024GCMTC9DV1	K2409822-023	**23.2**	-	-	1	10/04/24 15:38	
2024GCMTC9DV2	K2409822-024	**23.6**	-	-	1	10/04/24 15:38	
2024GCMTC9DV3	K2409822-025	**22.2**	-	-	1	10/04/24 15:38	
2024GCMTC9DV4	K2409822-026	**23.1**	-	-	1	10/04/24 15:38	
2024GCMTC9DV5	K2409822-027	**24.3**	-	-	1	10/04/24 15:38	
2024GCMTC9DV6	K2409822-028	**21.2**	-	-	1	10/04/24 15:38	
2024GCMTC9DV7	K2409822-029	**20.9**	-	-	1	10/04/24 15:38	
2024GCMTC9DV8	K2409822-030	**22.2**	-	-	1	10/04/24 15:38	
2024GCMTC9DV9	K2409822-031	**20.6**	-	-	1	10/04/24 15:38	
2024GCMTC9DV10	K2409822-032	**23.2**	-	-	1	10/04/24 15:38	
2024GCMTC9CO1	K2409822-033	**21.4**	-	-	1	10/04/24 15:38	
2024GCMTC9CO2	K2409822-034	**23.4**	-	-	1	10/04/24 15:38	
2024GCMTC9CO3	K2409822-035	**21.9**	-	-	1	10/04/24 15:38	
2024GCMTC9CO4	K2409822-036	**22.9**	-	-	1	10/04/24 15:38	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 - 07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24
Analysis Method:	Freeze Dry	**Units:**	Percent
Prep Method:	None	**Basis:**	Wet

Total Solids

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
2024GCMTC9CO5	K2409822-037	**21.8**	-	-	1	10/04/24 15:38	
2024GCMTC9CO6	K2409822-038	**21.0**	-	-	1	10/04/24 15:38	
2024GCMTC9CO7	K2409822-039	**21.4**	-	-	1	10/04/24 15:38	
2024GCMTC9CO8	K2409822-040	**22.7**	-	-	1	10/04/24 15:38	
2024GCMTC9CO9	K2409822-041	**22.0**	-	-	1	10/04/24 15:38	
2024GCMTC9CO10	K2409822-042	**22.4**	-	-	1	10/04/24 15:38	
2024GCMZC371DV1	K2409822-043	**21.1**	-	-	1	10/04/24 15:38	
2024GCMZC371DV2	K2409822-044	**22.9**	-	-	1	10/04/24 15:38	
2024GCMZC371DV3	K2409822-045	**22.3**	-	-	1	10/04/24 15:38	
2024GCMZC371DV4	K2409822-046	**22.9**	-	-	1	10/04/24 15:38	
2024GCMZC371DV5	K2409822-047	**22.0**	-	-	1	10/04/24 15:38	
2024GCMZC371DV6	K2409822-048	**24.0**	-	-	1	10/04/24 15:38	
2024GCMZC371DV7	K2409822-049	**21.4**	-	-	1	10/04/24 15:38	
2024GCMZC371DV8	K2409822-050	**22.0**	-	-	1	10/04/24 15:38	
2024GCMZC371DV9	K2409822-051	**20.8**	-	-	1	10/04/24 15:38	
2024GCMZC371DV10	K2409822-052	**22.3**	-	-	1	10/04/24 15:38	
2024GCMZC10DV1	K2409822-053	**20.4**	-	-	1	10/04/24 15:38	
2024GCMZC10DV2	K2409822-054	**22.1**	-	-	1	10/04/24 15:38	
2024GCMZC10DV3	K2409822-055	**21.9**	-	-	1	10/04/24 15:38	
2024GCMZC10DV4	K2409822-056	**21.1**	-	-	1	10/04/24 15:38	
2024GCMZC10DV5	K2409822-057	**20.6**	-	-	1	10/04/24 15:38	
2024GCMZC10DV6	K2409822-058	**21.9**	-	-	1	10/04/24 15:38	
2024GCMZC10DV7	K2409822-059	**18.9**	-	-	1	10/04/24 15:38	
2024GCMZC10DV8	K2409822-060	**21.1**	-	-	1	10/04/24 15:38	
2024GCMZC10DV9	K2409822-061	**22.7**	-	-	1	10/04/24 15:38	
2024GCMZC10DV10	K2409822-062	**21.5**	-	-	1	10/04/24 15:38	
2024GCMZC10CO1	K2409822-063	**23.1**	-	-	1	10/04/24 15:38	

Metals

ALS Environmental—Kelso Laboratory
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ALS Group USA, Corp.
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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal tissue	**Date Received:**	09/18/24

Mercury, Total

Prep Method:	METHOD	Units:	ng/g
Analysis Method:	1631E	Basis:	Dry
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2024GCMGC54DV1	K2409822-001	9.9	2.0	10	10/15/24	10/16/24	264	
2024GCMGC54DV2	K2409822-002	10	2.0	10	10/15/24	10/16/24	115	
2024GCMGC54DV3	K2409822-003	9.9	2.0	10	10/15/24	10/16/24	151	
2024GCMGC54DV4	K2409822-004	10	2.0	10	10/15/24	10/16/24	369	
2024GCMGC54DV5	K2409822-005	10	2.0	10	10/15/24	10/16/24	137	
2024GCMGC54DV6	K2409822-006	9.9	2.0	10	10/15/24	10/16/24	166	
2024GCMGC54DV7	K2409822-007	9.9	2.0	10	10/15/24	10/16/24	141	
2024GCMGC54DV8	K2409822-008	10	2.0	10	10/15/24	10/16/24	162	
2024GCMGC54DV9	K2409822-009	10	2.0	10	10/15/24	10/16/24	152	
2024GCMGC54DV10	K2409822-010	9.9	2.0	10	10/15/24	10/16/24	84.7	
2024GCMGC54CO1	K2409822-011	9.9	2.0	10	10/15/24	10/16/24	113	
2024GCMGC54CO2	K2409822-012	9.9	2.0	10	10/15/24	10/16/24	93.2	
2024GCMGC63DV1	K2409822-013	9.9	2.0	10	10/15/24	10/16/24	163	
2024GCMGC63DV2	K2409822-014	9.9	2.0	10	10/15/24	10/16/24	99.5	
2024GCMGC63DV3	K2409822-015	9.9	2.0	10	10/15/24	10/16/24	121	
2024GCMGC63DV4	K2409822-016	9.9	2.0	10	10/15/24	10/16/24	166	
2024GCMGC63DV5	K2409822-017	10	2.0	10	10/15/24	10/16/24	192	
2024GCMGC63DV6	K2409822-018	9.9	2.0	10	10/15/24	10/16/24	84.7	
2024GCMGC63DV7	K2409822-019	9.9	2.0	10	10/15/24	10/16/24	100	
2024GCMGC63DV8	K2409822-020	9.9	2.0	10	10/15/24	10/16/24	148	
Method Blank 1	K2409822-MB1	1.0	0.2	1	10/15/24	10/16/24	ND	
Method Blank 2	K2409822-MB2	1.0	0.2	1	10/15/24	10/16/24	ND	
Method Blank 3	K2409822-MB3	1.0	0.2	1	10/15/24	10/16/24	ND	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal tissue	**Date Received:**	09/18/24
		Date Extracted:	10/15/24
		Date Analyzed:	10/16/24

Matrix Spike/Duplicate Matrix Spike Summary
Total Metals

Sample Name:	2024GCMGC54DV1	Units:	ng/g
Lab Code:	K2409822-001MS, K2409822-001DMS	Basis:	Dry
Test Notes:			

				Spike Level		Sample	Spike Result		Percent Recovery				
Analyte	**Prep Method**	**Analysis Method**	**MRL**	**MS**	**DMS**	**Result**	**MS**	**DMS**	**MS**	**DMS**	**ALS Acceptance Limits**	**Relative Percent Difference**	**Result Notes**
Mercury	METHOD	1631E	9.9	248	248	264	481	502	88	96	70-130	4	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal tissue	**Date Received:**	09/18/24
		Date Extracted:	10/15/24
		Date Analyzed:	10/16/24

Matrix Spike/Duplicate Matrix Spike Summary
Total Metals

Sample Name:	2024GCMGC54DV2	Units:	ng/g
Lab Code:	K2409822-002MS, K2409822-002DMS	Basis:	Dry
Test Notes:			

				Spike Level		Sample	Spike Result		Percent Recovery		ALS Acceptance	Relative Percent	Result
Analyte	**Prep Method**	**Analysis Method**	**MRL**	**MS**	**DMS**	**Result**	**MS**	**DMS**	**MS**	**DMS**	**Limits**	**Difference**	**Notes**
Mercury	METHOD	1631E	9.9	249	248	115	298	345	73	93	70-130	15	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/15/24
		Date Analyzed:	10/16/24

Ongoing Precision and Recovery (OPR) Sample Summary

Total Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: ng/g

Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	ALS Percent Recovery Acceptance Limits	Result Notes
Mercury	METHOD	1631E	5.00	5.05	101	70-130	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/15/24
		Date Analyzed:	10/16/24

Ongoing Precision and Recovery (OPR) Sample Summary
Total Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: ng/g
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	ALS Percent Recovery Acceptance Limits	Result Notes
Mercury	METHOD	1631E	5.00	4.93	99	70-130	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Animal tissue	**Date Received:**	NA
		Date Extracted:	10/15/24
		Date Analyzed:	10/16/24

Quality Control Sample (QCS) Summary
Total Metals

Sample Name:	Quality Control Sample	Units:	ng/g
Lab Code:		Basis:	Dry
Test Notes:	Tort-3 Solids = 97.4%		

Source: TORT-3

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	ALS Percent Recovery Acceptance Limits	Result Notes
Mercury	METHOD	1631E	292	254	87	70-130	

ALS Group USA, Corp.
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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09-07/10/24
Sample Matrix:	Animal tissue	**Date Received:**	09/18/24

Mercury, Total

Prep Method: METHOD
Analysis Method: 1631E
Test Notes:

Units: ng/g
Basis: Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2024GCMGC63DV9	K2409822-021	9.9	2.0	10	10/15/24	10/16/24	117	
2024GCMGC63DV10	K2409822-022	9.9	2.0	10	10/15/24	10/16/24	166	
2024GCMTC9DV1	K2409822-023	10	2.0	10	10/15/24	10/16/24	322	
2024GCMTC9DV2	K2409822-024	9.9	2.0	10	10/15/24	10/16/24	505	
2024GCMTC9DV3	K2409822-025	9.9	2.0	10	10/15/24	10/16/24	335	
2024GCMTC9DV4	K2409822-026	10	2.0	10	10/15/24	10/16/24	334	
2024GCMTC9DV5	K2409822-027	9.9	2.0	10	10/15/24	10/16/24	290	
2024GCMTC9DV6	K2409822-028	10	2.0	10	10/15/24	10/16/24	310	
2024GCMTC9DV7	K2409822-029	10	2.0	10	10/15/24	10/16/24	325	
2024GCMTC9DV8	K2409822-030	9.9	2.0	10	10/15/24	10/16/24	265	
2024GCMTC9DV9	K2409822-031	9.9	2.0	10	10/15/24	10/16/24	160	
2024GCMTC9DV10	K2409822-032	10	2.0	10	10/15/24	10/16/24	286	
2024GCMTC9CO1	K2409822-033	9.9	2.0	10	10/15/24	10/16/24	244	
2024GCMTC9CO2	K2409822-034	9.9	2.0	10	10/15/24	10/16/24	295	
2024GCMTC9CO3	K2409822-035	9.9	2.0	10	10/15/24	10/16/24	312	
2024GCMTC9CO4	K2409822-036	10	2.0	10	10/15/24	10/16/24	247	
2024GCMTC9CO5	K2409822-037	9.9	2.0	10	10/15/24	10/16/24	311	
2024GCMTC9CO6	K2409822-038	9.9	2.0	10	10/15/24	10/16/24	242	
2024GCMTC9CO7	K2409822-039	9.9	2.0	10	10/15/24	10/16/24	250	
2024GCMTC9CO8	K2409822-040	9.9	2.0	10	10/15/24	10/16/24	356	
Method Blank 1	K2409822-MB1	1.0	0.2	1	10/15/24	10/16/24	ND	
Method Blank 2	K2409822-MB2	1.0	0.2	1	10/15/24	10/16/24	ND	
Method Blank 3	K2409822-MB3	1.0	0.2	1	10/15/24	10/16/24	ND	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal tissue	**Date Received:**	09/18/24
		Date Extracted:	10/15/24
		Date Analyzed:	10/16/24

Matrix Spike/Duplicate Matrix Spike Summary
Total Metals

Sample Name:	2024GCMGC63DV9	Units:	ng/g
Lab Code:	K2409822-021MS, K2409822-021DMS	Basis:	Dry
Test Notes:			

				Spike Level		Sample	Spike Result		Percent Recovery		ALS Acceptance	Relative Percent	Result
Analyte	**Prep Method**	**Analysis Method**	**MRL**	**MS**	**DMS**	**Result**	**MS**	**DMS**	**MS**	**DMS**	**Limits**	**Difference**	**Notes**
Mercury	METHOD	1631E	9.9	249	248	117	343	359	91	98	70-130	5	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal tissue	**Date Received:**	09/18/24
		Date Extracted:	10/15/24
		Date Analyzed:	10/16/24

Matrix Spike/Duplicate Matrix Spike Summary
Total Metals

Sample Name:	2024GCMGC63DV10	Units:	ng/g
Lab Code:	K2409822-022MS, K2409822-022DMS	Basis:	Dry
Test Notes:			

				Spike Level		Sample	Spike Result		Percent Recovery		ALS Acceptance	Relative Percent	Result
Analyte	**Prep Method**	**Analysis Method**	**MRL**	**MS**	**DMS**	**Result**	**MS**	**DMS**	**MS**	**DMS**	**Limits**	**Difference**	**Notes**
Mercury	METHOD	1631E	10	248	249	166	417	405	101	96	70-130	3	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/15/24
		Date Analyzed:	10/16/24

Ongoing Precision and Recovery (OPR) Sample Summary
Total Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: ng/g
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	ALS Percent Recovery Acceptance Limits	Result Notes
Mercury	METHOD	1631E	5.00	4.88	98	70-130	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/15/24
		Date Analyzed:	10/16/24

Ongoing Precision and Recovery (OPR) Sample Summary
Total Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: ng/g
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	ALS Percent Recovery Acceptance Limits	Result Notes
Mercury	METHOD	1631E	5.00	5.07	101	70-130	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Animal tissue	**Date Received:**	NA
		Date Extracted:	10/15/24
		Date Analyzed:	10/16/24

Quality Control Sample (QCS) Summary
Total Metals

Sample Name:	Quality Control Sample	Units:	ng/g
Lab Code:		Basis:	Dry
Test Notes:	Tort-3 Solids = 97.4%		

Source: TORT-3

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	ALS Percent Recovery Acceptance Limits	Result Notes
Mercury	METHOD	1631E	292	253	87	70-130	

ALS Group USA, Corp.
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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08-07/10/24
Sample Matrix:	Animal tissue	**Date Received:**	09/18/24

Mercury, Total

Prep Method: METHOD
Analysis Method: 1631E
Test Notes:

Units: ng/g
Basis: Dry

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2024GCMTC9CO9	K2409822-041	10	2.0	10	10/16/24	10/17/24	229	
2024GCMTC9CO10	K2409822-042	10	2.0	10	10/16/24	10/17/24	243	
2024GCMZC371DV1	K2409822-043	10	2.0	10	10/16/24	10/17/24	275	
2024GCMZC371DV2	K2409822-044	10	2.0	10	10/16/24	10/17/24	162	
2024GCMZC371DV3	K2409822-045	9.9	2.0	10	10/16/24	10/17/24	239	
2024GCMZC371DV4	K2409822-046	9.9	2.0	10	10/16/24	10/17/24	164	
2024GCMZC371DV5	K2409822-047	9.9	2.0	10	10/16/24	10/17/24	231	
2024GCMZC371DV6	K2409822-048	10	2.0	10	10/16/24	10/17/24	174	
2024GCMZC371DV7	K2409822-049	9.9	2.0	10	10/16/24	10/17/24	213	
2024GCMZC371DV8	K2409822-050	9.8	2.0	10	10/16/24	10/17/24	313	
2024GCMZC371DV9	K2409822-051	10	2.0	10	10/16/24	10/17/24	230	
2024GCMZC371DV10	K2409822-052	10	2.0	10	10/16/24	10/17/24	179	
2024GCMZC10DV1	K2409822-053	9.9	2.0	10	10/16/24	10/17/24	145	
2024GCMZC10DV2	K2409822-054	10	2.0	10	10/16/24	10/17/24	277	
2024GCMZC10DV3	K2409822-055	9.9	2.0	10	10/16/24	10/17/24	323	
2024GCMZC10DV4	K2409822-056	10	2.0	10	10/16/24	10/17/24	202	
2024GCMZC10DV5	K2409822-057	9.9	2.0	10	10/16/24	10/17/24	177	
2024GCMZC10DV6	K2409822-058	9.9	2.0	10	10/16/24	10/17/24	201	
2024GCMZC10DV7	K2409822-059	9.9	2.0	10	10/16/24	10/17/24	230	
2024GCMZC10DV8	K2409822-060	10	2.0	10	10/16/24	10/17/24	175	
Method Blank 1	K2409822-MB1	1.0	0.2	1	10/16/24	10/17/24	ND	
Method Blank 2	K2409822-MB2	1.0	0.2	1	10/16/24	10/17/24	ND	
Method Blank 3	K2409822-MB3	1.0	0.2	1	10/16/24	10/17/24	ND	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal tissue	**Date Received:**	09/18/24
		Date Extracted:	10/16/24
		Date Analyzed:	10/17/24

Matrix Spike/Duplicate Matrix Spike Summary
Total Metals

Sample Name:	2024GCMZC371DV4	Units:	ng/g
Lab Code:	K2409822-046MS, K2409822-046DMS	Basis:	Dry
Test Notes:			

				Spike Level		Sample	Spike Result		Percent Recovery		ALS Acceptance	Relative Percent	Result
Analyte	**Prep Method**	**Analysis Method**	**MRL**	**MS**	**DMS**	**Result**	**MS**	**DMS**	**MS**	**DMS**	**Limits**	**Difference**	**Notes**
Mercury	METHOD	1631E	9.9	247	248	164	418	392	103	92	70-130	6	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal tissue	**Date Received:**	09/18/24
		Date Extracted:	10/16/24
		Date Analyzed:	10/17/24

Matrix Spike/Duplicate Matrix Spike Summary
Total Metals

Sample Name:	2024GCMZC371DV8	Units:	ng/g
Lab Code:	K2409822-050MS, K2409822-050DMS	Basis:	Dry
Test Notes:			

				Spike Level		Sample	Spike Result		Percent Recovery		ALS Acceptance	Relative Percent	
Analyte	**Prep Method**	**Analysis Method**	**MRL**	**MS**	**DMS**	**Result**	**MS**	**DMS**	**MS**	**DMS**	**Limits**	**Difference**	**Result Notes**
Mercury	METHOD	1631E	9.9	247	246	313	508	544	79	94	70-130	7	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/16/24
		Date Analyzed:	10/17/24

Ongoing Precision and Recovery (OPR) Sample Summary
Total Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: ng/g
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	ALS Percent Recovery Acceptance Limits	Result Notes
Mercury	METHOD	1631E	5.00	4.44	89	70-130	

ALS Group USA, Corp.
dba ALS Environmental
QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/16/24
		Date Analyzed:	10/17/24

Ongoing Precision and Recovery (OPR) Sample Summary
Total Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: ng/g
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	ALS Percent Recovery Acceptance Limits	Result Notes
Mercury	METHOD	1631E	5.00	4.62	92	70-130	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Animal tissue	**Date Received:**	NA
		Date Extracted:	10/16/24
		Date Analyzed:	10/17/24

Quality Control Sample (QCS) Summary
Total Metals

Sample Name:	Quality Control Sample	Units:	ng/g
Lab Code:		Basis:	Dry
Test Notes:	Tort-3 Solids = 97.4%		

Source: TORT-3

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	ALS Percent Recovery Acceptance Limits	Result Notes
Mercury	METHOD	1631E	292	298	102	70-130	

ALS Group USA, Corp.
dba ALS Environmental
Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal tissue	**Date Received:**	09/18/24

Mercury, Total

Prep Method:	METHOD	Units:	ng/g
Analysis Method:	1631E	Basis:	Dry
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
2024GCMZC10DV9	K2409822-061	9.9	2.0	10	10/15/24	10/16/24	89.6	
2024GCMZC10DV10	K2409822-062	9.9	2.0	10	10/15/24	10/16/24	213	
2024GCMZC10CO1	K2409822-063	9.9	2.0	10	10/15/24	10/16/24	187	
Method Blank 1	K2409822-MB1	1.0	0.2	1	10/15/24	10/16/24	ND	
Method Blank 2	K2409822-MB2	1.0	0.2	1	10/15/24	10/16/24	ND	
Method Blank 3	K2409822-MB3	1.0	0.2	1	10/15/24	10/16/24	ND	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal tissue	**Date Received:**	09/18/24
		Date Extracted:	10/15/24
		Date Analyzed:	10/16/24

Matrix Spike/Duplicate Matrix Spike Summary
Total Metals

Sample Name:	2024GCMZC10DV10	Units:	ng/g
Lab Code:	K2409822-062MS, K2409822-062DMS	Basis:	Dry
Test Notes:			

				Spike Level		Sample	Spike Result		Percent Recovery		ALS Acceptance	Relative Percent	Result
Analyte	**Prep Method**	**Analysis Method**	**MRL**	**MS**	**DMS**	**Result**	**MS**	**DMS**	**MS**	**DMS**	**Limits**	**Difference**	**Notes**
Mercury	METHOD	1631E	9.9	249	249	213	455	465	97	101	70-130	2	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/15/24
		Date Analyzed:	10/16/24

Ongoing Precision and Recovery (OPR) Sample Summary

Total Metals

Sample Name: Ongoing Precision and Recovery (Initial)

Units: ng/g

Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	ALS Percent Recovery Acceptance Limits	Result Notes
Mercury	METHOD	1631E	5.00	5.05	101	70-130	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Water	**Date Received:**	NA
		Date Extracted:	10/15/24
		Date Analyzed:	10/16/24

Ongoing Precision and Recovery (OPR) Sample Summary
Total Metals

Sample Name: Ongoing Precision and Recovery (Final)

Units: ng/g
Basis: NA

Test Notes:

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	ALS Percent Recovery Acceptance Limits	Result Notes
Mercury	METHOD	1631E	5.00	5.06	101	70-130	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Animal tissue	**Date Received:**	NA
		Date Extracted:	10/15/24
		Date Analyzed:	10/16/24

Quality Control Sample (QCS) Summary
Total Metals

Sample Name:	Quality Control Sample	Units:	ng/g
Lab Code:		Basis:	Dry
Test Notes:	Tort-3 Solids = 97.4%		

Source: TORT-3

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	ALS Percent Recovery Acceptance Limits	Result Notes
Mercury	METHOD	1631E	292	245	84	70-130	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC54DV1	**Basis:**	Dry
Lab Code:	K2409822-001		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.904**	mg/Kg	0.020	0.004	5	10/28/24 15:12	10/23/24	
Copper	6020B	**3.44**	mg/Kg	0.099	0.036	5	10/28/24 15:12	10/23/24	
Lead	6020B	**0.335**	mg/Kg	0.020	0.003	5	10/28/24 15:12	10/23/24	
Selenium	6020B	**6.23**	mg/Kg	0.99	0.03	5	10/28/24 15:12	10/23/24	
Silver	6020B	**0.021**	mg/Kg	0.020	0.002	5	10/28/24 15:12	10/23/24	
Zinc	6020B	**201**	mg/Kg	0.99	0.16	5	10/28/24 15:12	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC54DV2	**Basis:**	Dry
Lab Code:	K2409822-002		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**4.23**	mg/Kg	0.019	0.004	5	10/28/24 15:22	10/23/24	
Copper	6020B	**6.67**	mg/Kg	0.097	0.035	5	10/28/24 15:22	10/23/24	
Lead	6020B	**0.217**	mg/Kg	0.019	0.003	5	10/28/24 15:22	10/23/24	
Selenium	6020B	**5.72**	mg/Kg	0.97	0.03	5	10/28/24 15:22	10/23/24	
Silver	6020B	**0.023**	mg/Kg	0.019	0.002	5	10/28/24 15:22	10/23/24	
Zinc	6020B	**241**	mg/Kg	0.97	0.16	5	10/28/24 15:22	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC54DV3	**Basis:**	Dry
Lab Code:	K2409822-003		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**1.76**	mg/Kg	0.020	0.004	5	10/28/24 15:29	10/23/24	
Copper	6020B	**5.21**	mg/Kg	0.099	0.036	5	10/28/24 15:29	10/23/24	
Lead	6020B	**0.528**	mg/Kg	0.020	0.003	5	10/28/24 15:29	10/23/24	
Selenium	6020B	**6.52**	mg/Kg	0.99	0.03	5	10/28/24 15:29	10/23/24	
Silver	6020B	**0.023**	mg/Kg	0.020	0.002	5	10/28/24 15:29	10/23/24	
Zinc	6020B	**197**	mg/Kg	0.99	0.16	5	10/28/24 15:29	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC54DV4	**Basis:**	Dry
Lab Code:	K2409822-004		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**1.37**	mg/Kg	0.020	0.004	5	10/28/24 15:31	10/23/24	
Copper	6020B	**5.58**	mg/Kg	0.099	0.036	5	10/28/24 15:31	10/23/24	
Lead	6020B	**0.422**	mg/Kg	0.020	0.003	5	10/28/24 15:31	10/23/24	
Selenium	6020B	**4.81**	mg/Kg	0.99	0.03	5	10/28/24 15:31	10/23/24	
Silver	6020B	**0.035**	mg/Kg	0.020	0.002	5	10/28/24 15:31	10/23/24	
Zinc	6020B	**215**	mg/Kg	0.99	0.16	5	10/28/24 15:31	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC54DV5	**Basis:**	Dry
Lab Code:	K2409822-005		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**1.47**	mg/Kg	0.019	0.004	5	10/28/24 15:33	10/23/24	
Copper	6020B	**4.18**	mg/Kg	0.097	0.035	5	10/28/24 15:33	10/23/24	
Lead	6020B	**0.177**	mg/Kg	0.019	0.003	5	10/28/24 15:33	10/23/24	
Selenium	6020B	**5.58**	mg/Kg	0.97	0.03	5	10/28/24 15:33	10/23/24	
Silver	6020B	**0.014**	mg/Kg	0.019	0.002	5	10/28/24 15:33	10/23/24	**J**
Zinc	6020B	**182**	mg/Kg	0.97	0.16	5	10/28/24 15:33	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC54DV6	**Basis:**	Dry
Lab Code:	K2409822-006		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**3.47**	mg/Kg	0.019	0.004	5	10/28/24 15:35	10/23/24	
Copper	6020B	**6.15**	mg/Kg	0.097	0.035	5	10/28/24 15:35	10/23/24	
Lead	6020B	**0.282**	mg/Kg	0.019	0.003	5	10/28/24 15:35	10/23/24	
Selenium	6020B	**4.93**	mg/Kg	0.97	0.03	5	10/28/24 15:35	10/23/24	
Silver	6020B	**0.020**	mg/Kg	0.019	0.002	5	10/28/24 15:35	10/23/24	
Zinc	6020B	**257**	mg/Kg	0.97	0.16	5	10/28/24 15:35	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC54DV7	**Basis:**	Dry
Lab Code:	K2409822-007		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**1.42**	mg/Kg	0.020	0.004	5	10/28/24 15:37	10/23/24	
Copper	6020B	**3.78**	mg/Kg	0.098	0.035	5	10/28/24 15:37	10/23/24	
Lead	6020B	**0.278**	mg/Kg	0.020	0.003	5	10/28/24 15:37	10/23/24	
Selenium	6020B	**6.26**	mg/Kg	0.98	0.03	5	10/28/24 15:37	10/23/24	
Silver	6020B	**0.024**	mg/Kg	0.020	0.002	5	10/28/24 15:37	10/23/24	
Zinc	6020B	**196**	mg/Kg	0.98	0.16	5	10/28/24 15:37	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC54DV8	**Basis:**	Dry
Lab Code:	K2409822-008		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.670**	mg/Kg	0.020	0.004	5	10/28/24 15:39	10/23/24	
Copper	6020B	**3.41**	mg/Kg	0.098	0.035	5	10/28/24 15:39	10/23/24	
Lead	6020B	**0.214**	mg/Kg	0.020	0.003	5	10/28/24 15:39	10/23/24	
Selenium	6020B	**4.52**	mg/Kg	0.98	0.03	5	10/28/24 15:39	10/23/24	
Silver	6020B	**0.015**	mg/Kg	0.020	0.002	5	10/28/24 15:39	10/23/24	**J**
Zinc	6020B	**185**	mg/Kg	0.98	0.16	5	10/28/24 15:39	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC54DV9	**Basis:**	Dry
Lab Code:	K2409822-009		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.993**	mg/Kg	0.020	0.004	5	10/28/24 15:41	10/23/24	
Copper	6020B	**4.42**	mg/Kg	0.099	0.036	5	10/28/24 15:41	10/23/24	
Lead	6020B	**1.07**	mg/Kg	0.020	0.003	5	10/28/24 15:41	10/23/24	
Selenium	6020B	**6.46**	mg/Kg	0.99	0.03	5	10/28/24 15:41	10/23/24	
Silver	6020B	**0.027**	mg/Kg	0.020	0.002	5	10/28/24 15:41	10/23/24	
Zinc	6020B	**236**	mg/Kg	0.99	0.16	5	10/28/24 15:41	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC54DV10	**Basis:**	Dry
Lab Code:	K2409822-010		

Total Metals

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.848**		mg/Kg	0.020	0.004	5	10/28/24 15:43	10/23/24	
Copper	6020B	**3.39**		mg/Kg	0.098	0.035	5	10/28/24 15:43	10/23/24	
Lead	6020B	**0.153**		mg/Kg	0.020	0.003	5	10/28/24 15:43	10/23/24	
Selenium	6020B	**5.01**		mg/Kg	0.98	0.03	5	10/28/24 15:43	10/23/24	
Silver	6020B	**0.011**	**J**	mg/Kg	0.020	0.002	5	10/28/24 15:43	10/23/24	
Zinc	6020B	**172**		mg/Kg	0.98	0.16	5	10/28/24 15:43	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC54CO1	**Basis:**	Dry
Lab Code:	K2409822-011		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.602**	mg/Kg	0.020	0.004	5	10/28/24 15:45	10/23/24	
Copper	6020B	**3.49**	mg/Kg	0.098	0.035	5	10/28/24 15:45	10/23/24	
Lead	6020B	**0.201**	mg/Kg	0.020	0.003	5	10/28/24 15:45	10/23/24	
Selenium	6020B	**3.58**	mg/Kg	0.98	0.03	5	10/28/24 15:45	10/23/24	
Silver	6020B	**0.033**	mg/Kg	0.020	0.002	5	10/28/24 15:45	10/23/24	
Zinc	6020B	**171**	mg/Kg	0.98	0.16	5	10/28/24 15:45	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC54CO2	**Basis:**	Dry
Lab Code:	K2409822-012		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.771**	mg/Kg	0.019	0.004	5	10/28/24 15:47	10/23/24	
Copper	6020B	**4.53**	mg/Kg	0.097	0.035	5	10/28/24 15:47	10/23/24	
Lead	6020B	**0.426**	mg/Kg	0.019	0.003	5	10/28/24 15:47	10/23/24	
Selenium	6020B	**3.77**	mg/Kg	0.97	0.03	5	10/28/24 15:47	10/23/24	
Silver	6020B	**0.035**	mg/Kg	0.019	0.002	5	10/28/24 15:47	10/23/24	
Zinc	6020B	**180**	mg/Kg	0.97	0.16	5	10/28/24 15:47	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC63DV1	**Basis:**	Dry
Lab Code:	K2409822-013		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**1.71**	mg/Kg	0.020	0.004	5	10/28/24 15:53	10/23/24	
Copper	6020B	**7.57**	mg/Kg	0.098	0.035	5	10/28/24 15:53	10/23/24	
Lead	6020B	**1.29**	mg/Kg	0.020	0.003	5	10/28/24 15:53	10/23/24	
Selenium	6020B	**5.55**	mg/Kg	0.98	0.03	5	10/28/24 15:53	10/23/24	
Silver	6020B	**0.035**	mg/Kg	0.020	0.002	5	10/28/24 15:53	10/23/24	
Zinc	6020B	**260**	mg/Kg	0.98	0.16	5	10/28/24 15:53	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC63DV2	**Basis:**	Dry
Lab Code:	K2409822-014		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**1.51**	mg/Kg	0.020	0.004	5	10/28/24 15:56	10/23/24	
Copper	6020B	**5.05**	mg/Kg	0.098	0.035	5	10/28/24 15:56	10/23/24	
Lead	6020B	**0.193**	mg/Kg	0.020	0.003	5	10/28/24 15:56	10/23/24	
Selenium	6020B	**5.47**	mg/Kg	0.98	0.03	5	10/28/24 15:56	10/23/24	
Silver	6020B	**0.021**	mg/Kg	0.020	0.002	5	10/28/24 15:56	10/23/24	
Zinc	6020B	**194**	mg/Kg	0.98	0.16	5	10/28/24 15:56	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC63DV3	**Basis:**	Dry
Lab Code:	K2409822-015		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.780**	mg/Kg	0.020	0.004	5	10/28/24 15:58	10/23/24	
Copper	6020B	**4.07**	mg/Kg	0.098	0.035	5	10/28/24 15:58	10/23/24	
Lead	6020B	**0.163**	mg/Kg	0.020	0.003	5	10/28/24 15:58	10/23/24	
Selenium	6020B	**5.16**	mg/Kg	0.98	0.03	5	10/28/24 15:58	10/23/24	
Silver	6020B	**0.027**	mg/Kg	0.020	0.002	5	10/28/24 15:58	10/23/24	
Zinc	6020B	**209**	mg/Kg	0.98	0.16	5	10/28/24 15:58	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC63DV4	**Basis:**	Dry
Lab Code:	K2409822-016		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**1.23**	mg/Kg	0.019	0.004	5	10/28/24 16:00	10/23/24	
Copper	6020B	**5.09**	mg/Kg	0.097	0.035	5	10/28/24 16:00	10/23/24	
Lead	6020B	**0.410**	mg/Kg	0.019	0.003	5	10/28/24 16:00	10/23/24	
Selenium	6020B	**5.41**	mg/Kg	0.97	0.03	5	10/28/24 16:00	10/23/24	
Silver	6020B	**0.034**	mg/Kg	0.019	0.002	5	10/28/24 16:00	10/23/24	
Zinc	6020B	**254**	mg/Kg	0.97	0.16	5	10/28/24 16:00	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC63DV5	**Basis:**	Dry
Lab Code:	K2409822-017		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**2.23**	mg/Kg	0.020	0.004	5	10/28/24 16:02	10/23/24	
Copper	6020B	**6.38**	mg/Kg	0.099	0.036	5	10/28/24 16:02	10/23/24	
Lead	6020B	**0.244**	mg/Kg	0.020	0.003	5	10/28/24 16:02	10/23/24	
Selenium	6020B	**5.73**	mg/Kg	0.99	0.03	5	10/28/24 16:02	10/23/24	
Silver	6020B	**0.039**	mg/Kg	0.020	0.002	5	10/28/24 16:02	10/23/24	
Zinc	6020B	**272**	mg/Kg	0.99	0.16	5	10/28/24 16:02	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC63DV6	**Basis:**	Dry
Lab Code:	K2409822-018		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**1.19**	mg/Kg	0.020	0.004	5	10/28/24 16:04	10/23/24	
Copper	6020B	**5.41**	mg/Kg	0.098	0.035	5	10/28/24 16:04	10/23/24	
Lead	6020B	**0.160**	mg/Kg	0.020	0.003	5	10/28/24 16:04	10/23/24	
Selenium	6020B	**6.78**	mg/Kg	0.98	0.03	5	10/28/24 16:04	10/23/24	
Silver	6020B	**0.024**	mg/Kg	0.020	0.002	5	10/28/24 16:04	10/23/24	
Zinc	6020B	**182**	mg/Kg	0.98	0.16	5	10/28/24 16:04	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC63DV7	**Basis:**	Dry
Lab Code:	K2409822-019		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**1.09**	mg/Kg	0.019	0.004	5	10/28/24 16:06	10/23/24	
Copper	6020B	**3.70**	mg/Kg	0.097	0.035	5	10/28/24 16:06	10/23/24	
Lead	6020B	**0.108**	mg/Kg	0.019	0.003	5	10/28/24 16:06	10/23/24	
Selenium	6020B	**5.64**	mg/Kg	0.97	0.03	5	10/28/24 16:06	10/23/24	
Silver	6020B	**0.024**	mg/Kg	0.019	0.002	5	10/28/24 16:06	10/23/24	
Zinc	6020B	**177**	mg/Kg	0.97	0.16	5	10/28/24 16:06	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC63DV8	**Basis:**	Dry
Lab Code:	K2409822-020		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**1.03**	mg/Kg	0.020	0.004	5	10/28/24 16:08	10/23/24	
Copper	6020B	**5.39**	mg/Kg	0.098	0.035	5	10/28/24 16:08	10/23/24	
Lead	6020B	**0.112**	mg/Kg	0.020	0.003	5	10/28/24 16:08	10/23/24	
Selenium	6020B	**6.57**	mg/Kg	0.98	0.03	5	10/28/24 16:08	10/23/24	
Silver	6020B	**0.043**	mg/Kg	0.020	0.002	5	10/28/24 16:08	10/23/24	
Zinc	6020B	**222**	mg/Kg	0.98	0.16	5	10/28/24 16:08	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC63DV9	**Basis:**	Dry
Lab Code:	K2409822-021		

Total Metals

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.792**		mg/Kg	0.020	0.004	5	10/28/24 16:33	10/23/24	
Copper	6020B	**3.53**		mg/Kg	0.098	0.035	5	10/28/24 16:33	10/23/24	
Lead	6020B	**0.129**		mg/Kg	0.020	0.003	5	10/28/24 16:33	10/23/24	
Selenium	6020B	**5.08**		mg/Kg	0.98	0.03	5	10/28/24 16:33	10/23/24	
Silver	6020B	**0.013**	**J**	mg/Kg	0.020	0.002	5	10/28/24 16:33	10/23/24	
Zinc	6020B	**168**		mg/Kg	0.98	0.16	5	10/28/24 16:33	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMGC63DV10	**Basis:**	Dry
Lab Code:	K2409822-022		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**1.58**	mg/Kg	0.020	0.004	5	10/28/24 16:22	10/23/24	
Copper	6020B	**6.21**	mg/Kg	0.099	0.036	5	10/28/24 16:22	10/23/24	
Lead	6020B	**0.225**	mg/Kg	0.020	0.003	5	10/28/24 16:22	10/23/24	
Selenium	6020B	**5.56**	mg/Kg	0.99	0.03	5	10/28/24 16:22	10/23/24	
Silver	6020B	**0.026**	mg/Kg	0.020	0.002	5	10/28/24 16:22	10/23/24	
Zinc	6020B	**281**	mg/Kg	0.99	0.16	5	10/28/24 16:22	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9DV1	**Basis:**	Dry
Lab Code:	K2409822-023		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.348**	mg/Kg	0.020	0.004	5	10/28/24 16:44	10/23/24	
Copper	6020B	**3.62**	mg/Kg	0.098	0.035	5	10/28/24 16:44	10/23/24	
Lead	6020B	**0.654**	mg/Kg	0.020	0.003	5	10/28/24 16:44	10/23/24	
Selenium	6020B	**4.55**	mg/Kg	0.98	0.03	5	10/28/24 16:44	10/23/24	
Silver	6020B	**0.050**	mg/Kg	0.020	0.002	5	10/28/24 16:44	10/23/24	
Zinc	6020B	**155**	mg/Kg	0.98	0.16	5	10/28/24 16:44	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9DV2	**Basis:**	Dry
Lab Code:	K2409822-024		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.881**	mg/Kg	0.019	0.004	5	10/28/24 16:46	10/23/24	
Copper	6020B	**3.29**	mg/Kg	0.097	0.035	5	10/28/24 16:46	10/23/24	
Lead	6020B	**0.808**	mg/Kg	0.019	0.003	5	10/28/24 16:46	10/23/24	
Selenium	6020B	**4.03**	mg/Kg	0.97	0.03	5	10/28/24 16:46	10/23/24	
Silver	6020B	**0.107**	mg/Kg	0.019	0.002	5	10/28/24 16:46	10/23/24	
Zinc	6020B	**153**	mg/Kg	0.97	0.16	5	10/28/24 16:46	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9DV3	**Basis:**	Dry
Lab Code:	K2409822-025		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.621**	mg/Kg	0.020	0.004	5	10/28/24 16:48	10/23/24	
Copper	6020B	**3.84**	mg/Kg	0.099	0.036	5	10/28/24 16:48	10/23/24	
Lead	6020B	**0.755**	mg/Kg	0.020	0.003	5	10/28/24 16:48	10/23/24	
Selenium	6020B	**4.58**	mg/Kg	0.99	0.03	5	10/28/24 16:48	10/23/24	
Silver	6020B	**0.098**	mg/Kg	0.020	0.002	5	10/28/24 16:48	10/23/24	
Zinc	6020B	**150**	mg/Kg	0.99	0.16	5	10/28/24 16:48	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9DV4	**Basis:**	Dry
Lab Code:	K2409822-026		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.621**	mg/Kg	0.020	0.004	5	10/28/24 16:50	10/23/24	
Copper	6020B	**3.84**	mg/Kg	0.098	0.035	5	10/28/24 16:50	10/23/24	
Lead	6020B	**0.582**	mg/Kg	0.020	0.003	5	10/28/24 16:50	10/23/24	
Selenium	6020B	**4.92**	mg/Kg	0.98	0.03	5	10/28/24 16:50	10/23/24	
Silver	6020B	**0.095**	mg/Kg	0.020	0.002	5	10/28/24 16:50	10/23/24	
Zinc	6020B	**133**	mg/Kg	0.98	0.16	5	10/28/24 16:50	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9DV5	**Basis:**	Dry
Lab Code:	K2409822-027		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.511**	mg/Kg	0.020	0.004	5	10/28/24 16:52	10/23/24	
Copper	6020B	**2.16**	mg/Kg	0.098	0.035	5	10/28/24 16:52	10/23/24	
Lead	6020B	**0.168**	mg/Kg	0.020	0.003	5	10/28/24 16:52	10/23/24	
Selenium	6020B	**3.91**	mg/Kg	0.98	0.03	5	10/28/24 16:52	10/23/24	
Silver	6020B	**0.053**	mg/Kg	0.020	0.002	5	10/28/24 16:52	10/23/24	
Zinc	6020B	**119**	mg/Kg	0.98	0.16	5	10/28/24 16:52	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9DV6	**Basis:**	Dry
Lab Code:	K2409822-028		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.444**	mg/Kg	0.019	0.004	5	10/28/24 16:54	10/23/24	
Copper	6020B	**2.78**	mg/Kg	0.097	0.035	5	10/28/24 16:54	10/23/24	
Lead	6020B	**0.825**	mg/Kg	0.019	0.003	5	10/28/24 16:54	10/23/24	
Selenium	6020B	**3.87**	mg/Kg	0.97	0.03	5	10/28/24 16:54	10/23/24	
Silver	6020B	**0.054**	mg/Kg	0.019	0.002	5	10/28/24 16:54	10/23/24	
Zinc	6020B	**152**	mg/Kg	0.97	0.16	5	10/28/24 16:54	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9DV7	**Basis:**	Dry
Lab Code:	K2409822-029		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.457**	mg/Kg	0.020	0.004	5	10/28/24 16:56	10/23/24	
Copper	6020B	**2.98**	mg/Kg	0.099	0.036	5	10/28/24 16:56	10/23/24	
Lead	6020B	**0.396**	mg/Kg	0.020	0.003	5	10/28/24 16:56	10/23/24	
Selenium	6020B	**4.35**	mg/Kg	0.99	0.03	5	10/28/24 16:56	10/23/24	
Silver	6020B	**0.046**	mg/Kg	0.020	0.002	5	10/28/24 16:56	10/23/24	
Zinc	6020B	**138**	mg/Kg	0.99	0.16	5	10/28/24 16:56	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9DV8	**Basis:**	Dry
Lab Code:	K2409822-030		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.246**	mg/Kg	0.020	0.004	5	10/28/24 16:58	10/23/24	
Copper	6020B	**2.55**	mg/Kg	0.098	0.035	5	10/28/24 16:58	10/23/24	
Lead	6020B	**0.578**	mg/Kg	0.020	0.003	5	10/28/24 16:58	10/23/24	
Selenium	6020B	**3.78**	mg/Kg	0.98	0.03	5	10/28/24 16:58	10/23/24	
Silver	6020B	**0.019**	mg/Kg	0.020	0.002	5	10/28/24 16:58	10/23/24	**J**
Zinc	6020B	**152**	mg/Kg	0.98	0.16	5	10/28/24 16:58	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9DV9	**Basis:**	Dry
Lab Code:	K2409822-031		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.786**	mg/Kg	0.019	0.004	5	10/28/24 17:00	10/23/24	
Copper	6020B	**3.38**	mg/Kg	0.097	0.035	5	10/28/24 17:00	10/23/24	
Lead	6020B	**0.370**	mg/Kg	0.019	0.003	5	10/28/24 17:00	10/23/24	
Selenium	6020B	**4.98**	mg/Kg	0.97	0.03	5	10/28/24 17:00	10/23/24	
Silver	6020B	**0.099**	mg/Kg	0.019	0.002	5	10/28/24 17:00	10/23/24	
Zinc	6020B	**169**	mg/Kg	0.97	0.16	5	10/28/24 17:00	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9DV10	**Basis:**	Dry
Lab Code:	K2409822-032		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.352**	mg/Kg	0.020	0.004	5	10/28/24 17:02	10/23/24	
Copper	6020B	**3.21**	mg/Kg	0.098	0.035	5	10/28/24 17:02	10/23/24	
Lead	6020B	**0.372**	mg/Kg	0.020	0.003	5	10/28/24 17:02	10/23/24	
Selenium	6020B	**4.40**	mg/Kg	0.98	0.03	5	10/28/24 17:02	10/23/24	
Silver	6020B	**0.064**	mg/Kg	0.020	0.002	5	10/28/24 17:02	10/23/24	
Zinc	6020B	**134**	mg/Kg	0.98	0.16	5	10/28/24 17:02	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9CO1	**Basis:**	Dry
Lab Code:	K2409822-033		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.167**	mg/Kg	0.020	0.004	5	10/28/24 17:09	10/23/24	
Copper	6020B	**2.44**	mg/Kg	0.098	0.035	5	10/28/24 17:09	10/23/24	
Lead	6020B	**0.337**	mg/Kg	0.020	0.003	5	10/28/24 17:09	10/23/24	
Selenium	6020B	**3.04**	mg/Kg	0.98	0.03	5	10/28/24 17:09	10/23/24	
Silver	6020B	**0.068**	mg/Kg	0.020	0.002	5	10/28/24 17:09	10/23/24	
Zinc	6020B	**167**	mg/Kg	0.98	0.16	5	10/28/24 17:09	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9CO2	**Basis:**	Dry
Lab Code:	K2409822-034		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.258**	mg/Kg	0.020	0.004	5	10/28/24 17:11	10/23/24	
Copper	6020B	**3.74**	mg/Kg	0.099	0.036	5	10/28/24 17:11	10/23/24	
Lead	6020B	**0.317**	mg/Kg	0.020	0.003	5	10/28/24 17:11	10/23/24	
Selenium	6020B	**3.56**	mg/Kg	0.99	0.03	5	10/28/24 17:11	10/23/24	
Silver	6020B	**0.105**	mg/Kg	0.020	0.002	5	10/28/24 17:11	10/23/24	
Zinc	6020B	**136**	mg/Kg	0.99	0.16	5	10/28/24 17:11	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9CO3	**Basis:**	Dry
Lab Code:	K2409822-035		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**3.86**	mg/Kg	0.019	0.004	5	10/28/24 17:13	10/23/24	
Copper	6020B	**2.96**	mg/Kg	0.097	0.035	5	10/28/24 17:13	10/23/24	
Lead	6020B	**0.897**	mg/Kg	0.019	0.003	5	10/28/24 17:13	10/23/24	
Selenium	6020B	**4.73**	mg/Kg	0.97	0.03	5	10/28/24 17:13	10/23/24	
Silver	6020B	**0.180**	mg/Kg	0.019	0.002	5	10/28/24 17:13	10/23/24	
Zinc	6020B	**158**	mg/Kg	0.97	0.16	5	10/28/24 17:13	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9CO4	**Basis:**	Dry
Lab Code:	K2409822-036		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.708**	mg/Kg	0.020	0.004	5	10/28/24 17:15	10/23/24	
Copper	6020B	**3.61**	mg/Kg	0.098	0.035	5	10/28/24 17:15	10/23/24	
Lead	6020B	**0.642**	mg/Kg	0.020	0.003	5	10/28/24 17:15	10/23/24	
Selenium	6020B	**3.49**	mg/Kg	0.98	0.03	5	10/28/24 17:15	10/23/24	
Silver	6020B	**0.106**	mg/Kg	0.020	0.002	5	10/28/24 17:15	10/23/24	
Zinc	6020B	**129**	mg/Kg	0.98	0.16	5	10/28/24 17:15	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9CO5	**Basis:**	Dry
Lab Code:	K2409822-037		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.438**	mg/Kg	0.019	0.004	5	10/28/24 17:17	10/23/24	
Copper	6020B	**2.51**	mg/Kg	0.097	0.035	5	10/28/24 17:17	10/23/24	
Lead	6020B	**0.433**	mg/Kg	0.019	0.003	5	10/28/24 17:17	10/23/24	
Selenium	6020B	**3.07**	mg/Kg	0.97	0.03	5	10/28/24 17:17	10/23/24	
Silver	6020B	**0.082**	mg/Kg	0.019	0.002	5	10/28/24 17:17	10/23/24	
Zinc	6020B	**157**	mg/Kg	0.97	0.16	5	10/28/24 17:17	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9CO6	**Basis:**	Dry
Lab Code:	K2409822-038		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.273**	mg/Kg	0.019	0.004	5	10/28/24 17:19	10/23/24	
Copper	6020B	**2.19**	mg/Kg	0.097	0.035	5	10/28/24 17:19	10/23/24	
Lead	6020B	**0.303**	mg/Kg	0.019	0.003	5	10/28/24 17:19	10/23/24	
Selenium	6020B	**2.91**	mg/Kg	0.97	0.03	5	10/28/24 17:19	10/23/24	
Silver	6020B	**0.044**	mg/Kg	0.019	0.002	5	10/28/24 17:19	10/23/24	
Zinc	6020B	**156**	mg/Kg	0.97	0.16	5	10/28/24 17:19	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9CO7	**Basis:**	Dry
Lab Code:	K2409822-039		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.292**	mg/Kg	0.020	0.004	5	10/28/24 17:21	10/23/24	
Copper	6020B	**3.04**	mg/Kg	0.098	0.035	5	10/28/24 17:21	10/23/24	
Lead	6020B	**0.457**	mg/Kg	0.020	0.003	5	10/28/24 17:21	10/23/24	
Selenium	6020B	**3.50**	mg/Kg	0.98	0.03	5	10/28/24 17:21	10/23/24	
Silver	6020B	**0.106**	mg/Kg	0.020	0.002	5	10/28/24 17:21	10/23/24	
Zinc	6020B	**161**	mg/Kg	0.98	0.16	5	10/28/24 17:21	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9CO8	**Basis:**	Dry
Lab Code:	K2409822-040		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**6.31**	mg/Kg	0.020	0.004	5	10/28/24 17:23	10/23/24	
Copper	6020B	**4.68**	mg/Kg	0.098	0.035	5	10/28/24 17:23	10/23/24	
Lead	6020B	**2.55**	mg/Kg	0.020	0.003	5	10/28/24 17:23	10/23/24	
Selenium	6020B	**7.14**	mg/Kg	0.98	0.03	5	10/28/24 17:23	10/23/24	
Silver	6020B	**0.248**	mg/Kg	0.020	0.002	5	10/28/24 17:23	10/23/24	
Zinc	6020B	**141**	mg/Kg	0.98	0.16	5	10/28/24 17:23	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9CO9	**Basis:**	Dry
Lab Code:	K2409822-041		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.350**	mg/Kg	0.019	0.004	5	10/28/24 17:48	10/23/24	
Copper	6020B	**3.26**	mg/Kg	0.097	0.035	5	10/28/24 17:48	10/23/24	
Lead	6020B	**0.545**	mg/Kg	0.019	0.003	5	10/28/24 17:48	10/23/24	
Selenium	6020B	**3.36**	mg/Kg	0.97	0.03	5	10/28/24 17:48	10/23/24	
Silver	6020B	**0.078**	mg/Kg	0.019	0.002	5	10/28/24 17:48	10/23/24	
Zinc	6020B	**155**	mg/Kg	0.97	0.16	5	10/28/24 17:48	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMTC9CO10	**Basis:**	Dry
Lab Code:	K2409822-042		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.222**	mg/Kg	0.020	0.004	5	10/28/24 17:54	10/23/24	
Copper	6020B	**3.06**	mg/Kg	0.099	0.036	5	10/28/24 17:54	10/23/24	
Lead	6020B	**0.326**	mg/Kg	0.020	0.003	5	10/28/24 17:54	10/23/24	
Selenium	6020B	**3.15**	mg/Kg	0.99	0.03	5	10/28/24 17:54	10/23/24	
Silver	6020B	**0.079**	mg/Kg	0.020	0.002	5	10/28/24 17:54	10/23/24	
Zinc	6020B	**142**	mg/Kg	0.99	0.16	5	10/28/24 17:54	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC371DV1	**Basis:**	Dry
Lab Code:	K2409822-043		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.472**	mg/Kg	0.020	0.004	5	10/28/24 17:56	10/23/24	
Copper	6020B	**3.73**	mg/Kg	0.098	0.035	5	10/28/24 17:56	10/23/24	
Lead	6020B	**0.142**	mg/Kg	0.020	0.003	5	10/28/24 17:56	10/23/24	
Selenium	6020B	**3.22**	mg/Kg	0.98	0.03	5	10/28/24 17:56	10/23/24	
Silver	6020B	**0.033**	mg/Kg	0.020	0.002	5	10/28/24 17:56	10/23/24	
Zinc	6020B	**242**	mg/Kg	0.98	0.16	5	10/28/24 17:56	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC371DV2	**Basis:**	Dry
Lab Code:	K2409822-044		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.392**	mg/Kg	0.020	0.004	5	10/28/24 17:58	10/23/24	
Copper	6020B	**3.65**	mg/Kg	0.099	0.036	5	10/28/24 17:58	10/23/24	
Lead	6020B	**0.167**	mg/Kg	0.020	0.003	5	10/28/24 17:58	10/23/24	
Selenium	6020B	**3.20**	mg/Kg	0.99	0.03	5	10/28/24 17:58	10/23/24	
Silver	6020B	**0.023**	mg/Kg	0.020	0.002	5	10/28/24 17:58	10/23/24	
Zinc	6020B	**204**	mg/Kg	0.99	0.16	5	10/28/24 17:58	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC371DV3	**Basis:**	Dry
Lab Code:	K2409822-045		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.458**	mg/Kg	0.020	0.004	5	10/28/24 18:00	10/23/24	
Copper	6020B	**3.71**	mg/Kg	0.098	0.035	5	10/28/24 18:00	10/23/24	
Lead	6020B	**0.083**	mg/Kg	0.020	0.003	5	10/28/24 18:00	10/23/24	
Selenium	6020B	**3.37**	mg/Kg	0.98	0.03	5	10/28/24 18:00	10/23/24	
Silver	6020B	**0.028**	mg/Kg	0.020	0.002	5	10/28/24 18:00	10/23/24	
Zinc	6020B	**255**	mg/Kg	0.98	0.16	5	10/28/24 18:00	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC371DV4	**Basis:**	Dry
Lab Code:	K2409822-046		

Total Metals

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.264**		mg/Kg	0.020	0.004	5	10/28/24 18:02	10/23/24	
Copper	6020B	**2.83**		mg/Kg	0.098	0.035	5	10/28/24 18:02	10/23/24	
Lead	6020B	**0.042**		mg/Kg	0.020	0.003	5	10/28/24 18:02	10/23/24	
Selenium	6020B	**2.96**		mg/Kg	0.98	0.03	5	10/28/24 18:02	10/23/24	
Silver	6020B	**0.018**	**J**	mg/Kg	0.020	0.002	5	10/28/24 18:02	10/23/24	
Zinc	6020B	**168**		mg/Kg	0.98	0.16	5	10/28/24 18:02	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC371DV5	**Basis:**	Dry
Lab Code:	K2409822-047		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.419**	mg/Kg	0.020	0.004	5	10/28/24 18:04	10/23/24	
Copper	6020B	**3.18**	mg/Kg	0.098	0.035	5	10/28/24 18:04	10/23/24	
Lead	6020B	**0.090**	mg/Kg	0.020	0.003	5	10/28/24 18:04	10/23/24	
Selenium	6020B	**3.09**	mg/Kg	0.98	0.03	5	10/28/24 18:04	10/23/24	
Silver	6020B	**0.016**	mg/Kg	0.020	0.002	5	10/28/24 18:04	10/23/24	**J**
Zinc	6020B	**209**	mg/Kg	0.98	0.16	5	10/28/24 18:04	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC371DV6	**Basis:**	Dry
Lab Code:	K2409822-048		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.540**	mg/Kg	0.020	0.004	5	10/28/24 18:06	10/23/24	
Copper	6020B	**4.64**	mg/Kg	0.099	0.036	5	10/28/24 18:06	10/23/24	
Lead	6020B	**0.029**	mg/Kg	0.020	0.003	5	10/28/24 18:06	10/23/24	
Selenium	6020B	**3.02**	mg/Kg	0.99	0.03	5	10/28/24 18:06	10/23/24	
Silver	6020B	**0.026**	mg/Kg	0.020	0.002	5	10/28/24 18:06	10/23/24	
Zinc	6020B	**208**	mg/Kg	0.99	0.16	5	10/28/24 18:06	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC371DV7	**Basis:**	Dry
Lab Code:	K2409822-049		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.327**	mg/Kg	0.020	0.004	5	10/28/24 18:08	10/23/24	
Copper	6020B	**2.87**	mg/Kg	0.098	0.035	5	10/28/24 18:08	10/23/24	
Lead	6020B	**0.044**	mg/Kg	0.020	0.003	5	10/28/24 18:08	10/23/24	
Selenium	6020B	**3.02**	mg/Kg	0.98	0.03	5	10/28/24 18:08	10/23/24	
Silver	6020B	**0.029**	mg/Kg	0.020	0.002	5	10/28/24 18:08	10/23/24	
Zinc	6020B	**170**	mg/Kg	0.98	0.16	5	10/28/24 18:08	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC371DV8	**Basis:**	Dry
Lab Code:	K2409822-050		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.479**	mg/Kg	0.020	0.004	5	10/28/24 17:38	10/23/24	
Copper	6020B	**3.94**	mg/Kg	0.099	0.036	5	10/28/24 17:38	10/23/24	
Lead	6020B	**0.121**	mg/Kg	0.020	0.003	5	10/28/24 17:38	10/23/24	
Selenium	6020B	**3.44**	mg/Kg	0.99	0.03	5	10/28/24 17:38	10/23/24	
Silver	6020B	**0.037**	mg/Kg	0.020	0.002	5	10/28/24 17:38	10/23/24	
Zinc	6020B	**233**	mg/Kg	0.99	0.16	5	10/28/24 17:38	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC371DV9	**Basis:**	Dry
Lab Code:	K2409822-051		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.417**	mg/Kg	0.020	0.004	5	10/28/24 18:11	10/23/24	
Copper	6020B	**3.17**	mg/Kg	0.099	0.036	5	10/28/24 18:11	10/23/24	
Lead	6020B	**0.052**	mg/Kg	0.020	0.003	5	10/28/24 18:11	10/23/24	
Selenium	6020B	**3.49**	mg/Kg	0.99	0.03	5	10/28/24 18:11	10/23/24	
Silver	6020B	**0.028**	mg/Kg	0.020	0.002	5	10/28/24 18:11	10/23/24	
Zinc	6020B	**207**	mg/Kg	0.99	0.16	5	10/28/24 18:11	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC371DV10	**Basis:**	Dry
Lab Code:	K2409822-052		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.460**	mg/Kg	0.020	0.004	5	10/28/24 18:13	10/23/24	
Copper	6020B	**3.84**	mg/Kg	0.099	0.036	5	10/28/24 18:13	10/23/24	
Lead	6020B	**0.058**	mg/Kg	0.020	0.003	5	10/28/24 18:13	10/23/24	
Selenium	6020B	**3.21**	mg/Kg	0.99	0.03	5	10/28/24 18:13	10/23/24	
Silver	6020B	**0.024**	mg/Kg	0.020	0.002	5	10/28/24 18:13	10/23/24	
Zinc	6020B	**196**	mg/Kg	0.99	0.16	5	10/28/24 18:13	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC10DV1	**Basis:**	Dry
Lab Code:	K2409822-053		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.884**	mg/Kg	0.039	0.004	5	10/28/24 19:19	10/23/24	
Copper	6020B	**2.99**	mg/Kg	0.097	0.035	5	10/28/24 19:19	10/23/24	
Lead	6020B	**0.435**	mg/Kg	0.039	0.003	5	10/28/24 19:19	10/23/24	
Selenium	6020B	**3.49**	mg/Kg	0.97	0.03	5	10/28/24 19:19	10/23/24	
Silver	6020B	**0.058**	mg/Kg	0.019	0.002	5	10/28/24 19:19	10/23/24	
Zinc	6020B	**151**	mg/Kg	0.49	0.16	5	10/28/24 19:19	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC10DV2	**Basis:**	Dry
Lab Code:	K2409822-054		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.680**	mg/Kg	0.039	0.004	5	10/28/24 19:21	10/23/24	
Copper	6020B	**2.89**	mg/Kg	0.098	0.035	5	10/28/24 19:21	10/23/24	
Lead	6020B	**0.139**	mg/Kg	0.039	0.003	5	10/28/24 19:21	10/23/24	
Selenium	6020B	**5.25**	mg/Kg	0.98	0.03	5	10/28/24 19:21	10/23/24	
Silver	6020B	**0.034**	mg/Kg	0.020	0.002	5	10/28/24 19:21	10/23/24	
Zinc	6020B	**119**	mg/Kg	0.49	0.16	5	10/28/24 19:21	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC10DV3	**Basis:**	Dry
Lab Code:	K2409822-055		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.389**	mg/Kg	0.039	0.004	5	10/28/24 19:23	10/23/24	
Copper	6020B	**3.21**	mg/Kg	0.098	0.035	5	10/28/24 19:23	10/23/24	
Lead	6020B	**0.288**	mg/Kg	0.039	0.003	5	10/28/24 19:23	10/23/24	
Selenium	6020B	**4.20**	mg/Kg	0.98	0.03	5	10/28/24 19:23	10/23/24	
Silver	6020B	**0.048**	mg/Kg	0.020	0.002	5	10/28/24 19:23	10/23/24	
Zinc	6020B	**156**	mg/Kg	0.49	0.16	5	10/28/24 19:23	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC10DV4	**Basis:**	Dry
Lab Code:	K2409822-056		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.630**	mg/Kg	0.040	0.004	5	10/28/24 19:26	10/23/24	
Copper	6020B	**3.20**	mg/Kg	0.099	0.036	5	10/28/24 19:26	10/23/24	
Lead	6020B	**0.105**	mg/Kg	0.040	0.003	5	10/28/24 19:26	10/23/24	
Selenium	6020B	**4.33**	mg/Kg	0.99	0.03	5	10/28/24 19:26	10/23/24	
Silver	6020B	**0.030**	mg/Kg	0.020	0.002	5	10/28/24 19:26	10/23/24	
Zinc	6020B	**137**	mg/Kg	0.50	0.16	5	10/28/24 19:26	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC10DV5	**Basis:**	Dry
Lab Code:	K2409822-057		

Total Metals

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.364**		mg/Kg	0.040	0.004	5	10/28/24 19:28	10/23/24	
Copper	6020B	**2.66**		mg/Kg	0.10	0.04	5	10/28/24 19:28	10/23/24	
Lead	6020B	**0.189**		mg/Kg	0.040	0.003	5	10/28/24 19:28	10/23/24	
Selenium	6020B	**3.33**		mg/Kg	1.0	0.03	5	10/28/24 19:28	10/23/24	
Silver	6020B	**0.014**	**J**	mg/Kg	0.020	0.002	5	10/28/24 19:28	10/23/24	
Zinc	6020B	**156**		mg/Kg	0.50	0.16	5	10/28/24 19:28	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC10DV6	**Basis:**	Dry
Lab Code:	K2409822-058		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.765**	mg/Kg	0.039	0.004	5	10/28/24 19:30	10/23/24	
Copper	6020B	**3.87**	mg/Kg	0.097	0.035	5	10/28/24 19:30	10/23/24	
Lead	6020B	**0.332**	mg/Kg	0.039	0.003	5	10/28/24 19:30	10/23/24	
Selenium	6020B	**4.36**	mg/Kg	0.97	0.03	5	10/28/24 19:30	10/23/24	
Silver	6020B	**0.037**	mg/Kg	0.019	0.002	5	10/28/24 19:30	10/23/24	
Zinc	6020B	**161**	mg/Kg	0.49	0.16	5	10/28/24 19:30	10/23/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC10DV7	**Basis:**	Dry
Lab Code:	K2409822-059		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.988**	mg/Kg	0.039	0.004	5	10/28/24 19:32	10/23/24	
Copper	6020B	**3.15**	mg/Kg	0.097	0.035	5	10/28/24 19:32	10/23/24	
Lead	6020B	**0.154**	mg/Kg	0.039	0.003	5	10/28/24 19:32	10/23/24	
Selenium	6020B	**4.92**	mg/Kg	0.97	0.03	5	10/28/24 19:32	10/23/24	
Silver	6020B	**0.060**	mg/Kg	0.019	0.002	5	10/28/24 19:32	10/23/24	
Zinc	6020B	**129**	mg/Kg	0.49	0.16	5	10/28/24 19:32	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC10DV8	**Basis:**	Dry
Lab Code:	K2409822-060		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**1.15**	mg/Kg	0.039	0.004	5	10/28/24 19:34	10/23/24	
Copper	6020B	**5.46**	mg/Kg	0.097	0.035	5	10/28/24 19:34	10/23/24	
Lead	6020B	**0.562**	mg/Kg	0.039	0.003	5	10/28/24 19:34	10/23/24	
Selenium	6020B	**4.36**	mg/Kg	0.97	0.03	5	10/28/24 19:34	10/23/24	
Silver	6020B	**0.029**	mg/Kg	0.019	0.002	5	10/28/24 19:34	10/23/24	
Zinc	6020B	**203**	mg/Kg	0.49	0.16	5	10/28/24 19:34	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC10DV9	**Basis:**	Dry
Lab Code:	K2409822-061		

Total Metals

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.305**		mg/Kg	0.039	0.004	5	10/28/24 19:58	10/23/24	
Copper	6020B	**2.57**		mg/Kg	0.098	0.035	5	10/28/24 19:58	10/23/24	
Lead	6020B	**0.131**		mg/Kg	0.039	0.003	5	10/28/24 19:58	10/23/24	
Selenium	6020B	**2.52**		mg/Kg	0.98	0.03	5	10/28/24 19:58	10/23/24	
Silver	6020B	**0.013**	**J**	mg/Kg	0.020	0.002	5	10/28/24 19:58	10/23/24	
Zinc	6020B	**150**		mg/Kg	0.49	0.16	5	10/28/24 19:58	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC10DV10	**Basis:**	Dry
Lab Code:	K2409822-062		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**1.04**	mg/Kg	0.039	0.004	5	10/28/24 19:48	10/23/24	
Copper	6020B	**3.39**	mg/Kg	0.098	0.035	5	10/28/24 19:48	10/23/24	
Lead	6020B	**0.310**	mg/Kg	0.039	0.003	5	10/28/24 19:48	10/23/24	
Selenium	6020B	**4.44**	mg/Kg	0.98	0.03	5	10/28/24 19:48	10/23/24	
Silver	6020B	**0.062**	mg/Kg	0.020	0.002	5	10/28/24 19:48	10/23/24	
Zinc	6020B	**145**	mg/Kg	0.49	0.16	5	10/28/24 19:48	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24 10:20
Sample Name:	2024GCMZC10CO1	**Basis:**	Dry
Lab Code:	K2409822-063		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.759**	mg/Kg	0.040	0.004	5	10/28/24 20:05	10/23/24	
Copper	6020B	**2.95**	mg/Kg	0.099	0.036	5	10/28/24 20:05	10/23/24	
Lead	6020B	**0.183**	mg/Kg	0.040	0.003	5	10/28/24 20:05	10/23/24	
Selenium	6020B	**2.81**	mg/Kg	0.99	0.03	5	10/28/24 20:05	10/23/24	
Silver	6020B	**0.051**	mg/Kg	0.020	0.002	5	10/28/24 20:05	10/23/24	
Zinc	6020B	**125**	mg/Kg	0.50	0.16	5	10/28/24 20:05	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2416988-01		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	**0.010 J**	mg/Kg	0.020	0.004	5	10/28/24 15:04	10/23/24	
Copper	6020B	ND U	mg/Kg	0.10	0.04	5	10/28/24 15:04	10/23/24	
Lead	6020B	**0.009 J**	mg/Kg	0.020	0.003	5	10/28/24 15:04	10/23/24	
Selenium	6020B	ND U	mg/Kg	1.0	0.03	5	10/28/24 15:04	10/23/24	
Silver	6020B	ND U	mg/Kg	0.020	0.002	5	10/28/24 15:04	10/23/24	
Zinc	6020B	ND U	mg/Kg	1.0	0.2	5	10/28/24 15:04	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2416989-01		

Total Metals

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	ND	U	mg/Kg	0.020	0.004	5	10/28/24 16:14	10/23/24	
Copper	6020B	ND	U	mg/Kg	0.10	0.04	5	10/28/24 16:14	10/23/24	
Lead	6020B	ND	U	mg/Kg	0.020	0.003	5	10/28/24 16:14	10/23/24	
Selenium	6020B	ND	U	mg/Kg	1.0	0.03	5	10/28/24 16:14	10/23/24	
Silver	6020B	ND	U	mg/Kg	0.020	0.002	5	10/28/24 16:14	10/23/24	
Zinc	6020B	ND	U	mg/Kg	1.0	0.2	5	10/28/24 16:14	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2416990-01		

Total Metals

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	ND	U	mg/Kg	0.020	0.004	5	10/28/24 17:29	10/23/24	
Copper	6020B	ND	U	mg/Kg	0.10	0.04	5	10/28/24 17:29	10/23/24	
Lead	6020B	ND	U	mg/Kg	0.020	0.003	5	10/28/24 17:29	10/23/24	
Selenium	6020B	ND	U	mg/Kg	1.0	0.03	5	10/28/24 17:29	10/23/24	
Silver	6020B	ND	U	mg/Kg	0.020	0.002	5	10/28/24 17:29	10/23/24	
Zinc	6020B	ND	U	mg/Kg	1.0	0.2	5	10/28/24 17:29	10/23/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Animal Tissue	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2416991-01		

Total Metals

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	6020B	ND	U	mg/Kg	0.040	0.004	5	10/28/24 19:40	10/23/24	
Copper	6020B	ND	U	mg/Kg	0.10	0.04	5	10/28/24 19:40	10/23/24	
Lead	6020B	ND	U	mg/Kg	0.040	0.003	5	10/28/24 19:40	10/23/24	
Selenium	6020B	ND	U	mg/Kg	1.0	0.03	5	10/28/24 19:40	10/23/24	
Silver	6020B	ND	U	mg/Kg	0.020	0.002	5	10/28/24 19:40	10/23/24	
Zinc	6020B	ND	U	mg/Kg	0.50	0.16	5	10/28/24 19:40	10/23/24	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24
		Date Analyzed:	10/28/24

Replicate Sample Summary
Total Metals

Sample Name:	2024GCMGC54DV1	**Units:**	mg/Kg
Lab Code:	K2409822-001	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2416988-05 Result	Average	RPD	RPD Limit
Cadmium	6020B	0.020	0.004	0.904	0.956	0.930	6	20
Copper	6020B	0.099	0.036	3.44	3.49	3.47	1	20
Lead	6020B	0.020	0.003	0.335	0.322	0.329	4	20
Selenium	6020B	0.99	0.03	6.23	6.50	6.37	4	20
Silver	6020B	0.020	0.002	0.021	0.017 J	0.019	21 #	20
Zinc	6020B	0.99	0.16	201	194	198	4	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24
		Date Analyzed:	10/28/24

Replicate Sample Summary
Total Metals

Sample Name:	2024GCMGC63DV10	**Units:**	mg/Kg
Lab Code:	K2409822-022	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2416989-05 Result	Average	RPD	RPD Limit
Cadmium	6020B	0.020	0.004	1.58	1.53	1.56	3	20
Copper	6020B	0.099	0.036	6.21	5.76	5.99	8	20
Lead	6020B	0.020	0.003	0.225	0.220	0.223	2	20
Selenium	6020B	0.99	0.03	5.56	5.62	5.59	1	20
Silver	6020B	0.020	0.002	0.026	0.023	0.025	12	20
Zinc	6020B	0.99	0.16	281	279	280	<1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24
		Date Analyzed:	10/28/24

Replicate Sample Summary
Total Metals

Sample Name:	2024GCMZC371DV8	**Units:**	mg/Kg
Lab Code:	K2409822-050	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2416990-05 Result	Average	RPD	RPD Limit
Cadmium	6020B	0.020	0.004	0.479	0.456	0.468	5	20
Copper	6020B	0.099	0.036	3.94	3.86	3.90	2	20
Lead	6020B	0.020	0.003	0.121	0.119	0.120	2	20
Selenium	6020B	0.99	0.03	3.44	3.37	3.41	2	20
Silver	6020B	0.020	0.002	0.037	0.031	0.034	18	20
Zinc	6020B	0.99	0.16	233	207	220	12	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24
		Date Analyzed:	10/28/24

Replicate Sample Summary
Total Metals

Sample Name:	2024GCMZC10DV10	**Units:**	mg/Kg
Lab Code:	K2409822-062	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2416991-05 Result	Average	RPD	RPD Limit
Cadmium	6020B	0.039	0.004	1.04	1.10	1.07	6	20
Copper	6020B	0.098	0.035	3.39	3.07	3.23	10	20
Lead	6020B	0.039	0.003	0.310	0.340	0.325	9	20
Selenium	6020B	0.98	0.03	4.44	4.51	4.48	2	20
Silver	6020B	0.020	0.002	0.062	0.073	0.068	16	20
Zinc	6020B	0.49	0.16	145	148	147	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24
		Date Analyzed:	10/28/24
		Date Extracted:	10/23/24

Matrix Spike Summary
Total Metals

Sample Name:	2024GCMGC54DV1	**Units:**	mg/Kg
Lab Code:	K2409822-001	**Basis:**	Dry
Analysis Method:	6020B		
Prep Method:	PSEP Metals		

Matrix Spike
KQ2416988-06

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Cadmium	0.904	5.67	4.97	96	75-125
Copper	3.44	27.1	24.8	95	75-125
Lead	0.335	46.6	49.7	93	75-125
Selenium	6.23	23.0	16.6	101	75-125
Silver	0.021	4.79	4.97	96	75-125
Zinc	201	260	49.7	117 #	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24
		Date Analyzed:	10/28/24
		Date Extracted:	10/23/24

Matrix Spike Summary
Total Metals

Sample Name:	2024GCMGC63DV10	**Units:**	mg/Kg
Lab Code:	K2409822-022	**Basis:**	Dry
Analysis Method:	6020B		
Prep Method:	PSEP Metals		

Matrix Spike
KQ2416989-06

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Cadmium	1.58	6.21	4.93	94	75-125
Copper	6.21	27.9	24.7	88	75-125
Lead	0.225	45.5	49.3	92	75-125
Selenium	5.56	22.4	16.4	102	75-125
Silver	0.026	4.67	4.93	94	75-125
Zinc	281	299	49.3	35 #	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24
		Date Analyzed:	10/28/24
		Date Extracted:	10/23/24

Matrix Spike Summary
Total Metals

Sample Name:	2024GCMZC371DV8	**Units:**	mg/Kg
Lab Code:	K2409822-050	**Basis:**	Dry
Analysis Method:	6020B		
Prep Method:	PSEP Metals		

Matrix Spike
KQ2416990-06

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Cadmium	0.479	5.19	4.97	95	75-125
Copper	3.94	27.1	24.8	93	75-125
Lead	0.121	45.6	49.7	92	75-125
Selenium	3.44	20.0	16.6	100	75-125
Silver	0.037	4.70	4.97	94	75-125
Zinc	233	257	49.7	48 #	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Animal Tissue	**Date Received:**	09/18/24
		Date Analyzed:	10/28/24
		Date Extracted:	10/23/24

Matrix Spike Summary
Total Metals

Sample Name:	2024GCMZC10DV10	**Units:**	mg/Kg
Lab Code:	K2409822-062	**Basis:**	Dry
Analysis Method:	6020B		
Prep Method:	PSEP Metals		

Matrix Spike
KQ2416991-06

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Cadmium	1.04	5.86	4.90	98	75-125
Copper	3.39	27.4	24.5	98	75-125
Lead	0.310	48.3	49.0	98	75-125
Selenium	4.44	21.4	16.3	104	75-125
Silver	0.062	4.69	4.90	94	75-125
Zinc	145	207	49.0	128 N	75-125

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Animal Tissue

Service Request: K2409822
Date Analyzed: 10/28/24

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2416988-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cadmium	6020B	4.62	5.00	92	80-120
Copper	6020B	23.0	25.0	92	80-120
Lead	6020B	47.1	50.0	94	80-120
Selenium	6020B	16.4	16.7	99	80-120
Silver	6020B	4.81	5.00	96	80-120
Zinc	6020B	45.6	50.0	91	80-120

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QA/QC Report

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Animal Tissue

Service Request: K2409822
Date Analyzed: 10/28/24

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2416989-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cadmium	6020B	4.72	5.00	94	80-120
Copper	6020B	23.2	25.0	93	80-120
Lead	6020B	46.9	50.0	94	80-120
Selenium	6020B	16.2	16.7	97	80-120
Silver	6020B	4.90	5.00	98	80-120
Zinc	6020B	46.2	50.0	92	80-120

ALS Group USA, Corp.
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QA/QC Report

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Animal Tissue

Service Request: K2409822
Date Analyzed: 10/28/24

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2416990-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cadmium	6020B	4.64	5.00	93	80-120
Copper	6020B	23.2	25.0	93	80-120
Lead	6020B	47.0	50.0	94	80-120
Selenium	6020B	16.5	16.7	99	80-120
Silver	6020B	4.86	5.00	97	80-120
Zinc	6020B	46.7	50.0	93	80-120

ALS Group USA, Corp.
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QA/QC Report

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Animal Tissue

Service Request: K2409822
Date Analyzed: 10/28/24

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2416991-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cadmium	6020B	4.86	5.00	97	80-120
Copper	6020B	25.8	25.0	103	80-120
Lead	6020B	51.2	50.0	102	80-120
Selenium	6020B	16.9	16.7	101	80-120
Silver	6020B	4.93	5.00	99	80-120
Zinc	6020B	50.7	50.0	101	80-120

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Tissue	**Date Received:**	NA
		Date Extracted:	10/23/2024
		Date Analyzed:	10/28/2024

Standard Reference Material Summary
Total Metals

Sample Name:	Standard Reference Material	Units:	mg/Kg (ppm)
Lab Code:	KQ2416988-03	Basis:	Dry
Test Notes:	Dorm-5 Solids = 95.8%		

Source: N.R.C.C. Dorm-5

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	Control Limits	Result Notes
Cadmium	PSEP Tissue	6020A	0.148	0.153	103	0.113 - 0.186	
Copper	PSEP Tissue	6020A	3.30	3.17	96	2.58 - 4.04	
Lead	PSEP Tissue	6020A	0.058	0.063	109	0.042 - 0.077	
Selenium	PSEP Tissue	6020A	2.40	2.35	98	1.83 - 3.01	
Silver	PSEP Tissue	6020A	0.135	0.129	96	0.097 - 0.179	
Zinc	PSEP Tissue	6020A	28.7	28.1	98	22.2 - 35.6	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Tissue	**Date Received:**	NA
		Date Extracted:	10/23/2024
		Date Analyzed:	10/28/2024

Standard Reference Material Summary
Total Metals

Sample Name:	Standard Reference Material	Units:	mg/Kg (ppm)
Lab Code:	KQ2416988-04	Basis:	Dry
Test Notes:	Tort-3 Solids = 97.4%		

Source: N.R.C.C. Tort-3

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	Control Limits	Result Notes
Cadmium	PSEP Tissue	6020A	42.3	38.7	91	32.4-52.9	
Copper	PSEP Tissue	6020A	497	423	85	380-623	
Lead	PSEP Tissue	6020A	0.225	0.202	90	0.166-0.292	
Selenium	PSEP Tissue	6020A	10.9	10.1	93	7.9-14.3	
Zinc	PSEP Tissue	6020A	136	125	92	104-170	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Tissue	**Date Received:**	NA
		Date Extracted:	10/23/2024
		Date Analyzed:	10/28/2024

Standard Reference Material Summary
Total Metals

Sample Name:	Standard Reference Material	Units:	mg/Kg (ppm)
Lab Code:	KQ2416989-03	Basis:	Dry
Test Notes:	Dorm-5 Solids = 95.8%		

Source: N.R.C.C. Dorm-5

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	Control Limits	Result Notes
Cadmium	PSEP Tissue	6020A	0.148	0.154	104	0.113 - 0.186	
Copper	PSEP Tissue	6020A	3.30	3.27	99	2.58 - 4.04	
Lead	PSEP Tissue	6020A	0.058	0.063	109	0.042 - 0.077	
Selenium	PSEP Tissue	6020A	2.40	2.44	102	1.83 - 3.01	
Silver	PSEP Tissue	6020A	0.135	0.130	96	0.097 - 0.179	
Zinc	PSEP Tissue	6020A	28.7	28.8	100	22.2 - 35.6	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Tissue	**Date Received:**	NA
		Date Extracted:	10/23/2024
		Date Analyzed:	10/28/2024

Standard Reference Material Summary
Total Metals

Sample Name:	Standard Reference Material	Units:	mg/Kg (ppm)
Lab Code:	KQ2416989-04	Basis:	Dry
Test Notes:	Tort-3 Solids = 97.4%		

Source: N.R.C.C. Tort-3

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	Control Limits	Result Notes
Cadmium	PSEP Tissue	6020A	42.3	39.9	94	32.4-52.9	
Copper	PSEP Tissue	6020A	497	435	88	380-623	
Lead	PSEP Tissue	6020A	0.225	0.208	92	0.166-0.292	
Selenium	PSEP Tissue	6020A	10.9	10.6	97	7.9-14.3	
Zinc	PSEP Tissue	6020A	136	128	94	104-170	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Tissue	**Date Received:**	NA
		Date Extracted:	10/23/2024
		Date Analyzed:	10/28/2024

Standard Reference Material Summary
Total Metals

Sample Name:	Standard Reference Material	Units:	mg/Kg (ppm)
Lab Code:	KQ2416990-03	Basis:	Dry
Test Notes:	Dorm-5 Solids = 95.8%		

Source: N.R.C.C. Dorm-5

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	Control Limits	Result Notes
Cadmium	PSEP Tissue	6020A	0.148	0.148	100	0.113 - 0.186	
Copper	PSEP Tissue	6020A	3.30	3.16	96	2.58 - 4.04	
Lead	PSEP Tissue	6020A	0.058	0.070	121	0.042 - 0.077	
Selenium	PSEP Tissue	6020A	2.40	2.39	100	1.83 - 3.01	
Silver	PSEP Tissue	6020A	0.135	0.139	103	0.097 - 0.179	
Zinc	PSEP Tissue	6020A	28.7	28.1	98	22.2 - 35.6	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Tissue	**Date Received:**	NA
		Date Extracted:	10/23/2024
		Date Analyzed:	10/28/2024

Standard Reference Material Summary
Total Metals

Sample Name:	Standard Reference Material	Units:	mg/Kg (ppm)
Lab Code:	KQ2416990-04	Basis:	Dry
Test Notes:	Tort-3 Solids = 97.4%		

Source: N.R.C.C. Tort-3

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	Control Limits	Result Notes
Cadmium	PSEP Tissue	6020A	42.3	40.0	95	32.4-52.9	
Copper	PSEP Tissue	6020A	497	452	91	380-623	
Lead	PSEP Tissue	6020A	0.225	0.198	88	0.166-0.292	
Selenium	PSEP Tissue	6020A	10.9	10.8	99	7.9-14.3	
Zinc	PSEP Tissue	6020A	136	133	98	104-170	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Tissue	**Date Received:**	NA
		Date Extracted:	10/23/2024
		Date Analyzed:	10/28/2024

Standard Reference Material Summary
Total Metals

Sample Name:	Standard Reference Material	Units:	mg/Kg (ppm)
Lab Code:	KQ2416991-03	Basis:	Dry
Test Notes:	Dorm-5 Solids = 95.8%		

Source: N.R.C.C. Dorm-5

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	Control Limits	Result Notes
Cadmium	PSEP Tissue	6020A	0.148	0.140	95	0.113 - 0.186	
Copper	PSEP Tissue	6020A	3.30	3.18	96	2.58 - 4.04	
Lead	PSEP Tissue	6020A	0.058	0.072	124	0.042 - 0.077	
Selenium	PSEP Tissue	6020A	2.40	2.36	98	1.83 - 3.01	
Silver	PSEP Tissue	6020A	0.135	0.118	87	0.097 - 0.179	
Zinc	PSEP Tissue	6020A	28.7	27.6	96	22.2 - 35.6	

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2409822
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
LCS Matrix:	Tissue	**Date Received:**	NA
		Date Extracted:	10/23/2024
		Date Analyzed:	10/28/2024

Standard Reference Material Summary
Total Metals

Sample Name:	Standard Reference Material	Units:	mg/Kg (ppm)
Lab Code:	KQ2416991-04	Basis:	Dry
Test Notes:	Tort-3 Solids = 97.4%		

Source: N.R.C.C. Tort-3

Analyte	Prep Method	Analysis Method	True Value	Result	Percent Recovery	Control Limits	Result Notes
Cadmium	PSEP Tissue	6020A	42.3	38.1	90	32.4-52.9	
Copper	PSEP Tissue	6020A	497	434	87	380-623	
Lead	PSEP Tissue	6020A	0.225	0.195	87	0.166-0.292	
Selenium	PSEP Tissue	6020A	10.9	10.0	92	7.9-14.3	
Zinc	PSEP Tissue	6020A	136	126	93	104-170	

Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Animal Tissue

Metals

Prep Method: PSEP Metals **Extraction Lot:** 446924
Analytical Method: 6020B **Extraction Date:** 10/23/24 15:01

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024GCMGC54DV1	K2409822-001	7/9/24	9/18/24	0.30200 g	30 mL	
2024GCMGC54DV2	K2409822-002	7/9/24	9/18/24	0.30800 g	30 mL	
2024GCMGC54DV3	K2409822-003	7/9/24	9/18/24	0.30400 g	30 mL	
2024GCMGC54DV4	K2409822-004	7/9/24	9/18/24	0.30300 g	30 mL	
2024GCMGC54DV5	K2409822-005	7/9/24	9/18/24	0.30800 g	30 mL	
2024GCMGC54DV6	K2409822-006	7/9/24	9/18/24	0.30800 g	30 mL	
2024GCMGC54DV7	K2409822-007	7/9/24	9/18/24	0.30500 g	30 mL	
2024GCMGC54DV8	K2409822-008	7/9/24	9/18/24	0.30500 g	30 mL	
2024GCMGC54DV9	K2409822-009	7/9/24	9/18/24	0.30300 g	30 mL	
2024GCMGC54DV10	K2409822-010	7/9/24	9/18/24	0.30700 g	30 mL	
2024GCMGC54CO1	K2409822-011	7/9/24	9/18/24	0.30600 g	30 mL	
2024GCMGC54CO2	K2409822-012	7/9/24	9/18/24	0.30900 g	30 mL	
2024GCMGC63DV1	K2409822-013	7/9/24	9/18/24	0.30500 g	30 mL	
2024GCMGC63DV2	K2409822-014	7/9/24	9/18/24	0.30600 g	30 mL	
2024GCMGC63DV3	K2409822-015	7/9/24	9/18/24	0.30500 g	30 mL	
2024GCMGC63DV4	K2409822-016	7/9/24	9/18/24	0.30900 g	30 mL	
2024GCMGC63DV5	K2409822-017	7/9/24	9/18/24	0.30300 g	30 mL	
2024GCMGC63DV6	K2409822-018	7/9/24	9/18/24	0.30500 g	30 mL	
2024GCMGC63DV7	K2409822-019	7/9/24	9/18/24	0.30900 g	30 mL	
2024GCMGC63DV8	K2409822-020	7/9/24	9/18/24	0.30600 g	30 mL	
Method Blank	KQ2416988-01MB	NA	NA	0.30000 g	30 mL	
Lab Control Sample	KQ2416988-02LCS	NA	NA	0.30000 g	30 mL	
Standard Reference Material	KQ2416988-03SRM	7/9/24	9/18/24	0.30700 g	30 mL	
Standard Reference Material	KQ2416988-04SRM	7/9/24	9/18/24	0.30800 g	30 mL	
Duplicate	KQ2416988-05DUP	7/9/24	9/18/24	0.30200 g	30 mL	
Matrix Spike	KQ2416988-06MS	7/9/24	9/18/24	0.30200 g	30 mL	

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Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Animal Tissue

Metals

Prep Method: PSEP Metals **Extraction Lot:** 446925
Analytical Method: 6020B **Extraction Date:** 10/23/24 15:01

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024GCMGC63DV9	K2409822-021	7/9/24	9/18/24	0.30600 g	30 mL	
2024GCMGC63DV10	K2409822-022	7/9/24	9/18/24	0.30300 g	30 mL	
2024GCMTC9DV1	K2409822-023	7/10/24	9/18/24	0.30500 g	30 mL	
2024GCMTC9DV2	K2409822-024	7/10/24	9/18/24	0.30900 g	30 mL	
2024GCMTC9DV3	K2409822-025	7/10/24	9/18/24	0.30300 g	30 mL	
2024GCMTC9DV4	K2409822-026	7/10/24	9/18/24	0.30600 g	30 mL	
2024GCMTC9DV5	K2409822-027	7/10/24	9/18/24	0.30600 g	30 mL	
2024GCMTC9DV6	K2409822-028	7/10/24	9/18/24	0.30800 g	30 mL	
2024GCMTC9DV7	K2409822-029	7/10/24	9/18/24	0.30300 g	30 mL	
2024GCMTC9DV8	K2409822-030	7/10/24	9/18/24	0.30700 g	30 mL	
2024GCMTC9DV9	K2409822-031	7/10/24	9/18/24	0.30800 g	30 mL	
2024GCMTC9DV10	K2409822-032	7/10/24	9/18/24	0.30500 g	30 mL	
2024GCMTC9CO1	K2409822-033	7/10/24	9/18/24	0.30600 g	30 mL	
2024GCMTC9CO2	K2409822-034	7/10/24	9/18/24	0.30400 g	30 mL	
2024GCMTC9CO3	K2409822-035	7/10/24	9/18/24	0.30900 g	30 mL	
2024GCMTC9CO4	K2409822-036	7/10/24	9/18/24	0.30500 g	30 mL	
2024GCMTC9CO5	K2409822-037	7/10/24	9/18/24	0.30900 g	30 mL	
2024GCMTC9CO6	K2409822-038	7/10/24	9/18/24	0.30900 g	30 mL	
2024GCMTC9CO7	K2409822-039	7/10/24	9/18/24	0.30600 g	30 mL	
2024GCMTC9CO8	K2409822-040	7/10/24	9/18/24	0.30600 g	30 mL	
Method Blank	KQ2416989-01MB	NA	NA	0.30000 g	30 mL	
Lab Control Sample	KQ2416989-02LCS	NA	NA	0.30000 g	30 mL	
Standard Reference Material	KQ2416989-03SRM	7/9/24	9/18/24	0.30100 g	30 mL	
Standard Reference Material	KQ2416989-04SRM	7/9/24	9/18/24	0.30500 g	30 mL	
Duplicate	KQ2416989-05DUP	7/9/24	9/18/24	0.30300 g	30 mL	
Matrix Spike	KQ2416989-06MS	7/9/24	9/18/24	0.30400 g	30 mL	

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Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Animal Tissue

Metals

Prep Method: PSEP Metals **Extraction Lot:** 446926
Analytical Method: 6020B **Extraction Date:** 10/23/24 15:01

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024GCMTC9CO9	K2409822-041	7/10/24	9/18/24	0.30900 g	30 mL	
2024GCMTC9CO10	K2409822-042	7/10/24	9/18/24	0.30300 g	30 mL	
2024GCMZC371DV1	K2409822-043	7/8/24	9/18/24	0.30700 g	30 mL	
2024GCMZC371DV2	K2409822-044	7/8/24	9/18/24	0.30300 g	30 mL	
2024GCMZC371DV3	K2409822-045	7/8/24	9/18/24	0.30500 g	30 mL	
2024GCMZC371DV4	K2409822-046	7/8/24	9/18/24	0.30500 g	30 mL	
2024GCMZC371DV5	K2409822-047	7/8/24	9/18/24	0.30500 g	30 mL	
2024GCMZC371DV6	K2409822-048	7/8/24	9/18/24	0.30400 g	30 mL	
2024GCMZC371DV7	K2409822-049	7/8/24	9/18/24	0.30500 g	30 mL	
2024GCMZC371DV8	K2409822-050	7/8/24	9/18/24	0.30200 g	30 mL	
2024GCMZC371DV9	K2409822-051	7/8/24	9/18/24	0.30400 g	30 mL	
2024GCMZC371DV10	K2409822-052	7/8/24	9/18/24	0.30200 g	30 mL	
2024GCMZC10DV1	K2409822-053	7/8/24	9/18/24	0.30800 g	30 mL	
2024GCMZC10DV2	K2409822-054	7/8/24	9/18/24	0.30600 g	30 mL	
2024GCMZC10DV3	K2409822-055	7/8/24	9/18/24	0.30700 g	30 mL	
2024GCMZC10DV4	K2409822-056	7/8/24	9/18/24	0.30300 g	30 mL	
2024GCMZC10DV5	K2409822-057	7/8/24	9/18/24	0.30100 g	30 mL	
2024GCMZC10DV6	K2409822-058	7/8/24	9/18/24	0.30900 g	30 mL	
2024GCMZC10DV7	K2409822-059	7/8/24	9/18/24	0.30800 g	30 mL	
2024GCMZC10DV8	K2409822-060	7/8/24	9/18/24	0.30900 g	30 mL	
Method Blank	KQ2416990-01MB	NA	NA	0.30000 g	30 mL	
Lab Control Sample	KQ2416990-02LCS	NA	NA	0.30000 g	30 mL	
Standard Reference Material	KQ2416990-03SRM	7/10/24	9/18/24	0.30200 g	30 mL	
Standard Reference Material	KQ2416990-04SRM	7/10/24	9/18/24	0.30800 g	30 mL	
Duplicate	KQ2416990-05DUP	7/8/24	9/18/24	0.30200 g	30 mL	
Matrix Spike	KQ2416990-06MS	7/8/24	9/18/24	0.30200 g	30 mL	

ALS Group USA, Corp.
dba ALS Environmental

Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Animal Tissue

Metals

Prep Method: PSEP Metals **Extraction Lot:** 446927
Analytical Method: 6020B **Extraction Date:** 10/23/24 15:01

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024GCMZC10DV9	K2409822-061	7/8/24	9/18/24	0.30600 g	30 mL	
2024GCMZC10DV10	K2409822-062	7/8/24	9/18/24	0.30600 g	30 mL	
2024GCMZC10CO1	K2409822-063	7/8/24	9/18/24	0.30300 g	30 mL	
Method Blank	KQ2416991-01MB	NA	NA	0.30000 g	30 mL	
Lab Control Sample	KQ2416991-02LCS	NA	NA	0.30000 g	30 mL	
Standard Reference Material	KQ2416991-03SRM	7/8/24	9/18/24	0.30400 g	30 mL	
Standard Reference Material	KQ2416991-04SRM	7/8/24	9/18/24	0.30300 g	30 mL	
Duplicate	KQ2416991-05DUP	7/8/24	9/18/24	0.30600 g	30 mL	
Matrix Spike	KQ2416991-06MS	7/8/24	9/18/24	0.30600 g	30 mL	

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
ICV 10/28/24 14:39						
Cadmium	6020B	859089	12.3	12.5	99	90-110
Copper	6020B	859089	12.1	12.5	97	90-110
Lead	6020B	859089	24.6	25.0	98	90-110
Selenium	6020B	859089	23.9	25.0	96	90-110
Silver	6020B	859089	12.2	12.5	98	90-110
Zinc	6020B	859089	23.7	25.0	95	90-110
CCV 10/28/24 14:41						
Cadmium	6020B	859089	24.7	25.0	99	90-110
Copper	6020B	859089	24.7	25.0	99	90-110
Lead	6020B	859089	24.9	25.0	100	90-110
Selenium	6020B	859089	25.3	25.0	101	90-110
Silver	6020B	859089	12.8	12.5	103	90-110
Zinc	6020B	859089	24.4	25.0	98	90-110
CCV 10/28/24 15:25						
Cadmium	6020B	859089	24.8	25.0	99	90-110
Copper	6020B	859089	24.7	25.0	99	90-110
Lead	6020B	859089	24.6	25.0	98	90-110
Selenium	6020B	859089	25.5	25.0	102	90-110
Silver	6020B	859089	12.7	12.5	101	90-110
Zinc	6020B	859089	24.1	25.0	97	90-110
CCV 10/28/24 15:49						
Cadmium	6020B	859089	24.6	25.0	98	90-110
Copper	6020B	859089	26.2	25.0	105	90-110
Lead	6020B	859089	24.8	25.0	99	90-110
Selenium	6020B	859089	25.4	25.0	101	90-110
Silver	6020B	859089	12.6	12.5	101	90-110
Zinc	6020B	859089	26.6	25.0	107	90-110
CCV 10/28/24 16:10						
Cadmium	6020B	859089	24.7	25.0	99	90-110
Copper	6020B	859089	25.2	25.0	101	90-110
Lead	6020B	859089	24.5	25.0	98	90-110
Selenium	6020B	859089	25.1	25.0	101	90-110
Silver	6020B	859089	12.8	12.5	102	90-110
Zinc	6020B	859089	25.3	25.0	101	90-110
CCV 10/28/24 16:35						
Cadmium	6020B	859089	24.5	25.0	98	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
CCV 10/28/24 16:35						
Copper	6020B	859089	24.5	25.0	98	90-110
Lead	6020B	859089	24.6	25.0	98	90-110
Selenium	6020B	859089	25.3	25.0	101	90-110
Silver	6020B	859089	12.6	12.5	101	90-110
Zinc	6020B	859089	24.7	25.0	99	90-110
CCV 10/28/24 17:05						
Cadmium	6020B	859089	24.8	25.0	99	90-110
Copper	6020B	859089	24.4	25.0	98	90-110
Lead	6020B	859089	24.4	25.0	97	90-110
Selenium	6020B	859089	25.1	25.0	100	90-110
Silver	6020B	859089	12.9	12.5	103	90-110
Zinc	6020B	859089	25.6	25.0	102	90-110
CCV 10/28/24 17:25						
Cadmium	6020B	859089	25.1	25.0	101	90-110
Copper	6020B	859089	25.4	25.0	102	90-110
Lead	6020B	859089	24.9	25.0	100	90-110
Selenium	6020B	859089	25.3	25.0	101	90-110
Silver	6020B	859089	12.9	12.5	103	90-110
Zinc	6020B	859089	25.6	25.0	103	90-110
CCV 10/28/24 17:50						
Cadmium	6020B	859089	24.6	25.0	98	90-110
Copper	6020B	859089	24.8	25.0	99	90-110
Lead	6020B	859089	24.7	25.0	99	90-110
Selenium	6020B	859089	25.2	25.0	101	90-110
Silver	6020B	859089	12.7	12.5	102	90-110
Zinc	6020B	859089	25.3	25.0	101	90-110
CCV 10/28/24 18:32						
Cadmium	6020B	859089	25.0	25.0	100	90-110
Copper	6020B	859089	24.7	25.0	99	90-110
Lead	6020B	859089	24.9	25.0	100	90-110
Selenium	6020B	859089	25.5	25.0	102	90-110
Silver	6020B	859089	13.0	12.5	104	90-110
Zinc	6020B	859089	25.4	25.0	101	90-110
ICV 10/28/24 18:49						
Cadmium	6020B	859128	12.4	12.5	99	90-110
Copper	6020B	859128	12.5	12.5	100	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
ICV 10/28/24 18:49						
Lead	6020B	859128	25.8	25.0	103	90-110
Selenium	6020B	859128	23.3	25.0	93	90-110
Silver	6020B	859128	12.1	12.5	97	90-110
Zinc	6020B	859128	25.5	25.0	102	90-110
CCV 10/28/24 18:51						
Cadmium	6020B	859128	24.5	25.0	98	90-110
Copper	6020B	859128	26.0	25.0	104	90-110
Lead	6020B	859128	24.8	25.0	99	90-110
Selenium	6020B	859128	25.0	25.0	100	90-110
Silver	6020B	859128	12.2	12.5	98	90-110
Zinc	6020B	859128	24.8	25.0	99	90-110
CCV 10/28/24 19:36						
Cadmium	6020B	859128	24.5	25.0	98	90-110
Copper	6020B	859128	25.7	25.0	103	90-110
Lead	6020B	859128	25.0	25.0	100	90-110
Selenium	6020B	859128	25.1	25.0	100	90-110
Silver	6020B	859128	12.2	12.5	98	90-110
Zinc	6020B	859128	25.6	25.0	102	90-110
CCV 10/28/24 20:01						
Cadmium	6020B	859128	24.4	25.0	98	90-110
Copper	6020B	859128	26.1	25.0	105	90-110
Lead	6020B	859128	25.4	25.0	102	90-110
Selenium	6020B	859128	25.1	25.0	100	90-110
Silver	6020B	859128	12.3	12.5	99	90-110
Zinc	6020B	859128	26.6	25.0	107	90-110
CCV 10/28/24 20:07						
Cadmium	6020B	859128	24.5	25.0	98	90-110
Copper	6020B	859128	25.5	25.0	102	90-110
Lead	6020B	859128	25.3	25.0	101	90-110
Selenium	6020B	859128	25.4	25.0	101	90-110
Silver	6020B	859128	12.2	12.5	98	90-110
Zinc	6020B	859128	25.1	25.0	100	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
ICB 10/28/24 14:43				
Cadmium	6020B	859089	0.008	U
Copper	6020B	859089	0.07	U
Lead	6020B	859089	0.006	U
Selenium	6020B	859089	0.05	U
Silver	6020B	859089	0.004	U
Zinc	6020B	859089	0.3	U
CCB 10/28/24 14:45				
Cadmium	6020B	859089	0.008	U
Copper	6020B	859089	0.07	U
Lead	6020B	859089	0.006	U
Selenium	6020B	859089	0.05	U
Silver	6020B	859089	0.004	U
Zinc	6020B	859089	0.3	U
CCB 10/28/24 15:27				
Cadmium	6020B	859089	0.009	J
Copper	6020B	859089	0.07	U
Lead	6020B	859089	0.016	J
Selenium	6020B	859089	0.05	U
Silver	6020B	859089	0.005	J
Zinc	6020B	859089	0.3	U
CCB 10/28/24 15:51				
Cadmium	6020B	859089	0.011	J
Copper	6020B	859089	0.07	U
Lead	6020B	859089	0.007	J
Selenium	6020B	859089	0.05	U
Silver	6020B	859089	0.004	U
Zinc	6020B	859089	0.3	U
CCB 10/28/24 16:12				
Cadmium	6020B	859089	0.008	U
Copper	6020B	859089	0.07	U
Lead	6020B	859089	0.006	U
Selenium	6020B	859089	0.05	U
Silver	6020B	859089	0.004	U
Zinc	6020B	859089	0.3	U
CCB 10/28/24 16:42				
Cadmium	6020B	859089	0.008	U

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
CCB 10/28/24 16:42				
Copper	6020B	859089	0.07	U
Lead	6020B	859089	0.006	U
Selenium	6020B	859089	0.05	U
Silver	6020B	859089	0.004	U
Zinc	6020B	859089	0.3	U
CCB 10/28/24 17:07				
Cadmium	6020B	859089	0.008	U
Copper	6020B	859089	0.07	U
Lead	6020B	859089	0.006	U
Selenium	6020B	859089	0.05	U
Silver	6020B	859089	0.004	U
Zinc	6020B	859089	0.3	U
CCB 10/28/24 17:27				
Cadmium	6020B	859089	0.008	U
Copper	6020B	859089	0.07	U
Lead	6020B	859089	0.006	U
Selenium	6020B	859089	0.05	U
Silver	6020B	859089	0.004	U
Zinc	6020B	859089	0.3	U
CCB 10/28/24 17:52				
Cadmium	6020B	859089	0.008	U
Copper	6020B	859089	0.07	U
Lead	6020B	859089	0.012	J
Selenium	6020B	859089	0.05	U
Silver	6020B	859089	0.004	U
Zinc	6020B	859089	0.3	U
CCB 10/28/24 18:34				
Cadmium	6020B	859089	0.008	U
Copper	6020B	859089	0.07	U
Lead	6020B	859089	0.006	U
Selenium	6020B	859089	0.05	U
Silver	6020B	859089	0.004	U
Zinc	6020B	859089	0.3	U
ICB 10/28/24 18:53				
Cadmium	6020B	859128	0.008	U
Copper	6020B	859128	0.07	U

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
ICB 10/28/24 18:53				
Lead	6020B	859128	0.007	J
Selenium	6020B	859128	0.05	U
Silver	6020B	859128	0.004	U
Zinc	6020B	859128	0.3	U
CCB 10/28/24 18:55				
Cadmium	6020B	859128	0.008	U
Copper	6020B	859128	0.07	U
Lead	6020B	859128	0.006	U
Selenium	6020B	859128	0.05	U
Silver	6020B	859128	0.004	U
Zinc	6020B	859128	0.3	U
CCB 10/28/24 19:38				
Cadmium	6020B	859128	0.050	J
Copper	6020B	859128	0.07	U
Lead	6020B	859128	0.060	J
Selenium	6020B	859128	0.05	U
Silver	6020B	859128	0.013	J
Zinc	6020B	859128	0.6	J
CCB 10/28/24 20:03				
Cadmium	6020B	859128	0.010	J
Copper	6020B	859128	0.07	U
Lead	6020B	859128	0.019	J
Selenium	6020B	859128	0.05	U
Silver	6020B	859128	0.004	U
Zinc	6020B	859128	0.3	U
CCB 10/28/24 20:09				
Cadmium	6020B	859128	0.009	J
Copper	6020B	859128	0.07	U
Lead	6020B	859128	0.010	J
Selenium	6020B	859128	0.05	U
Silver	6020B	859128	0.004	U
Zinc	6020B	859128	0.3	U

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring

LOW LEVEL INITIAL AND LOW LEVEL CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
LLICVT							
Cadmium	6020B	859089	0.040	0.04	101	80-120	10/28/24 14:47
Copper	6020B	859089	0.22	0.2	109	80-120	10/28/24 14:47
Lead	6020B	859089	0.036	0.04	91	80-120	10/28/24 14:47
Selenium	6020B	859089	2.0	2.0	99	80-120	10/28/24 14:47
Silver	6020B	859089	0.033	0.04	82	80-120	10/28/24 14:47
LLICVT							
Zinc	6020B	859089	1.7	2.0	85	80-120	10/28/24 14:51
LLICVT							
Copper	6020B	859128	0.19	0.2	95	80-120	10/28/24 19:00
Selenium	6020B	859128	2.0	2.0	99	80-120	10/28/24 19:00
Silver	6020B	859128	0.040	0.04	100	80-120	10/28/24 19:00
Zinc	6020B	859128	0.91	1.0	91	80-120	10/28/24 19:00
LLICVT							
Cadmium	6020B	859128	0.091	0.08	114	80-120	10/28/24 19:03
Lead	6020B	859128	0.090	0.08	113	80-120	10/28/24 19:03

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSA **Concentration Units:** ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Cadmium	6020B	859089	0.468	-	-	-	10/28/24 14:57
Copper	6020B	859089	0.56	-	-	-	10/28/24 14:57
Lead	6020B	859089	0.287	-	-	-	10/28/24 14:57
Selenium	6020B	859089	0.10	-	-	-	10/28/24 14:57
Silver	6020B	859089	0.011	-	-	-	10/28/24 14:57
Zinc	6020B	859089	0.2	-	-	-	10/28/24 14:57

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSAB **Concentration Units:** ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Cadmium	6020B	859089	24.8	25.0	99	80-120	10/28/24 15:00
Copper	6020B	859089	45.6	50.0	91	80-120	10/28/24 15:00
Lead	6020B	859089	0.258	-	-	-	10/28/24 15:00
Selenium	6020B	859089	25.0	25.0	100	80-120	10/28/24 15:00
Silver	6020B	859089	12.4	12.5	99	80-120	10/28/24 15:00
Zinc	6020B	859089	23.3	25.0	93	80-120	10/28/24 15:00

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSA **Concentration Units:** ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Cadmium	6020B	859128	0.609	-	-	-	10/28/24 19:13
Copper	6020B	859128	0.73	-	-	-	10/28/24 19:13
Lead	6020B	859128	0.476	-	-	-	10/28/24 19:13
Selenium	6020B	859128	0.07	-	-	-	10/28/24 19:13
Silver	6020B	859128	0.014	-	-	-	10/28/24 19:13
Zinc	6020B	859128	0.5	-	-	-	10/28/24 19:13

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring

ICP INTERFERENCE CHECK SAMPLE

Sample ID ICSAB **Concentration Units:** ug/L

Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
Cadmium	6020B	859128	24.4	25.0	97	80-120	10/28/24 19:15
Copper	6020B	859128	46.9	50.0	94	80-120	10/28/24 19:15
Lead	6020B	859128	0.265	-	-	-	10/28/24 19:15
Selenium	6020B	859128	25.0	25.0	100	80-120	10/28/24 19:15
Silver	6020B	859128	11.9	12.5	95	80-120	10/28/24 19:15
Zinc	6020B	859128	25.1	25.0	101	80-120	10/28/24 19:15

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring

POST SPIKE SAMPLE RECOVERY

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Initial Sample Result	Post Spike Result	True Value	% Rec	% Rec. Limits	Analysis Date
K2409822-001A								
Cadmium	6020B	859089	1.82	49.8	50.0	96	75-125	10/28/24 15:18
Copper	6020B	859089	6.9	54.9	50.0	96	75-125	10/28/24 15:18
Lead	6020B	859089	0.67	48.0	50.0	95	75-125	10/28/24 15:18
Selenium	6020B	859089	13	63	50	101	75-125	10/28/24 15:18
Silver	6020B	859089	0.04 J	4.96	5.00	98	75-125	10/28/24 15:18
Zinc	6020B	859089	405	455	50	99 #	75-125	10/28/24 15:18
K2409822-022A								
Cadmium	6020B	859089	3.20	51.5	50.0	97	75-125	10/28/24 16:29
Copper	6020B	859089	12.5	60.5	50.0	96	75-125	10/28/24 16:29
Lead	6020B	859089	0.45	48.4	50.0	96	75-125	10/28/24 16:29
Selenium	6020B	859089	11	62	50	103	75-125	10/28/24 16:29
Silver	6020B	859089	0.05 J	4.93	5.00	98	75-125	10/28/24 16:29
Zinc	6020B	859089	568	625	50	113 #	75-125	10/28/24 16:29
K2409822-050A								
Cadmium	6020B	859089	0.96	48.6	50.0	95	75-125	10/28/24 17:44
Copper	6020B	859089	7.9	55.4	50.0	95	75-125	10/28/24 17:44
Lead	6020B	859089	0.24	47.3	50.0	94	75-125	10/28/24 17:44
Selenium	6020B	859089	7 J	57	50	99	75-125	10/28/24 17:44
Silver	6020B	859089	0.07 J	4.97	5.00	98	75-125	10/28/24 17:44
Zinc	6020B	859089	469	507	50	75 #	75-125	10/28/24 17:44
K2409822-062A								
Cadmium	6020B	859128	2.12	49.7	50.0	95	75-125	10/28/24 19:54
Copper	6020B	859128	6.9	56.1	50.0	98	75-125	10/28/24 19:54
Lead	6020B	859128	0.63	48.9	50.0	97	75-125	10/28/24 19:54
Selenium	6020B	859128	9 J	59	50	99	75-125	10/28/24 19:54
Silver	6020B	859128	0.13 J	4.88	5.00	95	75-125	10/28/24 19:54
Zinc	6020B	859128	295	337	50.0	84 #	75-125	10/28/24 19:54

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring

ICP SERIAL DILUTIONS

Concentration Units: mg/Kg

Sample ID / Analyte	Method	Analysis Batch:	Initial Sample Result	Serial Dillution Result	% Diff	% Diff. Limit	Analysis Date
K2409822-001SDL							
Cadmium	6020B	859089	9.1	9.1	0	10	10/28/24 15:16
Copper	6020B	859089	34.6	37.8	9	10	10/28/24 15:16
Lead	6020B	859089	3.4	3.9	16	10	10/28/24 15:16
Selenium	6020B	859089	63	62	1	10	10/28/24 15:16
Silver	6020B	859089	0.2	0.2 J	3	10	10/28/24 15:16
Zinc	6020B	859089	2030	2030	0	10	10/28/24 15:16
K2409822-022SDL							
Cadmium	6020B	859089	16.0	16.3	2	10	10/28/24 16:27
Copper	6020B	859089	62.7	64.8	3	10	10/28/24 16:27
Lead	6020B	859089	2.3	2.6	15	10	10/28/24 16:27
Selenium	6020B	859089	56	59	5	10	10/28/24 16:27
Silver	6020B	859089	0.3	0.3 J	16	10	10/28/24 16:27
Zinc	6020B	859089	2840	2860	1	10	10/28/24 16:27
K2409822-050SDL							
Cadmium	6020B	859089	4.8	4.8	0	10	10/28/24 17:42
Copper	6020B	859089	39.7	39.6	0	10	10/28/24 17:42
Lead	6020B	859089	1.2	1.2	0	10	10/28/24 17:42
Selenium	6020B	859089	35	33 J	5	10	10/28/24 17:42
Silver	6020B	859089	0.4	0.3 J	22	10	10/28/24 17:42
Zinc	6020B	859089	2350	2330	1	10	10/28/24 17:42
K2409822-062SDL							
Cadmium	6020B	859128	10.6	11.1	5	10	10/28/24 19:52
Copper	6020B	859128	34.6	33.8	2	10	10/28/24 19:52
Lead	6020B	859128	3.2	3.1	3	10	10/28/24 19:52
Selenium	6020B	859128	45	45 J	0	10	10/28/24 19:52
Silver	6020B	859128	0.6	0.6 J	1	10	10/28/24 19:52
Zinc	6020B	859128	1470	1510	2	10	10/28/24 19:52

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring/

Detection Limits

Instrument: K-ICP-MS-06 **Matrix:** Animal Tissue

Analyte	Mass	Units	MRL	MDL	Method
Cadmium	111	ug/L	0.04	0.0076	6020B
Copper	65	ug/L	0.2	0.072	6020B
Lead	208	ug/L	0.04	0.006	6020B
Selenium	78	ug/L	2	0.052	6020B
Silver	107	ug/L	0.04	0.0044	6020B
Zinc	66	ug/L	2	0.32	6020B

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring/

ICP Linear Range (Quarterly)

Instrument: K-ICP-MS-06

Analyte	Concentration (ug/L)	Method
Cadmium 111	9000	6020B
Copper 65	4500	6020B
Lead 208	4500	6020B
Selenium 78	9000	6020B
Silver 107	450	6020B
Silver 109	450	6020B
Zinc 66	9000	6020B

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **859089**

Sample	Dilution Factor	Date/Time	Cd	Cu	Pb	Se	Ag	Zn
ZZZZZZ	1	10/28/24 14:35						
ZZZZZZ	1	10/28/24 14:37						
ICV	1	10/28/24 14:39	X	X	X	X	X	X
CCV	1	10/28/24 14:41	X	X	X	X	X	X
ICB	1	10/28/24 14:43	X	X	X	X	X	X
CCB	1	10/28/24 14:45	X	X	X	X	X	X
LLICVT	1	10/28/24 14:47	X	X	X	X	X	
LLICVT 2X	1	10/28/24 14:51						X
ZZZZZZ	1	10/28/24 14:53						
ZZZZZZ	1	10/28/24 14:55						
ICSA	1	10/28/24 14:57	X	X	X	X	X	X
ICSAB	1	10/28/24 15:00	X	X	X	X	X	X
ZZZZZZ	1	10/28/24 15:02						
KQ2416988-01MB	5	10/28/24 15:04	X	X	X	X	X	X
KQ2416988-02LCS	5	10/28/24 15:06	X	X	X	X	X	X
KQ2416988-03SRM	5	10/28/24 15:08	X	X	X	X	X	X
KQ2416988-04SRM	5	10/28/24 15:10	X	X	X	X	X	X
K2409822-001	5	10/28/24 15:12	X	X	X	X	X	X
K2409822-001DUP	5	10/28/24 15:14	X	X	X	X	X	X
K2409822-001SDL	25	10/28/24 15:16	X	X	X	X	X	X
K2409822-001PS	5	10/28/24 15:18	X	X	X	X	X	X
K2409822-001MS	5	10/28/24 15:20	X	X	X	X	X	X
K2409822-002	5	10/28/24 15:22	X	X	X	X	X	X
CCV	1	10/28/24 15:25	X	X	X	X	X	X
CCB	1	10/28/24 15:27	X	X	X	X	X	X
K2409822-003	5	10/28/24 15:29	X	X	X	X	X	X
K2409822-004	5	10/28/24 15:31	X	X	X	X	X	X
K2409822-005	5	10/28/24 15:33	X	X	X	X	X	X
K2409822-006	5	10/28/24 15:35	X	X	X	X	X	X
K2409822-007	5	10/28/24 15:37	X	X	X	X	X	X
K2409822-008	5	10/28/24 15:39	X	X	X	X	X	X
K2409822-009	5	10/28/24 15:41	X	X	X	X	X	X
K2409822-010	5	10/28/24 15:43	X	X	X	X	X	X
K2409822-011	5	10/28/24 15:45	X	X	X	X	X	X
K2409822-012	5	10/28/24 15:47	X	X	X	X	X	X
CCV	1	10/28/24 15:49	X	X	X	X	X	X
CCB	1	10/28/24 15:51	X	X	X	X	X	X

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **859089**

Sample	Dilution Factor	Date/Time	Cd	Cu	Pb	Se	Ag	Zn
K2409822-013	5	10/28/24 15:53	X	X	X	X	X	X
K2409822-014	5	10/28/24 15:56	X	X	X	X	X	X
K2409822-015	5	10/28/24 15:58	X	X	X	X	X	X
K2409822-016	5	10/28/24 16:00	X	X	X	X	X	X
K2409822-017	5	10/28/24 16:02	X	X	X	X	X	X
K2409822-018	5	10/28/24 16:04	X	X	X	X	X	X
K2409822-019	5	10/28/24 16:06	X	X	X	X	X	X
K2409822-020	5	10/28/24 16:08	X	X	X	X	X	X
CCV	1	10/28/24 16:10	X	X	X	X	X	X
CCB	1	10/28/24 16:12	X	X	X	X	X	X
KQ2416989-01MB	5	10/28/24 16:14	X	X	X	X	X	X
KQ2416989-02LCS	5	10/28/24 16:16	X	X	X	X	X	X
KQ2416989-03SRM	5	10/28/24 16:18	X	X	X	X	X	X
KQ2416989-04SRM	5	10/28/24 16:20	X	X	X	X	X	X
K2409822-022	5	10/28/24 16:22	X	X	X	X	X	X
K2409822-022DUP	5	10/28/24 16:24	X	X	X	X	X	X
K2409822-022SDL	25	10/28/24 16:27	X	X	X	X	X	X
K2409822-022PS	5	10/28/24 16:29	X	X	X	X	X	X
K2409822-022MS	5	10/28/24 16:31	X	X	X	X	X	X
K2409822-021	5	10/28/24 16:33	X	X	X	X	X	X
CCV	1	10/28/24 16:35	X	X	X	X	X	X
ZZZZZZ	1	10/28/24 16:37						
CCB	1	10/28/24 16:42	X	X	X	X	X	X
K2409822-023	5	10/28/24 16:44	X	X	X	X	X	X
K2409822-024	5	10/28/24 16:46	X	X	X	X	X	X
K2409822-025	5	10/28/24 16:48	X	X	X	X	X	X
K2409822-026	5	10/28/24 16:50	X	X	X	X	X	X
K2409822-027	5	10/28/24 16:52	X	X	X	X	X	X
K2409822-028	5	10/28/24 16:54	X	X	X	X	X	X
K2409822-029	5	10/28/24 16:56	X	X	X	X	X	X
K2409822-030	5	10/28/24 16:58	X	X	X	X	X	X
K2409822-031	5	10/28/24 17:00	X	X	X	X	X	X
K2409822-032	5	10/28/24 17:02	X	X	X	X	X	X
CCV	1	10/28/24 17:05	X	X	X	X	X	X
CCB	1	10/28/24 17:07	X	X	X	X	X	X
K2409822-033	5	10/28/24 17:09	X	X	X	X	X	X
K2409822-034	5	10/28/24 17:11	X	X	X	X	X	X

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **859089**

Sample	Dilution Factor	Date/Time	Cd	Cu	Pb	Se	Ag	Zn
K2409822-035	5	10/28/24 17:13	X	X	X	X	X	X
K2409822-036	5	10/28/24 17:15	X	X	X	X	X	X
K2409822-037	5	10/28/24 17:17	X	X	X	X	X	X
K2409822-038	5	10/28/24 17:19	X	X	X	X	X	X
K2409822-039	5	10/28/24 17:21	X	X	X	X	X	X
K2409822-040	5	10/28/24 17:23	X	X	X	X	X	X
CCV	1	10/28/24 17:25	X	X	X	X	X	X
CCB	1	10/28/24 17:27	X	X	X	X	X	X
KQ2416990-01MB	5	10/28/24 17:29	X	X	X	X	X	X
KQ2416990-02LCS	5	10/28/24 17:31	X	X	X	X	X	X
KQ2416990-03SRM	5	10/28/24 17:33	X	X	X	X	X	X
KQ2416990-04SRM	5	10/28/24 17:35	X	X	X	X	X	X
K2409822-050	5	10/28/24 17:38	X	X	X	X	X	X
K2409822-050DUP	5	10/28/24 17:40	X	X	X	X	X	X
K2409822-050SDL	25	10/28/24 17:42	X	X	X	X	X	X
K2409822-050PS	5	10/28/24 17:44	X	X	X	X	X	X
K2409822-050MS	5	10/28/24 17:46	X	X	X	X	X	X
K2409822-041	5	10/28/24 17:48	X	X	X	X	X	X
CCV	1	10/28/24 17:50	X	X	X	X	X	X
CCB	1	10/28/24 17:52	X	X	X	X	X	X
K2409822-042	5	10/28/24 17:54	X	X	X	X	X	X
K2409822-043	5	10/28/24 17:56	X	X	X	X	X	X
K2409822-044	5	10/28/24 17:58	X	X	X	X	X	X
K2409822-045	5	10/28/24 18:00	X	X	X	X	X	X
K2409822-046	5	10/28/24 18:02	X	X	X	X	X	X
K2409822-047	5	10/28/24 18:04	X	X	X	X	X	X
K2409822-048	5	10/28/24 18:06	X	X	X	X	X	X
K2409822-049	5	10/28/24 18:08	X	X	X	X	X	X
K2409822-051	5	10/28/24 18:11	X	X	X	X	X	X
K2409822-052	5	10/28/24 18:13	X	X	X	X	X	X
ZZZZZZ	1	10/28/24 18:15						
CCV	1	10/28/24 18:32	X	X	X	X	X	X
CCB	1	10/28/24 18:34	X	X	X	X	X	X

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **859128**

Sample	Dilution Factor	Date/Time	Cd	Cu	Pb	Se	Ag	Zn
ZZZZZZ	1	10/28/24 18:45						
ZZZZZZ	1	10/28/24 18:47						
ICV	1	10/28/24 18:49	X	X	X	X	X	X
CCV	1	10/28/24 18:51	X	X	X	X	X	X
ICB	1	10/28/24 18:53	X	X	X	X	X	X
CCB	1	10/28/24 18:55	X	X	X	X	X	X
ZZZZZZ	1	10/28/24 18:57						
LLICVT	1	10/28/24 19:00		X		X	X	X
LLICVT 2X	1	10/28/24 19:03	X		X			
ZZZZZZ	1	10/28/24 19:05						
ZZZZZZ	1	10/28/24 19:09						
ZZZZZZ	1	10/28/24 19:11						
ICSA	1	10/28/24 19:13	X	X	X	X	X	X
ICSAB	1	10/28/24 19:15	X	X	X	X	X	X
ZZZZZZ	1	10/28/24 19:17						
K2409822-053	5	10/28/24 19:19	X	X	X	X	X	X
K2409822-054	5	10/28/24 19:21	X	X	X	X	X	X
K2409822-055	5	10/28/24 19:23	X	X	X	X	X	X
K2409822-056	5	10/28/24 19:26	X	X	X	X	X	X
K2409822-057	5	10/28/24 19:28	X	X	X	X	X	X
K2409822-058	5	10/28/24 19:30	X	X	X	X	X	X
K2409822-059	5	10/28/24 19:32	X	X	X	X	X	X
K2409822-060	5	10/28/24 19:34	X	X	X	X	X	X
CCV	1	10/28/24 19:36	X	X	X	X	X	X
CCB	1	10/28/24 19:38	X	X	X	X	X	X
KQ2416991-01MB	5	10/28/24 19:40	X	X	X	X	X	X
KQ2416991-02LCS	5	10/28/24 19:42	X	X	X	X	X	X
KQ2416991-03SRM	5	10/28/24 19:44	X	X	X	X	X	X
KQ2416991-04SRM	5	10/28/24 19:46	X	X	X	X	X	X
K2409822-062	5	10/28/24 19:48	X	X	X	X	X	X
K2409822-062DUP	5	10/28/24 19:50	X	X	X	X	X	X
K2409822-062SDL	25	10/28/24 19:52	X	X	X	X	X	X
K2409822-062PS	5	10/28/24 19:54	X	X	X	X	X	X
K2409822-062MS	5	10/28/24 19:56	X	X	X	X	X	X
K2409822-061	5	10/28/24 19:58	X	X	X	X	X	X
CCV	1	10/28/24 20:01	X	X	X	X	X	X
CCB	1	10/28/24 20:03	X	X	X	X	X	X

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **859128**

Sample	Dilution Factor	Date/Time	Cd	Cu	Pb	Se	Ag	Zn
K2409822-063	5	10/28/24 20:05	X	X	X	X	X	X
CCV	1	10/28/24 20:07	X	X	X	X	X	X
CCB	1	10/28/24 20:09	X	X	X	X	X	X
ZZZZZZ	5	10/28/24 20:11						
ZZZZZZ	5	10/28/24 20:13						
ZZZZZZ	5	10/28/24 20:15						
ZZZZZZ	5	10/28/24 20:17						
ZZZZZZ	5	10/28/24 20:19						
ZZZZZZ	5	10/28/24 20:21						
ZZZZZZ	25	10/28/24 20:23						
ZZZZZZ	5	10/28/24 20:25						
ZZZZZZ	5	10/28/24 20:27						
ZZZZZZ	5	10/28/24 20:29						
ZZZZZZ	1	10/28/24 20:32						
ZZZZZZ	1	10/28/24 20:34						
ZZZZZZ	5	10/28/24 20:36						
ZZZZZZ	5	10/28/24 20:38						
ZZZZZZ	5	10/28/24 20:40						
ZZZZZZ	5	10/28/24 20:42						
ZZZZZZ	5	10/28/24 20:44						
ZZZZZZ	1	10/28/24 20:46						
ZZZZZZ	1	10/28/24 20:48						
ZZZZZZ	5	10/28/24 20:50						
ZZZZZZ	5	10/28/24 20:52						
ZZZZZZ	5	10/28/24 20:54						
ZZZZZZ	5	10/28/24 20:56						
ZZZZZZ	5	10/28/24 20:58						
ZZZZZZ	5	10/28/24 21:01						
ZZZZZZ	25	10/28/24 21:03						
ZZZZZZ	5	10/28/24 21:05						
ZZZZZZ	5	10/28/24 21:07						
ZZZZZZ	5	10/28/24 21:09						
ZZZZZZ	1	10/28/24 21:11						
ZZZZZZ	1	10/28/24 21:13						
ZZZZZZ	1	10/28/24 21:15						
ZZZZZZ	5	10/28/24 21:17						
ZZZZZZ	5	10/28/24 21:19						

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **859128**

Sample	Dilution Factor	Date/Time	Cd	Cu	Pb	Se	Ag	Zn
ZZZZZZ	1	10/28/24 21:21						
ZZZZZZ	1	10/28/24 21:23						

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **859089**

Sample	Date/Time	Ge72H2	Ge72He	In115He	Lu175He
ZZZZZZ	10/28/24 14:35				
ZZZZZZ	10/28/24 14:37				
ICV	10/28/24 14:39	99	99	99	101
CCV	10/28/24 14:41	99	101	100	101
ICB	10/28/24 14:43	100	103	100	101
CCB	10/28/24 14:45	102	103	100	102
LLICVT	10/28/24 14:47	101	101	101	100
LLICVT 2X	10/28/24 14:51	99	103	102	103
ZZZZZZ	10/28/24 14:53				
ZZZZZZ	10/28/24 14:55				
ICSA	10/28/24 14:57	95	97	95	100
ICSAB	10/28/24 15:00	97	98	95	101
ZZZZZZ	10/28/24 15:02				
KQ2416988-01MB	10/28/24 15:04	101	100	99	103
KQ2416988-02LCS	10/28/24 15:06	102	102	101	103
KQ2416988-03SRM	10/28/24 15:08	100	98	99	101
KQ2416988-04SRM	10/28/24 15:10	100	100	97	101
K2409822-001	10/28/24 15:12	102	101	100	103
K2409822-001DUP	10/28/24 15:14	103	102	99	102
K2409822-001SDL	10/28/24 15:16	105	104	102	104
K2409822-001PS	10/28/24 15:18	104	102	101	105
K2409822-001MS	10/28/24 15:20	106	103	102	106
K2409822-002	10/28/24 15:22	108	103	102	108
CCV	10/28/24 15:25	107	107	104	106
CCB	10/28/24 15:27	110	107	103	105
K2409822-003	10/28/24 15:29	108	103	101	106
K2409822-004	10/28/24 15:31	109	105	103	106
K2409822-005	10/28/24 15:33	107	107	102	107
K2409822-006	10/28/24 15:35	110	107	103	106
K2409822-007	10/28/24 15:37	111	106	103	106
K2409822-008	10/28/24 15:39	110	107	103	107
K2409822-009	10/28/24 15:41	113	107	104	109
K2409822-010	10/28/24 15:43	111	108	103	107
K2409822-011	10/28/24 15:45	112	109	104	109
K2409822-012	10/28/24 15:47	113	107	103	107
CCV	10/28/24 15:49	115	105	106	106
CCB	10/28/24 15:51	111	108	103	106

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **859089**

Sample	Date/Time	Ge72H2	Ge72He	In115He	Lu175He
K2409822-013	10/28/24 15:53	108	104	101	105
K2409822-014	10/28/24 15:56	108	104	99	104
K2409822-015	10/28/24 15:58	108	104	102	105
K2409822-016	10/28/24 16:00	110	106	102	104
K2409822-017	10/28/24 16:02	109	104	102	105
K2409822-018	10/28/24 16:04	111	105	103	106
K2409822-019	10/28/24 16:06	113	106	103	105
K2409822-020	10/28/24 16:08	109	107	102	105
CCV	10/28/24 16:10	113	108	105	105
CCB	10/28/24 16:12	115	109	104	107
KQ2416989-01MB	10/28/24 16:14	111	107	105	105
KQ2416989-02LCS	10/28/24 16:16	112	107	104	106
KQ2416989-03SRM	10/28/24 16:18	109	103	102	105
KQ2416989-04SRM	10/28/24 16:20	107	106	101	103
K2409822-022	10/28/24 16:22	112	106	104	106
K2409822-022DUP	10/28/24 16:24	112	107	104	105
K2409822-022SDL	10/28/24 16:27	116	110	107	105
K2409822-022PS	10/28/24 16:29	111	105	104	105
K2409822-022MS	10/28/24 16:31	111	109	105	107
K2409822-021	10/28/24 16:33	115	109	106	108
CCV	10/28/24 16:35	115	111	108	106
ZZZZZZ	10/28/24 16:37				
CCB	10/28/24 16:42	115	108	107	106
K2409822-023	10/28/24 16:44	113	106	105	107
K2409822-024	10/28/24 16:46	111	106	105	105
K2409822-025	10/28/24 16:48	116	110	106	106
K2409822-026	10/28/24 16:50	115	108	107	107
K2409822-027	10/28/24 16:52	116	111	108	108
K2409822-028	10/28/24 16:54	115	109	107	106
K2409822-029	10/28/24 16:56	119	112	107	108
K2409822-030	10/28/24 16:58	120	113	109	108
K2409822-031	10/28/24 17:00	119	113	108	109
K2409822-032	10/28/24 17:02	119	113	108	110
CCV	10/28/24 17:05	122	116	110	109
CCB	10/28/24 17:07	119	115	109	110
K2409822-033	10/28/24 17:09	116	111	106	109
K2409822-034	10/28/24 17:11	118	112	108	109

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **859089**

Sample	Date/Time	Ge72H2	Ge72He	In115He	Lu175He
K2409822-035	10/28/24 17:13	119	111	107	108
K2409822-036	10/28/24 17:15	119	112	107	109
K2409822-037	10/28/24 17:17	121	114	107	109
K2409822-038	10/28/24 17:19	121	112	107	110
K2409822-039	10/28/24 17:21	122	113	108	110
K2409822-040	10/28/24 17:23	121	111	106	109
CCV	10/28/24 17:25	118	112	107	106
CCB	10/28/24 17:27	121	112	109	108
KQ2416990-01MB	10/28/24 17:29	119	111	108	107
KQ2416990-02LCS	10/28/24 17:31	119	112	107	107
KQ2416990-03SRM	10/28/24 17:33	117	107	104	106
KQ2416990-04SRM	10/28/24 17:35	112	107	104	105
K2409822-050	10/28/24 17:38	115	108	105	106
K2409822-050DUP	10/28/24 17:40	118	110	106	106
K2409822-050SDL	10/28/24 17:42	119	110	107	106
K2409822-050PS	10/28/24 17:44	119	111	108	108
K2409822-050MS	10/28/24 17:46	118	111	107	109
K2409822-041	10/28/24 17:48	116	110	105	106
CCV	10/28/24 17:50	118	114	110	108
CCB	10/28/24 17:52	119	113	109	109
K2409822-042	10/28/24 17:54	119	111	108	110
K2409822-043	10/28/24 17:56	115	111	109	109
K2409822-044	10/28/24 17:58	116	113	109	109
K2409822-045	10/28/24 18:00	120	111	109	106
K2409822-046	10/28/24 18:02	121	117	112	112
K2409822-047	10/28/24 18:04	119	111	109	108
K2409822-048	10/28/24 18:06	120	114	111	108
K2409822-049	10/28/24 18:08	121	117	112	111
K2409822-051	10/28/24 18:11	123	116	111	109
K2409822-052	10/28/24 18:13	125	116	113	112
ZZZZZZ	10/28/24 18:15				
CCV	10/28/24 18:32	118	111	107	107
CCB	10/28/24 18:34	117	112	106	108

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **859128**

Sample	Date/Time	Ge72H2	Ge72He	In115He	Lu175He
ZZZZZZ	10/28/24 18:45				
ZZZZZZ	10/28/24 18:47				
ICV	10/28/24 18:49	101	102	96	96
CCV	10/28/24 18:51	99	100	97	100
ICB	10/28/24 18:53	98	103	96	97
CCB	10/28/24 18:55	101	102	98	98
ZZZZZZ	10/28/24 18:57				
LLICVT	10/28/24 19:00	97	102	98	97
LLICVT 2X	10/28/24 19:03	99	103	99	99
ZZZZZZ	10/28/24 19:05				
ZZZZZZ	10/28/24 19:09				
ZZZZZZ	10/28/24 19:11				
ICSA	10/28/24 19:13	94	99	94	96
ICSAB	10/28/24 19:15	94	100	94	96
ZZZZZZ	10/28/24 19:17				
K2409822-053	10/28/24 19:19	95	101	98	97
K2409822-054	10/28/24 19:21	88	99	96	96
K2409822-055	10/28/24 19:23	98	103	98	99
K2409822-056	10/28/24 19:26	100	104	100	100
K2409822-057	10/28/24 19:28	101	104	100	101
K2409822-058	10/28/24 19:30	102	104	100	101
K2409822-059	10/28/24 19:32	100	107	101	101
K2409822-060	10/28/24 19:34	101	104	102	102
CCV	10/28/24 19:36	102	108	102	102
CCB	10/28/24 19:38	104	109	104	101
KQ2416991-01MB	10/28/24 19:40	104	107	103	103
KQ2416991-02LCS	10/28/24 19:42	104	106	101	99
KQ2416991-03SRM	10/28/24 19:44	103	105	101	101
KQ2416991-04SRM	10/28/24 19:46	103	109	100	103
K2409822-062	10/28/24 19:48	104	107	103	103
K2409822-062DUP	10/28/24 19:50	105	106	101	100
K2409822-062SDL	10/28/24 19:52	103	106	102	102
K2409822-062PS	10/28/24 19:54	106	107	102	103
K2409822-062MS	10/28/24 19:56	103	106	100	101
K2409822-061	10/28/24 19:58	102	105	98	99
CCV	10/28/24 20:01	103	107	102	100
CCB	10/28/24 20:03	103	105	101	99

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **859128**

Sample	Date/Time	Ge72H2	Ge72He	In115He	Lu175He
K2409822-063	10/28/24 20:05	103	105	98	99
CCV	10/28/24 20:07	100	106	101	100
CCB	10/28/24 20:09	102	106	99	99
ZZZZZZ	10/28/24 20:11				
ZZZZZZ	10/28/24 20:13				
ZZZZZZ	10/28/24 20:15				
ZZZZZZ	10/28/24 20:17				
ZZZZZZ	10/28/24 20:19				
ZZZZZZ	10/28/24 20:21				
ZZZZZZ	10/28/24 20:23				
ZZZZZZ	10/28/24 20:25				
ZZZZZZ	10/28/24 20:27				
ZZZZZZ	10/28/24 20:29				
ZZZZZZ	10/28/24 20:32				
ZZZZZZ	10/28/24 20:34				
ZZZZZZ	10/28/24 20:36				
ZZZZZZ	10/28/24 20:38				
ZZZZZZ	10/28/24 20:40				
ZZZZZZ	10/28/24 20:42				
ZZZZZZ	10/28/24 20:44				
ZZZZZZ	10/28/24 20:46				
ZZZZZZ	10/28/24 20:48				
ZZZZZZ	10/28/24 20:50				
ZZZZZZ	10/28/24 20:52				
ZZZZZZ	10/28/24 20:54				
ZZZZZZ	10/28/24 20:56				
ZZZZZZ	10/28/24 20:58				
ZZZZZZ	10/28/24 21:01				
ZZZZZZ	10/28/24 21:03				
ZZZZZZ	10/28/24 21:05				
ZZZZZZ	10/28/24 21:07				
ZZZZZZ	10/28/24 21:09				
ZZZZZZ	10/28/24 21:11				
ZZZZZZ	10/28/24 21:13				
ZZZZZZ	10/28/24 21:15				
ZZZZZZ	10/28/24 21:17				
ZZZZZZ	10/28/24 21:19				

Client: Alaska Department of Fish and Game **Service Request:** K2409822
Project: 2024 Greens Creek Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-06** **Analytical BatchID:** **859128**

Sample	Date/Time	Ge72H2	Ge72He	In115He	Lu175He
ZZZZZZ	10/28/24 21:21				
ZZZZZZ	10/28/24 21:23				

Raw Data

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Total Solids

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Benchsheet

Service Request #: K2409822 **Run #:** 856244
Test: Frz Dry **Balance ID:** K-Balance-53
Method: Frz Dry

Matrix	Lab Code	Tare (g)	Wet Wt. (g)	Tare + Dry Wt. (g)	Dry Weight (g)	% Total Solids	RPD
Animal Tissue	K2409822-001	86.062	19.262	90.130	4.07	21.1	
Animal Tissue	K2409822-002	84.313	16.414	88.225	3.91	23.8	
Animal Tissue	K2409822-003	84.779	9.197	86.835	2.06	22.4	
Animal Tissue	K2409822-004	84.401	12.347	86.938	2.54	20.5	
Animal Tissue	K2409822-005	85.065	7.302	86.692	1.63	22.3	
Animal Tissue	K2409822-006	85.147	8.111	86.735	1.59	19.6	
Animal Tissue	K2409822-007	83.469	7.576	85.084	1.62	21.3	
Animal Tissue	K2409822-008	83.817	6.037	85.106	1.29	21.4	
Animal Tissue	K2409822-009	84.326	6.906	85.863	1.54	22.3	
Animal Tissue	K2409822-010	85.813	8.460	87.741	1.93	22.8	
Animal Tissue	K2409822-011	85.137	5.407	86.206	1.07	19.8	
Animal Tissue	K2409822-012	85.811	4.462	86.753	0.942	21.1	
Animal Tissue	K2409822-013	86.053	16.283	89.888	3.84	23.6	
Animal Tissue	K2409822-014	85.995	7.920	87.751	1.76	22.2	
Animal Tissue	K2409822-015	85.086	7.333	86.688	1.60	21.8	
Animal Tissue	K2409822-016	84.394	7.798	85.986	1.59	20.4	
Animal Tissue	K2409822-017	86.073	8.679	87.847	1.77	20.4	
Animal Tissue	K2409822-018	84.281	6.780	85.800	1.52	22.4	
Animal Tissue	K2409822-019	84.904	7.449	86.581	1.68	22.5	
Animal Tissue	K2409822-020	85.913	11.997	88.557	2.64	22.0	

	FreezeDryer ID	Date In	Time In	Date Out	Time Out	Thermometer ID
FreezeDry		10/4/2024	15:38	10/7/2024	08:51	

Cal EQID	Cal Start Value	Cal End Value	Start Date	Start Time	End Date	End Time

Comments: CCL 10/3/24, Reviewed 10/8/24 KL

Benchsheet

Service Request #: K2409822 **Run #:** 856245
Test: Frz Dry **Balance ID:** K-Balance-53
Method: Frz Dry

Matrix	Lab Code	Tare (g)	Wet Wt. (g)	Tare + Dry Wt. (g)	Dry Weight (g)	% Total Solids	RPD
Animal Tissue	K2409822-021	84.381	11.828	86.957	2.58	21.8	
Animal Tissue	K2409822-022	84.137	17.281	87.768	3.63	21.0	
Animal Tissue	K2409822-023	84.362	7.088	86.005	1.64	23.2	
Animal Tissue	K2409822-024	84.150	11.331	86.820	2.67	23.6	
Animal Tissue	K2409822-025	84.322	6.706	85.809	1.49	22.2	
Animal Tissue	K2409822-026	86.026	7.988	87.872	1.85	23.1	
Animal Tissue	K2409822-027	84.806	7.250	86.566	1.76	24.3	
Animal Tissue	K2409822-028	86.130	9.288	88.097	1.97	21.2	
Animal Tissue	K2409822-029	84.380	5.226	85.473	1.09	20.9	
Animal Tissue	K2409822-030	84.716	5.609	85.963	1.25	22.2	
Animal Tissue	K2409822-031	84.540	5.251	85.620	1.08	20.6	
Animal Tissue	K2409822-032	84.170	4.487	85.209	1.04	23.2	
Animal Tissue	K2409822-033	84.008	6.044	85.299	1.29	21.4	
Animal Tissue	K2409822-034	84.467	6.197	85.914	1.45	23.4	
Animal Tissue	K2409822-035	84.140	5.242	85.289	1.15	21.9	
Animal Tissue	K2409822-036	84.091	5.963	85.459	1.37	22.9	
Animal Tissue	K2409822-037	85.142	6.316	86.519	1.38	21.8	
Animal Tissue	K2409822-038	84.130	4.423	85.057	0.927	21.0	
Animal Tissue	K2409822-039	83.521	5.396	84.675	1.15	21.4	
Animal Tissue	K2409822-040	85.946	4.838	87.044	1.10	22.7	

	FreezeDryer ID	Date In	Time In	Date Out	Time Out	Thermometer ID
FreezeDry		10/4/2024	15:38	10/7/2024	08:51	

Cal EQID	Cal Start Value	Cal End Value	Start Date	Start Time	End Date	End Time

Comments: CCL 10/3/24, Reviewed 10/8/24 KL

Benchsheet

Service Request #: K2409822 **Run #:** 856246
Test: Frz Dry **Balance ID:** K-Balance-53
Method: Frz Dry

Matrix	Lab Code	Tare (g)	Wet Wt. (g)	Tare + Dry Wt. (g)	Dry Weight (g)	% Total Solids	RPD
Animal Tissue	K2409822-041	85.972	5.531	87.188	1.22	22.0	
Animal Tissue	K2409822-042	84.166	4.737	85.227	1.06	22.4	
Animal Tissue	K2409822-043	85.037	14.855	88.175	3.14	21.1	
Animal Tissue	K2409822-044	85.291	9.561	87.477	2.19	22.9	
Animal Tissue	K2409822-045	85.767	12.959	88.660	2.89	22.3	
Animal Tissue	K2409822-046	85.590	14.682	88.955	3.36	22.9	
Animal Tissue	K2409822-047	85.981	14.167	89.091	3.11	22.0	
Animal Tissue	K2409822-048	85.815	9.225	88.032	2.22	24.0	
Animal Tissue	K2409822-049	85.871	15.325	89.148	3.28	21.4	
Animal Tissue	K2409822-050	85.271	15.884	88.771	3.50	22.0	
Animal Tissue	K2409822-051	85.450	10.403	87.618	2.17	20.8	
Animal Tissue	K2409822-052	85.185	8.757	87.135	1.95	22.3	
Animal Tissue	K2409822-053	84.849	7.406	86.362	1.51	20.4	
Animal Tissue	K2409822-054	86.012	7.146	87.591	1.58	22.1	
Animal Tissue	K2409822-055	85.449	7.636	87.121	1.67	21.9	
Animal Tissue	K2409822-056	85.867	7.973	87.550	1.68	21.1	
Animal Tissue	K2409822-057	85.343	9.581	87.316	1.97	20.6	
Animal Tissue	K2409822-058	85.916	7.664	87.598	1.68	21.9	
Animal Tissue	K2409822-059	85.302	7.282	86.675	1.37	18.9	
Animal Tissue	K2409822-060	86.060	6.748	87.483	1.42	21.1	

	FreezeDryer ID	Date In	Time In	Date Out	Time Out	Thermometer ID
FreezeDry		10/4/2024	15:38	10/7/2024	08:51	

Cal EQID	Cal Start Value	Cal End Value	Start Date	Start Time	End Date	End Time

Comments: CCL 10/3/24, Reviewed 10/8/24 KL

Benchsheet

Service Request #:	**K2409822**	**Run #:**	**856247**
Test:	**Frz Dry**	**Balance ID:**	**K-Balance-53**
Method:	**Frz Dry**		

Matrix	Lab Code	Tare (g)	Wet Wt. (g)	Tare + Dry Wt. (g)	Dry Weight (g)	% Total Solids	RPD
Animal Tissue	K2409822-061	85.794	9.502	87.948	2.15	22.7	
Animal Tissue	K2409822-062	85.822	10.139	88.002	2.18	21.5	
Animal Tissue	K2409822-063	85.292	6.803	86.862	1.57	23.1	

	FreezeDryer ID	Date In	Time In	Date Out	Time Out	Thermometer ID
FreezeDry		10/4/2024	15:38	10/7/2024	08:51	

Cal EQID	Cal Start Value	Cal End Value	Start Date	Start Time	End Date	End Time

Comments: CCL 10/3/24, Reviewed 10/8/24 KL

Metals

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 446926
Team: Metals/CLUKKEN
Number of Copies to make: 1

Prep WorkFlow: MetDigTissMS
Prep Method: PSEP Metals

Status: Prepped
Prep Date/Time: 10/23/24 15:01

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2416990-01	MB		6020B/Metals T		Tissue	0.30000g	30.00mL	15% HNO3
2	KQ2416990-02	LCS		6020B/Metals T		Tissue	0.30000g	30.00mL	15% HNO3
3	KQ2416990-03	SRM		6020B/Metals T		Tissue	0.30200g	30.00mL	15% HNO3
4	KQ2416990-04	SRM		6020B/Metals T		Tissue	0.30800g	30.00mL	15% HNO3
5	K2409822-041	2024GCMTC9CO9	.02	6020B/Metals T		Animal Tissue	0.30900g	30.00mL	15% HNO3
6	K2409822-042	2024GCMTC9CO10	.02	6020B/Metals T		Animal Tissue	0.30300g	30.00mL	15% HNO3
7	K2409822-043	2024GCMZC371DV1	.02	6020B/Metals T		Animal Tissue	0.30700g	30.00mL	15% HNO3
8	K2409822-044	2024GCMZC371DV2	.02	6020B/Metals T		Animal Tissue	0.30300g	30.00mL	15% HNO3
9	K2409822-045	2024GCMZC371DV3	.02	6020B/Metals T		Animal Tissue	0.30500g	30.00mL	15% HNO3
10	K2409822-046	2024GCMZC371DV4	.02	6020B/Metals T		Animal Tissue	0.30500g	30.00mL	15% HNO3
11	K2409822-047	2024GCMZC371DV5	.02	6020B/Metals T		Animal Tissue	0.30500g	30.00mL	15% HNO3
12	K2409822-048	2024GCMZC371DV6	.02	6020B/Metals T		Animal Tissue	0.30400g	30.00mL	15% HNO3
13	K2409822-049	2024GCMZC371DV7	.02	6020B/Metals T		Animal Tissue	0.30500g	30.00mL	15% HNO3
14	K2409822-050	2024GCMZC371DV8	.02	6020B/Metals T		Animal Tissue	0.30200g	30.00mL	15% HNO3
15	KQ2416990-05	K2409822-050 DUP	.02	6020B/Metals T		Tissue	0.30200g	30.00mL	15% HNO3
16	KQ2416990-06	K2409822-050 MS	.02	6020B/Metals T		Tissue	0.30200g	30.00mL	15% HNO3
17	K2409822-051	2024GCMZC371DV9	.02	6020B/Metals T		Animal Tissue	0.30400g	30.00mL	15% HNO3
18	K2409822-052	2024GCMZC371DV10	.02	6020B/Metals T		Animal Tissue	0.30200g	30.00mL	15% HNO3
19	K2409822-053	2024GCMZC10DV1	.02	6020B/Metals T		Animal Tissue	0.30800g	30.00mL	15% HNO3
20	K2409822-054	2024GCMZC10DV2	.02	6020B/Metals T		Animal Tissue	0.30600g	30.00mL	15% HNO3
21	K2409822-055	2024GCMZC10DV3	.02	6020B/Metals T		Animal Tissue	0.30700g	30.00mL	15% HNO3
22	K2409822-056	2024GCMZC10DV4	.02	6020B/Metals T		Animal Tissue	0.30300g	30.00mL	15% HNO3
23	K2409822-057	2024GCMZC10DV5	.02	6020B/Metals T		Animal Tissue	0.30100g	30.00mL	15% HNO3
24	K2409822-058	2024GCMZC10DV6	.02	6020B/Metals T		Animal Tissue	0.30900g	30.00mL	15% HNO3
25	K2409822-059	2024GCMZC10DV7	.02	6020B/Metals T		Animal Tissue	0.30800g	30.00mL	15% HNO3
26	K2409822-060	2024GCMZC10DV8	.02	6020B/Metals T		Animal Tissue	0.30900g	30.00mL	15% HNO3

Spiking Solutions

Name: K-MET DORM-5 Inventory ID 226265 Logbook Ref: DORM-5 Expires On: 08/01/2026

KQ2416990-03 0.30g

Name: K-MET SS1 Inventory ID 236796 Logbook Ref: MET4-71-I Expires On: 03/22/2025

KQ2416990-02 0.30mL KQ2416990-06 0.30mL

Preparation Information Benchsheet

Prep Run#: 446926
Team: Metals/CLUKKEN

Prep WorkFlow: MetDigTissMS
Prep Method: PSEP Metals

Status: Prepped
Prep Date/Time: 10/23/24 15:01

Name:	K-MET TORT-3	Inventory ID	237236	Logbook Ref:	TORT-3	Expires On:	04/01/2026

KQ2416990-04 0.30g

Name:	K-MET SS3	Inventory ID	237406	Logbook Ref:	MET4-72-H	Expires On:	06/30/2025

KQ2416990-02 0.05mL KQ2416990-06 0.05mL

Name:	K-MET SS4	Inventory ID	238009	Logbook Ref:	MET4-75-F	Expires On:	05/31/2025

KQ2416990-02 0.05mL KQ2416990-06 0.05mL

Preparation Materials

K-MET 50ml Centrifuge Tube	P7692861 (235936)	K-MET HNO3	23H1462003 (236022)

Preparation Steps

Step: Digestion
Started: 10/23/24 15:01
Finished: 10/24/24 10:54
By: CLUKKEN
Comments

Preparation Equipment

K-Balance-45	Digestion	Date Checked	10/23/24	K-Metals-Oven-01	Digestion	Observed Temperature In	105 deg C
K-Metals-Oven-01	Digestion	Observed Temperature Out	105 deg C	K-Tissue Pipette 2	Digestion		

Comments: _____

Reviewed By: AB Date: 10/28/24

METALS SPIKING SOLUTIONS CONCENTRATIONS FORM

Solution Name	Element	mLs of 1000ppm Solution	Final Volume	Solution Conc. mg/L	Enter mls Added
K-MET SS1	HNO3	50.0	1000ml	-	
	Al	100*	1000ml	200	
	Ag	100*	1000ml	5	
	Ba	100*	1000ml	100	
	Be	100*	1000ml	5	
	Cd	100*	1000ml	5	
	Co	100*	1000ml	50	
	Cr	100*	1000ml	20	
	Cu	100*	1000ml	25	
	Fe	100*	1000ml	100	
	Pb	100*	1000ml	50	
*** Add after HNO3	Mn	100*	1000ml	50	
and before ALS-89	Ni	100*	1000ml	50	
when making the	Sb***	50.0	1000ml	50	
solution	V	100*	1000ml	50	
	Zn	100*	1000ml	50	
K-MET SS3	HNO3	25.0	500ml	-	
	As	50.0	500ml	100	
	Se	50.0	500ml	100	
	Tl	10.0	500ml	20	
	Hg	6.00	500ml	12	
K-MET SS4	HNO3	25.0	500ml	-	
	B	25.0	500ml	50	
	Mo	50.0	500ml	100	
	U	10.0	500ml	20	
K-MET SS5	HNO3	25.0	500ml	-	
	K**	50.0	500ml	1000	
	Na**	50.0	500ml	1000	
	Mg**	50.0	500ml	1000	
	Ca**	50.0	500ml	1000	

K-MET QCP-CICV-1	Ca, Mg, Na, K	no dilution	-	2500	
	Al, Ba	no dilution	-	1000	
	Fe	no dilution	-	500	
	Co, Mn, Ni, V, Zn	no dilution	-	250	
	Cu, Ag	no dilution	-	125	
	Cr	no dilution	-	100	
	Be	no dilution	-	25	
K-MET QCP-CICV-3	As, Pb, Se, Tl	no dilution	-	500	
	Cd	no dilution	-	250	

* Denotes volume of mixed stock standard.
** Denotes 10,000 ppm individual stock standards.

Standard	mls of standard	ppm	Logbook #	Exp. Date

Preparation Information Benchsheet

Prep Run#: 446926
Team: Metals/CLUKKEN
Number of Copies to make: 1

Prep WorkFlow: MetDigTissMS
Prep Method:

Status: Draft
Prep Date/Time: 10/18/24 12:56 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2416990-01**	MB			6020B / Metals T	Tissue						
2	**KQ2416990-02**	LCS			6020B / Metals T	Tissue						
3	**KQ2416990-03**	SRM			6020B / Metals T	Tissue	0.302					
4	**KQ2416990-04**	SRM			6020B / Metals T	Tissue	0.308					
5	**K2409822-041**	2024GCMTC9CO9	.02		6020B / Metals T	Animal Tissue	0.309					
6	**K2409822-042**	2024GCMTC9CO10	.02		6020B / Metals T	Animal Tissue	0.303					
7	**K2409822-043**	2024GCMZC371DV1	.02		6020B / Metals T	Animal Tissue	0.307					
8	**K2409822-044**	2024GCMZC371DV2	.02		6020B / Metals T	Animal Tissue	0.303					
9	**K2409822-045**	2024GCMZC371DV3	.02		6020B / Metals T	Animal Tissue	0.305					
10	**K2409822-046**	2024GCMZC371DV4	.02		6020B / Metals T	Animal Tissue	0.305					
11	**K2409822-047**	2024GCMZC371DV5	.02		6020B / Metals T	Animal Tissue	0.305					
12	**K2409822-048**	2024GCMZC371DV6	.02		6020B / Metals T	Animal Tissue	0.304					
13	**K2409822-049**	2024GCMZC371DV7	.02		6020B / Metals T	Animal Tissue	0.305					
14	**K2409822-050**	2024GCMZC371DV8	.02		6020B / Metals T	Animal Tissue	0.302					
15	**KQ2416990-05**	K2409822-050 DUP	.02		6020B / Metals T	Tissue	0.302					
16	**KQ2416990-06**	K2409822-050 MS	.02		6020B / Metals T	Tissue	0.302					
17	**K2409822-051**	2024GCMZC371DV9	.02		6020B / Metals T	Animal Tissue	0.304					
18	**K2409822-052**	2024GCMZC371DV10	.02		6020B / Metals T	Animal Tissue	0.302					
19	**K2409822-053**	2024GCMZC10DV1	.02		6020B / Metals T	Animal Tissue	0308					
20	**K2409822-054**	2024GCMZC10DV2	.02		6020B / Metals T	Animal Tissue	0.306					
21	**K2409822-055**	2024GCMZC10DV3	.02		6020B / Metals T	Animal Tissue	0.307					
22	**K2409822-056**	2024GCMZC10DV4	.02		6020B / Metals T	Animal Tissue	0,303					
23	**K2409822-057**	2024GCMZC10DV5	.02		6020B / Metals T	Animal Tissue	0.301					
24	**K2409822-058**	2024GCMZC10DV6	.02		6020B / Metals T	Animal Tissue	0.309					
25	**K2409822-059**	2024GCMZC10DV7	.02		6020B / Metals T	Animal Tissue	0.308					
26	**K2409822-060**	2024GCMZC10DV8	.02		6020B / Metals T	Animal Tissue	0.309					

K-balance-45 AL 10/23/24

Comments: 0.3ml 551, 0.05mL 553, 554 In 15:01 10/23/24 105
Out 10:54 10/24/24 105

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Preparation Information Benchsheet

Prep Run#: 446924
Team: Metals/CLUKKEN
Number of Copies to make: 1

Prep WorkFlow: MetDigTissMS
Prep Method: PSEP Metals

Status: Prepped
Prep Date/Time: 10/23/24 15:01

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2416988-01	MB		6020B/Metals T		Tissue	0.30000g	30.00mL	15% HNO3
2	KQ2416988-02	LCS		6020B/Metals T		Tissue	0.30000g	30.00mL	15% HNO3
3	KQ2416988-03	SRM		6020B/Metals T		Tissue	0.30700g	30.00mL	15% HNO3
4	KQ2416988-04	SRM		6020B/Metals T		Tissue	0.30800g	30.00mL	15% HNO3
5	K2409822-001	2024GCMGC54DV1	.02	6020B/Metals T		Animal Tissue	0.30200g	30.00mL	15% HNO3
6	KQ2416988-05	K2409822-001 DUP	.02	6020B/Metals T		Tissue	0.30200g	30.00mL	15% HNO3
7	KQ2416988-06	K2409822-001 MS	.02	6020B/Metals T		Tissue	0.30200g	30.00mL	15% HNO3
8	K2409822-002	2024GCMGC54DV2	.02	6020B/Metals T		Animal Tissue	0.30800g	30.00mL	15% HNO3
9	K2409822-003	2024GCMGC54DV3	.02	6020B/Metals T		Animal Tissue	0.30400g	30.00mL	15% HNO3
10	K2409822-004	2024GCMGC54DV4	.02	6020B/Metals T		Animal Tissue	0.30300g	30.00mL	15% HNO3
11	K2409822-005	2024GCMGC54DV5	.02	6020B/Metals T		Animal Tissue	0.30800g	30.00mL	15% HNO3
12	K2409822-006	2024GCMGC54DV6	.02	6020B/Metals T		Animal Tissue	0.30800g	30.00mL	15% HNO3
13	K2409822-007	2024GCMGC54DV7	.02	6020B/Metals T		Animal Tissue	0.30500g	30.00mL	15% HNO3
14	K2409822-008	2024GCMGC54DV8	.02	6020B/Metals T		Animal Tissue	0.30500g	30.00mL	15% HNO3
15	K2409822-009	2024GCMGC54DV9	.02	6020B/Metals T		Animal Tissue	0.30300g	30.00mL	15% HNO3
16	K2409822-010	2024GCMGC54DV10	.02	6020B/Metals T		Animal Tissue	0.30700g	30.00mL	15% HNO3
17	K2409822-011	2024GCMGC54CO1	.02	6020B/Metals T		Animal Tissue	0.30600g	30.00mL	15% HNO3
18	K2409822-012	2024GCMGC54CO2	.02	6020B/Metals T		Animal Tissue	0.30900g	30.00mL	15% HNO3
19	K2409822-013	2024GCMGC63DV1	.02	6020B/Metals T		Animal Tissue	0.30500g	30.00mL	15% HNO3
20	K2409822-014	2024GCMGC63DV2	.02	6020B/Metals T		Animal Tissue	0.30600g	30.00mL	15% HNO3
21	K2409822-015	2024GCMGC63DV3	.02	6020B/Metals T		Animal Tissue	0.30500g	30.00mL	15% HNO3
22	K2409822-016	2024GCMGC63DV4	.02	6020B/Metals T		Animal Tissue	0.30900g	30.00mL	15% HNO3
23	K2409822-017	2024GCMGC63DV5	.02	6020B/Metals T		Animal Tissue	0.30300g	30.00mL	15% HNO3
24	K2409822-018	2024GCMGC63DV6	.02	6020B/Metals T		Animal Tissue	0.30500g	30.00mL	15% HNO3
25	K2409822-019	2024GCMGC63DV7	.02	6020B/Metals T		Animal Tissue	0.30900g	30.00mL	15% HNO3
26	K2409822-020	2024GCMGC63DV8	.02	6020B/Metals T		Animal Tissue	0.30600g	30.00mL	15% HNO3

Spiking Solutions

Name: K-MET DORM-5 Inventory ID 226265 Logbook Ref: DORM-5 Expires On: 08/01/2026

KQ2416988-03 0.30g

Name: K-MET SS1 Inventory ID 236796 Logbook Ref: MET4-71-I Expires On: 03/22/2025

KQ2416988-02 0.30mL KQ2416988-06 0.30mL

Preparation Information Benchsheet

Prep Run#: 446924
Team: Metals/CLUKKEN

Prep WorkFlow: MetDigTissMS
Prep Method: PSEP Metals

Status: Prepped
Prep Date/Time: 10/23/24 15:01

Name:	Inventory ID	Logbook Ref:	Expires On:
K-MET TORT-3	237236	TORT-3	04/01/2026

KQ2416988-04 0.30g

Name:	Inventory ID	Logbook Ref:	Expires On:
K-MET SS3	237406	MET4-72-H	06/30/2025

KQ2416988-02 0.05mL KQ2416988-06 0.05mL

Name:	Inventory ID	Logbook Ref:	Expires On:
K-MET SS4	238009	MET4-75-F	05/31/2025

KQ2416988-02 0.05mL KQ2416988-06 0.05mL

Preparation Materials

K-MET 50ml Centrifuge Tube	P7692861 (235936)	K-MET HNO3	23H1462003 (236022)

Preparation Steps

Step: Digestion
Started: 10/23/24 15:01
Finished: 10/24/24 10:54
By: CLUKKEN
Comments

Preparation Equipment

K-Balance-45	Digestion	Date Checked	10/23/24	K-Metals-Oven-01	Digestion	Observed Temperature In	105 deg C
K-Metals-Oven-01	Digestion	Observed Temperature Out	105 deg C	K-Tissue Pipette 2	Digestion		

Comments: _____

Reviewed By: ATB Date: 10/28/24

METALS SPIKING SOLUTIONS CONCENTRATIONS FORM

Solution Name	Element	mLs of 1000ppm Solution	Final Volume	Solution Conc. mg/L	Enter mls Added
K-MET SS1	HNO3	50.0	1000ml	-	
	Al	100*	1000ml	200	
	Ag	100*	1000ml	5	
	Ba	100*	1000ml	100	
	Be	100*	1000ml	5	
	Cd	100*	1000ml	5	
	Co	100*	1000ml	50	
	Cr	100*	1000ml	20	
	Cu	100*	1000ml	25	
	Fe	100*	1000ml	100	
	Pb	100*	1000ml	50	
*** Add after HNO3	Mn	100*	1000ml	50	
and before ALS-89	Ni	100*	1000ml	50	
when making the	Sb***	50.0	1000ml	50	
solution	V	100*	1000ml	50	
	Zn	100*	1000ml	50	
K-MET SS3	HNO3	25.0	500ml	-	
	As	50.0	500ml	100	
	Se	50.0	500ml	100	
	Tl	10.0	500ml	20	
	Hg	6.00	500ml	12	
K-MET SS4	HNO3	25.0	500ml	-	
	B	25.0	500ml	50	
	Mo	50.0	500ml	100	
	U	10.0	500ml	20	
K-MET SS5	HNO3	25.0	500ml	-	
	K**	50.0	500ml	1000	
	Na**	50.0	500ml	1000	
	Mg**	50.0	500ml	1000	
	Ca**	50.0	500ml	1000	

K-MET QCP-CICV-1	Ca, Mg, Na, K	no dilution	-	2500	
	Al, Ba	no dilution	-	1000	
	Fe	no dilution	-	500	
	Co, Mn, Ni, V, Zn	no dilution	-	250	
	Cu, Ag	no dilution	-	125	
	Cr	no dilution	-	100	
	Be	no dilution	-	25	
K-MET QCP-CICV-3	As, Pb, Se, Tl	no dilution	-	500	
	Cd	no dilution	-	250	

* Denotes volume of mixed stock standard.
** Denotes 10,000 ppm individual stock standards.

Standard	mls of standard	ppm	Logbook #	Exp. Date

Preparation Information Benchsheet

Prep Run#: 446924
Team: Metals/CLUKKEN
Number of Copies to make: 1

Prep WorkFlow: MetDigTissMS
Prep Method:

Status: Draft
Prep Date/Time: 10/18/24 12:56 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2416988-01**	MB			6020B / Metals T	Tissue						
2	**KQ2416988-02**	LCS			6020B / Metals T	Tissue						
3	**KQ2416988-03**	SRM			6020B / Metals T	Tissue	0.307					
4	**KQ2416988-04**	SRM			6020B / Metals T	Tissue	0.308					
5	**K2409822-001**	2024GCMGC54DV1	.02		6020B / Metals T	Animal Tissue	0.302					
6	**KQ2416988-05**	K2409822-001 DUP	.02		6020B / Metals T	Tissue	0.302					
7	**KQ2416988-06**	K2409822-001 MS	.02		6020B / Metals T	Tissue	0.302					
8	**K2409822-002**	2024GCMGC54DV2	.02		6020B / Metals T	Animal Tissue	0.308					
9	**K2409822-003**	2024GCMGC54DV3	.02		6020B / Metals T	Animal Tissue	0.304					
10	**K2409822-004**	2024GCMGC54DV4	.02		6020B / Metals T	Animal Tissue	0.303					
11	**K2409822-005**	2024GCMGC54DV5	.02		6020B / Metals T	Animal Tissue	0.308					
12	**K2409822-006**	2024GCMGC54DV6	.02		6020B / Metals T	Animal Tissue	0.308					
13	**K2409822-007**	2024GCMGC54DV7	.02		6020B / Metals T	Animal Tissue	0.305					
14	**K2409822-008**	2024GCMGC54DV8	.02		6020B / Metals T	Animal Tissue	0.305					
15	**K2409822-009**	2024GCMGC54DV9	.02		6020B / Metals T	Animal Tissue	0.303					
16	**K2409822-010**	2024GCMGC54DV10	.02		6020B / Metals T	Animal Tissue	0.307					
17	**K2409822-011**	2024GCMGC54CO1	.02		6020B / Metals T	Animal Tissue	0.306					
18	**K2409822-012**	2024GCMGC54CO2	.02		6020B / Metals T	Animal Tissue	0.309					
19	**K2409822-013**	2024GCMGC63DV1	.02		6020B / Metals T	Animal Tissue	0.305					
20	**K2409822-014**	2024GCMGC63DV2	.02		6020B / Metals T	Animal Tissue	0.306					
21	**K2409822-015**	2024GCMGC63DV3	.02		6020B / Metals T	Animal Tissue	0.305					
22	**K2409822-016**	2024GCMGC63DV4	.02		6020B / Metals T	Animal Tissue	0.309					
23	**K2409822-017**	2024GCMGC63DV5	.02		6020B / Metals T	Animal Tissue	0.303					
24	**K2409822-018**	2024GCMGC63DV6	.02		6020B / Metals T	Animal Tissue	0.305					
25	**K2409822-019**	2024GCMGC63DV7	.02		6020B / Metals T	Animal Tissue	0.309					
26	**K2409822-020**	2024GCMGC63DV8	.02		6020B / Metals T	Animal Tissue	0.306					

K-balance - 45 TL 10/23/24

Comments: 0.3mL SSL 0.05 mL 553 554 In 15:01 10/23/24 105
Out 10:54 10/24/24 105

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Preparation Information Benchsheet

Prep Run#: 446927
Team: Metals/CLUKKEN
Number of Copies to make: 1

Prep WorkFlow: MetDigTissMS
Prep Method: PSEP Metals

Status: Prepped
Prep Date/Time: 10/23/24 15:01

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2416991-01	MB		6020B/Metals T		Tissue	0.30000g	30.00mL	15% HNO3
2	KQ2416991-02	LCS		6020B/Metals T		Tissue	0.30000g	30.00mL	15% HNO3
3	KQ2416991-03	SRM		6020B/Metals T		Tissue	0.30400g	30.00mL	15% HNO3
4	KQ2416991-04	SRM		6020B/Metals T		Tissue	0.30300g	30.00mL	15% HNO3
5	K2409822-061	2024GCMZC10DV9	.02	6020B/Metals T		Animal Tissue	0.30600g	30.00mL	15% HNO3
6	K2409822-062	2024GCMZC10DV10	.02	6020B/Metals T		Animal Tissue	0.30600g	30.00mL	15% HNO3
7	KQ2416991-05	K2409822-062 DUP	.02	6020B/Metals T		Tissue	0.30600g	30.00mL	15% HNO3
8	KQ2416991-06	K2409822-062 MS	.02	6020B/Metals T		Tissue	0.30600g	30.00mL	15% HNO3
9	K2409822-063	2024GCMZC10CO1	.02	6020B/Metals T		Animal Tissue	0.30300g	30.00mL	15% HNO3

Spiking Solutions

Name: K-MET DORM-5 Inventory ID 226265 Logbook Ref: DORM-5 Expires On: 08/01/2026

KQ2416991-03 0.30g

Name: K-MET SS1 Inventory ID 236796 Logbook Ref: MET4-71-I Expires On: 03/22/2025

KQ2416991-02 0.30mL KQ2416991-06 0.30mL

Name: K-MET TORT-3 Inventory ID 237236 Logbook Ref: TORT-3 Expires On: 04/01/2026

KQ2416991-04 0.30g

Name: K-MET SS3 Inventory ID 237406 Logbook Ref: MET4-72-H Expires On: 06/30/2025

KQ2416991-02 0.05mL KQ2416991-06 0.05mL

Name: K-MET SS4 Inventory ID 238009 Logbook Ref: MET4-75-F Expires On: 05/31/2025

KQ2416991-02 0.05mL KQ2416991-06 0.05mL

Preparation Materials

K-MET 50ml Centrifuge Tube P7692861 (235936) K-MET HNO3 23H1462003 (236022)

Preparation Information Benchsheet

Prep Run#: 446927
Team: Metals/CLUKKEN

Prep WorkFlow: MetDigTissMS
Prep Method: PSEP Metals

Status: Prepped
Prep Date/Time: 10/23/24 15:01

Preparation Steps

Step: Digestion
Started: 10/23/24 15:01
Finished: 10/24/24 10:54
By: CLUKKEN
Comments

Preparation Equipment

K-Balance-45	Digestion	Date Checked	10/23/24	K-Metals-Oven-01	Digestion	Observed Temperature In	105 deg C
K-Metals-Oven-01	Digestion	Observed Temperature Out	105 deg C	K-Tissue Pipette 2	Digestion		

Comments: _____

Reviewed By: AB Date: 10/28/24

METALS SPIKING SOLUTIONS CONCENTRATIONS FORM

Solution Name	Element	mLs of 1000ppm Solution	Final Volume	Solution Conc. mg/L	Enter mls Added
K-MET SS1 *** Add after HNO3 and before ALS-89 when making the solution	HNO3	50.0	1000ml	-	
	Al	100*	1000ml	200	
	Ag	100*	1000ml	5	
	Ba	100*	1000ml	100	
	Be	100*	1000ml	5	
	Cd	100*	1000ml	5	
	Co	100*	1000ml	50	
	Cr	100*	1000ml	20	
	Cu	100*	1000ml	25	
	Fe	100*	1000ml	100	
	Pb	100*	1000ml	50	
	Mn	100*	1000ml	50	
	Ni	100*	1000ml	50	
	Sb***	50.0	1000ml	50	
	V	100*	1000ml	50	
	Zn	100*	1000ml	50	
K-MET SS3	HNO3	25.0	500ml	-	
	As	50.0	500ml	100	
	Se	50.0	500ml	100	
	Tl	10.0	500ml	20	
	Hg	6.00	500ml	12	
K-MET SS4	HNO3	25.0	500ml	-	
	B	25.0	500ml	50	
	Mo	50.0	500ml	100	
	U	10.0	500ml	20	
K-MET SS5	HNO3	25.0	500ml	-	
	K**	50.0	500ml	1000	
	Na**	50.0	500ml	1000	
	Mg**	50.0	500ml	1000	
	Ca**	50.0	500ml	1000	

K-MET QCP-CICV-1	Ca, Mg, Na, K	no dilution	-	2500	
	Al, Ba	no dilution	-	1000	
	Fe	no dilution	-	500	
	Co, Mn, Ni, V, Zn	no dilution	-	250	
	Cu, Ag	no dilution	-	125	
	Cr	no dilution	-	100	
	Be	no dilution	-	25	
K-MET QCP-CICV-3	As, Pb, Se, Tl	no dilution	-	500	
	Cd	no dilution	-	250	

* Denotes volume of mixed stock standard.
** Denotes 10,000 ppm individual stock standards.

Standard	mls of standard	ppm	Logbook #	Exp. Date

Preparation Information Benchsheet

Prep Run#: 446927
Team: Metals/CLUKKEN
Number of Copies to make: 1

Prep WorkFlow: MetDigTissMS
Prep Method:

Status: Draft
Prep Date/Time: 10/18/24 12:56 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2416991-01**	MB			6020B / Metals T	Tissue						
2	**KQ2416991-02**	LCS			6020B / Metals T	Tissue						
3	**KQ2416991-03**	SRM			6020B / Metals T	Tissue	0.304					
4	**KQ2416991-04**	SRM			6020B / Metals T	Tissue	0.303					
5	**K2409822-061**	2024GCMZC10DV9	.02		6020B / Metals T	Animal Tissue	0.306					
6	**K2409822-062**	2024GCMZC10DV10	.02		6020B / Metals T	Animal Tissue	0.306					
7	**KQ2416991-05**	K2409822-062 DUP	.02		6020B / Metals T	Tissue	0.306					
8	**KQ2416991-06**	K2409822-062 MS	.02		6020B / Metals T	Tissue	0.306					
9	**K2409822-063**	2024GCMZC10CO1	.02		6020B / Metals T	Animal Tissue	0.303					

K-balance - 45 TL 10/23/24

Comments: 0.3mL 551, 0.05mL 553, 554 In 15:01 10/23/24 105°
Out 10:54 10/24/24 105

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Preparation Information Benchsheet

Prep Run#: 446925
Team: Metals/CLUKKEN
Number of Copies to make: 1

Prep WorkFlow: MetDigTissMS
Prep Method: PSEP Metals

Status: Prepped
Prep Date/Time: 10/23/24 15:01

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2416989-01	MB		6020B/Metals T		Tissue	0.30000g	30.00mL	15% HNO3
2	KQ2416989-02	LCS		6020B/Metals T		Tissue	0.30000g	30.00mL	15% HNO3
3	KQ2416989-03	SRM		6020B/Metals T		Tissue	0.30100g	30.00mL	15% HNO3
4	KQ2416989-04	SRM		6020B/Metals T		Tissue	0.30500g	30.00mL	15% HNO3
5	K2409822-021	2024GCMGC63DV9	.02	6020B/Metals T		Animal Tissue	0.30600g	30.00mL	15% HNO3
6	K2409822-022	2024GCMGC63DV10	.02	6020B/Metals T		Animal Tissue	0.30300g	30.00mL	15% HNO3
7	KQ2416989-05	K2409822-022 DUP	.02	6020B/Metals T		Tissue	0.30300g	30.00mL	15% HNO3
8	KQ2416989-06	K2409822-022 MS	.02	6020B/Metals T		Tissue	0.30400g	30.00mL	15% HNO3
9	K2409822-023	2024GCMTC9DV1	.02	6020B/Metals T		Animal Tissue	0.30500g	30.00mL	15% HNO3
10	K2409822-024	2024GCMTC9DV2	.02	6020B/Metals T		Animal Tissue	0.30900g	30.00mL	15% HNO3
11	K2409822-025	2024GCMTC9DV3	.02	6020B/Metals T		Animal Tissue	0.30300g	30.00mL	15% HNO3
12	K2409822-026	2024GCMTC9DV4	.02	6020B/Metals T		Animal Tissue	0.30600g	30.00mL	15% HNO3
13	K2409822-027	2024GCMTC9DV5	.02	6020B/Metals T		Animal Tissue	0.30600g	30.00mL	15% HNO3
14	K2409822-028	2024GCMTC9DV6	.02	6020B/Metals T		Animal Tissue	0.30800g	30.00mL	15% HNO3
15	K2409822-029	2024GCMTC9DV7	.02	6020B/Metals T		Animal Tissue	0.30300g	30.00mL	15% HNO3
16	K2409822-030	2024GCMTC9DV8	.02	6020B/Metals T		Animal Tissue	0.30700g	30.00mL	15% HNO3
17	K2409822-031	2024GCMTC9DV9	.02	6020B/Metals T		Animal Tissue	0.30800g	30.00mL	15% HNO3
18	K2409822-032	2024GCMTC9DV10	.02	6020B/Metals T		Animal Tissue	0.30500g	30.00mL	15% HNO3
19	K2409822-033	2024GCMTC9CO1	.02	6020B/Metals T		Animal Tissue	0.30600g	30.00mL	15% HNO3
20	K2409822-034	2024GCMTC9CO2	.02	6020B/Metals T		Animal Tissue	0.30400g	30.00mL	15% HNO3
21	K2409822-035	2024GCMTC9CO3	.02	6020B/Metals T		Animal Tissue	0.30900g	30.00mL	15% HNO3
22	K2409822-036	2024GCMTC9CO4	.02	6020B/Metals T		Animal Tissue	0.30500g	30.00mL	15% HNO3
23	K2409822-037	2024GCMTC9CO5	.02	6020B/Metals T		Animal Tissue	0.30900g	30.00mL	15% HNO3
24	K2409822-038	2024GCMTC9CO6	.02	6020B/Metals T		Animal Tissue	0.30900g	30.00mL	15% HNO3
25	K2409822-039	2024GCMTC9CO7	.02	6020B/Metals T		Animal Tissue	0.30600g	30.00mL	15% HNO3
26	K2409822-040	2024GCMTC9CO8	.02	6020B/Metals T		Animal Tissue	0.30600g	30.00mL	15% HNO3

Spiking Solutions

Name: K-MET DORM-5 Inventory ID 226265 Logbook Ref: DORM-5 Expires On: 08/01/2026

KQ2416989-03 0.30g

Name: K-MET SS1 Inventory ID 236796 Logbook Ref: MET4-71-I Expires On: 03/22/2025

KQ2416989-02 0.30mL KQ2416989-06 0.30mL

Preparation Information Benchsheet

Prep Run#: 446925
Team: Metals/CLUKKEN

Prep WorkFlow: MetDigTissMS
Prep Method: PSEP Metals

Status: Prepped
Prep Date/Time: 10/23/24 15:01

Name:	K-MET TORT-3	Inventory ID	237236	Logbook Ref:	TORT-3	Expires On:	04/01/2026

KQ2416989-04 0.30g

Name:	K-MET SS3	Inventory ID	237406	Logbook Ref:	MET4-72-H	Expires On:	06/30/2025

KQ2416989-02 0.05mL KQ2416989-06 0.05mL

Name:	K-MET SS4	Inventory ID	238009	Logbook Ref:	MET4-75-F	Expires On:	05/31/2025

KQ2416989-02 0.05mL KQ2416989-06 0.05mL

Preparation Materials

K-MET 50ml Centrifuge Tube	P7692861 (235936)	K-MET HNO3	23H1462003 (236022)

Preparation Steps

Step: Digestion
Started: 10/23/24 15:01
Finished: 10/24/24 10:54
By: CLUKKEN
Comments

Preparation Equipment

K-Balance-45	Digestion	Date Checked	10/23/24	K-Metals-Oven-01	Digestion	Observed Temperature In	105 deg C
K-Metals-Oven-01	Digestion	Observed Temperature Out	105 deg C	K-Tissue Pipette 2	Digestion		

Comments: _____

Reviewed By: AB Date: 10/28/24

METALS SPIKING SOLUTIONS CONCENTRATIONS FORM

Solution Name	Element	mLs of 1000ppm Solution	Final Volume	Solution Conc. mg/L	Enter mls Added
K-MET SS1	HNO3	50.0	1000ml	-	
	Al	100*	1000ml	200	
	Ag	100*	1000ml	5	
	Ba	100*	1000ml	100	
	Be	100*	1000ml	5	
	Cd	100*	1000ml	5	
	Co	100*	1000ml	50	
	Cr	100*	1000ml	20	
	Cu	100*	1000ml	25	
	Fe	100*	1000ml	100	
	Pb	100*	1000ml	50	
*** Add after HNO3	Mn	100*	1000ml	50	
and before ALS-89	Ni	100*	1000ml	50	
when making the	Sb***	50.0	1000ml	50	
solution	V	100*	1000ml	50	
	Zn	100*	1000ml	50	
K-MET SS3	HNO3	25.0	500ml	-	
	As	50.0	500ml	100	
	Se	50.0	500ml	100	
	Tl	10.0	500ml	20	
	Hg	6.00	500ml	12	
K-MET SS4	HNO3	25.0	500ml	-	
	B	25.0	500ml	50	
	Mo	50.0	500ml	100	
	U	10.0	500ml	20	
K-MET SS5	HNO3	25.0	500ml	-	
	K**	50.0	500ml	1000	
	Na**	50.0	500ml	1000	
	Mg**	50.0	500ml	1000	
	Ca**	50.0	500ml	1000	

K-MET QCP-CICV-1	Ca, Mg, Na, K	no dilution	-	2500	
	Al, Ba	no dilution	-	1000	
	Fe	no dilution	-	500	
	Co, Mn, Ni, V, Zn	no dilution	-	250	
	Cu, Ag	no dilution	-	125	
	Cr	no dilution	-	100	
	Be	no dilution	-	25	
K-MET QCP-CICV-3	As, Pb, Se, Tl	no dilution	-	500	
	Cd	no dilution	-	250	

* Denotes volume of mixed stock standard.
** Denotes 10,000 ppm individual stock standards.

Standard	mls of standard	ppm	Logbook #	Exp. Date

Preparation Information Benchsheet

Prep Run#: 446925
Team: Metals/CLUKKEN
Number of Copies to make: 1

Prep WorkFlow: MetDigTissMS
Prep Method:

Status: Draft
Prep Date/Time: 10/18/24 12:56 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2416989-01**	MB			6020B / Metals T	Tissue						
2	**KQ2416989-02**	LCS			6020B / Metals T	Tissue						
3	**KQ2416989-03**	SRM DORM			6020B / Metals T	Tissue	0.301					
4	**KQ2416989-04**	SRM TORT			6020B / Metals T	Tissue	0.305					
5	**K2409822-021**	2024GCMGC63DV9	.02		6020B / Metals T	Animal Tissue	0.306					
6	**K2409822-022**	2024GCMGC63DV10	.02		6020B / Metals T	Animal Tissue	0.303					
7	**KQ2416989-05**	K2409822-022 DUP	.02		6020B / Metals T	Tissue	0.303					
8	**KQ2416989-06**	K2409822-022 MS	.02		6020B / Metals T	Tissue	0.304					
9	**K2409822-023**	2024GCMTC9DV1	.02		6020B / Metals T	Animal Tissue	0.305					
10	**K2409822-024**	2024GCMTC9DV2	.02		6020B / Metals T	Animal Tissue	0.309					
11	**K2409822-025**	2024GCMTC9DV3	.02		6020B / Metals T	Animal Tissue	0.303					
12	**K2409822-026**	2024GCMTC9DV4	.02		6020B / Metals T	Animal Tissue	0.306					
13	**K2409822-027**	2024GCMTC9DV5	.02		6020B / Metals T	Animal Tissue	0.306					
14	**K2409822-028**	2024GCMTC9DV6	.02		6020B / Metals T	Animal Tissue	0.308					
15	**K2409822-029**	2024GCMTC9DV7	.02		6020B / Metals T	Animal Tissue	0.303					
16	**K2409822-030**	2024GCMTC9DV8	.02		6020B / Metals T	Animal Tissue	0.307					
17	**K2409822-031**	2024GCMTC9DV9	.02		6020B / Metals T	Animal Tissue	0.308					
18	**K2409822-032**	2024GCMTC9DV10	.02		6020B / Metals T	Animal Tissue	0.305					
19	**K2409822-033**	2024GCMTC9CO1	.02		6020B / Metals T	Animal Tissue	0.306					
20	**K2409822-034**	2024GCMTC9CO2	.02		6020B / Metals T	Animal Tissue	0.304					
21	**K2409822-035**	2024GCMTC9CO3	.02		6020B / Metals T	Animal Tissue	0.309					
22	**K2409822-036**	2024GCMTC9CO4	.02		6020B / Metals T	Animal Tissue	0.305					
23	**K2409822-037**	2024GCMTC9CO5	.02		6020B / Metals T	Animal Tissue	0.309					
24	**K2409822-038**	2024GCMTC9CO6	.02		6020B / Metals T	Animal Tissue	0.309					
25	**K2409822-039**	2024GCMTC9CO7	.02		6020B / Metals T	Animal Tissue	0.306					
26	**K2409822-040**	2024GCMTC9CO8	.02		6020B / Metals T	Animal Tissue	0.306					

K-balance - 45 RL 10/23/24

Comments: 0.3mL 551, 0.05mL 553,554 In 15:01 10/23/24 105
Out 10:59 10/24/24 105

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Service Request #:	K2410276, K2410592, K2410737, K2410738		
MS/MSD with #:	K2410276-001		
StarLims Run # :	857782		
VER (100ppt) Standard ID:	AF3-17-G	Expiration Date:	11/8/2024
OPR (40ppb) Standard ID:	AF3-17-H	Expiration Date:	11/8/2024
QCS Standard ID:	AF3-17-E	Expiration Date:	11/1/2024
Parent OPR/VER ID:	AF3-10-H	Expiration Date:	6/30/2025
Parent QCS ID:	AF3-7-F	Expiration Date:	11/1/2024
NH2OH:	AF3-14-K	Expiration Date:	7/1/2025 #
SnCl:	AF3-11-J	Expiration Date:	3/5/2025
Pipettors ID:	LL 20-200,44382968,LL1000-5000	Calibration Due:	1/8/25

1631 Soil Data Review Form

	Yes	No	NA
1. 20 samples (or less) in batch	X		
2. MS/MSD every 10 samples	X		
3. Current Calibration factor used	X		
4. Calibration data included	X		
5. Method blank below MRL	X		
6. 3 Bubbler Blanks Ran Avg < 25 pg	X		
7. Bubbler Blanks < 50 pg	X		
8. Verification Standards Passed (75-123%)	X		
9. OPR, QCS in control (70-130%)	X		
10. MS/MSD recovery 70-130%	X		
11. Spike RPD within 30%	X		
12. All samples within the linear range	X		
13. All corresponding charts included	X		
14. Dilution factors calculated	X		
15. Bench sheet signed	X		
16. Reagent Blank below 20 pg	X		

Comments:

Primary Reviewed by AA Date 10/16/24

Secondary Reviewed by _____ Date _____

Service Request #:	K2409822 (samples 1-40, 61-63)		
MS/MSD with #:	K2409822-001, -002, -021, -022, -062		
StarLims Run # :	857782		
VER (100ppt) Standard ID:	AF3-17-G	Expiration Date:	11/8/2024
OPR (40ppb) Standard ID:	AF3-17-H	Expiration Date:	11/8/2024
QCS Standard ID:	AF3-17-E	Expiration Date:	11/1/2024
Parent OPR/VER ID:	AF3-10-H	Expiration Date:	6/30/2025
Parent QCS ID:	AF3-7-F	Expiration Date:	11/1/2024
NH2OH:	AF3-14-K	Expiration Date:	7/1/2025
SnCl:	AF3-11-J	Expiration Date:	3/5/2025
Pipettors ID:	LL 20-200,44382968,LL1000-5000 Calibration Due: 1/8/25		

1631 Tissue Data Review Form

	Yes	No	NA
1. 20 samples (or less) in batch	X		
2. MS/MSD every 10 samples	X		
3. Current Calibration factor used	X		
4. Calibration data included	X		
5. Method blank below MRL	X		
6. 3 Bubbler Blanks Ran Avg < 25 pg	X		
7. Bubbler Blanks < 50 pg	X		
8. Verification Standards Passed (75-123%)	X		
9. OPR, QCS in control (70-130%)	X		
10. MS/MSD recovery 70-130%	X		
11. Spike RPD within 30%	X		
12. All samples within the linear range	X		
13. All corresponding charts included	X		
14. Dilution factors calculated	X		
15. Bench sheet signed	X		
16. Reagent Blank below 20 pg	X		

Comments

Primary Reviewed by AL Date 10/16/24

Secondary Reviewed by _____ Date _____

Batch Information Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Run Duration:	2.5	Method Blank Type:	Concentration
Heating Duration:	2.5	Integration Mode:	Auto Total Hg
Retention Start Time:	0.4	Integration Type:	Peak Area
Retention Stop Time:	1.3	Result Units:	µg/Kg
Purge Duration:	6.0		
Drying Duration:	6.0		
Calibration File:	This File		

Analyst Comments:
PMT: 513 OFFSET: 3034 NOISE: 40 VOA Vial Lot# 070823-3AWA

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Run Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Peak	Peak Area	Analyzed Result (pg)	Final Result (µg/Kg)	QA Results	Criteria	Notes
1	X	CCB	RINSE		1	9,514	0.299		0.299	< 50	accept
2	Y	CCB	RINSE		1	9,307	0.273		0.273	< 50	accept
3	X	CB	CB-1		1	6,239	0.759		0.759	< 50	accept
4	Y	CB	CB-2		1	8,115	0.988		0.988	< 50	accept
5	X	CB	CB-3		1	6,413	0.781		0.781	< 50	accept
6	Y	CB	CB-4		1	7,477	0.910		0.910	< 50	accept
7	X	STD	12.5 pg		1	112,919	12.9		103	75-125	accept
8	Y	STD	25 pg		1	212,382	25.0		100.	75-125	accept
9	X	STD	100 pg		1	812,006	98.0		98.0	75-125	accept
10	Y	STD	500 pg		1	4,217,264	512		102	75-125	accept
11	X	STD	2500 pg		1	21,065,566	2,560		103	75-125	accept
12	Y	STD	10000 pg		1	77,689,524	9,450		94.5	75-125	accept
13	X	VER	VER-1		1	1,106,404	134	5.35	107	77-123	accept
14	Y	OPR	OPR-1		1	2,117,736	257	5.14	103	70-130	accept
15	X	MBA	MB-1		1	36,472	3.58	0.0716	0.0716	<1.0	accept
16	Y	MBA	MB-2		1	46,042	4.74	0.0949	0.0949	<1.0	accept
17	X	SRM	QCS-1		1	1,938,385	235	4.70	94.0	70-130	accept
18	Y	S	K2410276-001		1	17,827,960	2,170	158		< HS	accept
19	X	MS	K2410276-001		1	29,124,483	3,540	219	98.9	70-130	accept
~~20~~	~~Y~~	~~MSD~~	~~K2410276-001~~		~~1~~	~~22,605,006~~	~~2,750~~	~~169~~	~~17.9~~	~~70-130~~	~~reject~~
~~21~~	~~X~~	~~S~~	~~K2410276-002~~		~~1~~	~~104,045,914~~	~~12,700~~	~~1,540~~		~~< HS~~	~~reject~~
22	Y	S	K2410592-001		1	20,708,769	2,520	402		< HS	accept
23	X	S	K2410737-014		1	218,961	25.8	0.516		< HS	accept
24	Y	S	K2410738-014		1	462,563	55.4	1.11		< HS	accept
25	X	MBA	MB-3		1	39,986	4.01	0.0801	0.0801	<1.0	accept
26	Y	OPR	OPR-2		1	2,078,237	252	5.04	101	70-130	accept
27	X	VER	VER-2		1	1,009,768	122	4.88	97.6	77-123	accept
28	Y	S	K2410276-002		1	54,812,886	6,670	1,630		< HS	accept
29	X	MSD	K2410276-001		1	27,692,166	3,370	207	79.9	70-130	accept
30	Y	VER	VER-3		1	1,072,505	130.	5.19	104	77-123	accept
31	X	OPR	OPR-1		1	2,081,429	252	5.05	101	70-130	accept
32	Y	MBA	MB-1		1	46,144	4.76	0.0951	0.0951	<1.0	accept
33	X	MBA	MB-2		1	35,904	3.51	0.0702	0.0702	<1.0	accept

DJ 10/16/24

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Run Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Peak	Peak Area	Analyzed Result (pg)	Final Result (µg/Kg)	QA Results	Criteria	Notes
34	Y	SRM	TORT-3		1	20,003,937	2,430	245	84.0	70-130	accept
35	X	S	K2409822-062		1	8,850,339	1,080	213		< HS	accept
36	Y	MS	K2409822-062		1	18,780,734	2,290	455	97.0	70-130	accept
37	X	MSD	K2409822-062		1	19,408,912	2,360	465	103	70-130	accept
~~38~~	~~Y~~	~~S~~	~~K2409822-061~~		~~1~~	~~193,149~~	~~22.6~~	~~4.47~~		~~< HS~~	~~reject~~
39	Y	S	K2409822-061		1	3,732,787	453	89.6		< HS	accept
40	X	S	K2409822-063		1	7,820,733	951	187		< HS	accept
41	Y	MBA	MB-3		1	47,099	4.87	0.0975	0.0975	<1.0	accept
42	X	OPR	OPR-2		1	2,084,713	253	5.06	101	70-130	accept
43	Y	VER	VER-4		1	1,021,085	123	4.94	98.7	77-123	accept
44	X	OPR	OPR-1		1	2,082,676	253	5.05	101	70-130	accept
45	Y	MBA	MB-1		1	35,868	3.51	0.0701	0.0701	<1.0	accept
46	X	MBA	MB-2		1	32,885	3.14	0.0629	0.0629	<1.0	accept
47	Y	SRM	TORT-3		1	20,966,595	2,550	254	86.9	70-130	accept
48	X	S	K2409822-001		1	10,982,075	1,340	264		< HS	accept
49	Y	MS	K2409822-001		1	19,896,783	2,420	481	87.4	70-130	accept
50	X	MSD	K2409822-001		1	20,768,271	2,530	502	95.9	70-130	accept
51	Y	S	K2409822-003		1	6,300,900	766	151		< HS	accept
52	X	S	K2409822-004		1	15,244,949	1,850	369		< HS	accept
53	Y	S	K2409822-005		1	5,659,761	688	137		< HS	accept
54	X	S	K2409822-006		1	6,887,854	837	166		< HS	accept
55	Y	S	K2409822-007		1	5,861,375	713	141		< HS	accept
56	X	S	K2409822-008		1	6,691,800	814	162		< HS	accept
57	Y	S	K2409822-009		1	6,274,040	763	152		< HS	accept
58	X	S	K2409822-010		1	3,519,641	428	84.7		< HS	accept
59	Y	S	K2409822-011		1	4,668,855	567	113		< HS	accept
60	X	VER	VER-5		1	1,028,684	124	4.97	99.5	77-123	accept
61	Y	S	K2409822-002		1	4,738,065	576	115		< HS	accept
62	X	MS	K2409822-002		1	12,313,039	1,500	298	73.6	70-130	accept
63	Y	MSD	K2409822-002		1	14,280,292	1,740	345	92.7	70-130	accept
64	X	S	K2409822-012		1	3,872,631	470.	93.2		< HS	accept
65	Y	S	K2409822-013		1	6,754,816	821	163		< HS	accept
66	X	S	K2409822-014		1	4,144,869	504	99.5		< HS	accept

SD 10/17/24

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Run Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Peak	Peak Area	Analyzed Result (pg)	Final Result (µg/Kg)	QA Results	Criteria	Notes
1	X	CCB	RINSE		1	9,514	0.299		0.299	< 50	accept
2	Y	CCB	RINSE		1	9,307	0.273		0.273	< 50	accept
3	X	CB	CB-1		1	6,239	0.759		0.759	< 50	accept
4	Y	CB	CB-2		1	8,115	0.988		0.988	< 50	accept
5	X	CB	CB-3		1	6,413	0.781		0.781	< 50	accept
6	Y	CB	CB-4		1	7,477	0.910		0.910	< 50	accept
7	X	STD	12.5 pg		1	112,919	12.9		103	75-125	accept
8	Y	STD	25 pg		1	212,382	25.0		100.	75-125	accept
9	X	STD	100 pg		1	812,006	98.0		98.0	75-125	accept
10	Y	STD	500 pg		1	4,217,264	512		102	75-125	accept
11	X	STD	2500 pg		1	21,065,566	2,560		103	75-125	accept
12	Y	STD	10000 pg		1	77,689,524	9,450		94.5	75-125	accept
13	X	VER	VER-1		1	1,106,404	134	5.35	107	77-123	accept
14	Y	OPR	OPR-1		1	2,117,736	257	5.14	103	70-130	accept
15	X	MBA	MB-1		1	36,472	3.58	0.0716	0.0716	<1.0	accept
16	Y	MBA	MB-2		1	46,042	4.74	0.0949	0.0949	<1.0	accept
17	X	SRM	QCS-1		1	1,938,385	235	4.70	94.0	70-130	accept
18	Y	S	K2410276-001		1	17,827,960	2,170	158		< HS	accept
19	X	MS	K2410276-001		1	29,124,483	3,540	219	98.9	70-130	accept
20	Y	MSD	K2410276-001		1	22,605,006	2,750	169	17.9	70-130	reject
21	X	S	K2410276-002		1	104,045,914	12,700	1,540		< HS	reject
22	Y	S	K2410592-001		1	20,708,769	2,520	402		< HS	accept
23	X	S	K2410737-014		1	218,961	25.8	0.516		< HS	accept
24	Y	S	K2410738-014		1	462,563	55.4	1.11		< HS	accept
25	X	MBA	MB-3		1	39,986	4.01	0.0801	0.0801	<1.0	accept
26	Y	OPR	OPR-2		1	2,078,237	252	5.04	101	70-130	accept
27	X	VER	VER-2		1	1,009,768	122	4.88	97.6	77-123	accept
28	Y	S	K2410276-002		1	54,812,886	6,670	1,630		< HS	accept
29	X	MSD	K2410276-001		1	27,692,166	3,370	207	79.9	70-130	accept
30	Y	VER	VER-3		1	1,072,505	130.	5.19	104	77-123	accept
31	X	OPR	OPR-1		1	2,081,429	252	5.05	101	70-130	accept
32	Y	MBA	MB-1		1	46,144	4.76	0.0951	0.0951	<1.0	accept
33	X	MBA	MB-2		1	35,904	3.51	0.0702	0.0702	<1.0	accept

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Run Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Peak	Peak Area	Analyzed Result (pg)	Final Result (µg/Kg)	QA Results	Criteria	Notes
67	Y	S	K2409822-015		1	5,047,155	613	121		< HS	accept
68	X	S	K2409822-016		1	6,895,945	838	166		< HS	accept
69	Y	S	K2409822-017		1	7,916,752	963	192		< HS	accept
70	X	S	K2409822-018		1	3,538,846	430.	84.7		< HS	accept
71	Y	S	K2409822-019		1	4,166,048	506	100.		< HS	accept
72	X	S	K2409822-020		1	6,162,797	749	148		< HS	accept
73	Y	MBA	MB-3		1	42,360	4.30	0.0859	0.0859	<1.0	accept
74	X	OPR	OPR-2		1	2,032,473	247	4.93	98.6	70-130	accept
75	Y	VER	VER-6		1	1,015,207	123	4.91	98.2	77-123	accept
76	X	OPR	OPR-1		1	2,013,071	244	4.88	97.7	70-130	accept
77	Y	MBA	MB-1		1	34,213	3.30	0.0661	0.0661	<1.0	accept
78	X	MBA	MB-2		1	32,203	3.06	0.0612	0.0612	<1.0	accept
79	Y	SRM	TORT-3		1	20,774,116	2,530	253	86.8	70-130	accept
80	X	S	K2409822-021		1	4,889,621	594	117		< HS	accept
81	Y	MS	K2409822-021		1	14,136,495	1,720	343	90.6	70-130	accept
82	X	MSD	K2409822-021		1	14,902,508	1,810	359	97.4	70-130	accept
83	Y	S	K2409822-023		1	13,289,500	1,620	322		< HS	accept
84	X	S	K2409822-024		1	21,052,832	2,560	505		< HS	accept
85	Y	S	K2409822-025		1	13,890,779	1,690	335		< HS	accept
86	X	S	K2409822-026		1	13,811,860	1,680	334		< HS	accept
87	Y	S	K2409822-027		1	12,044,341	1,470	290.		< HS	accept
88	X	S	K2409822-028		1	12,782,387	1,550	310.		< HS	accept
89	Y	S	K2409822-029		1	13,437,664	1,630	325		< HS	accept
90	X	S	K2409822-030		1	11,018,200	1,340	265		< HS	accept
91	Y	S	K2409822-031		1	6,649,152	808	160.		< HS	accept
92	X	VER	VER-7		1	1,123,398	136	5.43	109	77-123	accept
93	Y	S	K2409822-022		1	6,904,269	839	166		< HS	accept
94	X	MS	K2409822-022		1	17,271,552	2,100	417	101	70-130	accept
95	Y	MSD	K2409822-022		1	16,740,140	2,040	405	96.2	70-130	accept
96	X	S	K2409822-032		1	11,829,826	1,440	286		< HS	accept
97	Y	S	K2409822-033		1	10,144,261	1,230	244		< HS	accept
98	X	S	K2409822-034		1	12,302,804	1,500	295		< HS	accept
99	Y	S	K2409822-035		1	12,947,639	1,580	312		< HS	accept

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Run Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Peak	Peak Area	Analyzed Result (pg)	Final Result (µg/Kg)	QA Results	Criteria	Notes
100	X	S	K2409822-036		1	10,186,864	1,240	247		< HS	accept
101	Y	S	K2409822-037		1	12,923,674	1,570	311		< HS	accept
102	X	S	K2409822-038		1	10,046,170	1,220	242		< HS	accept
103	Y	S	K2409822-039		1	10,343,362	1,260	250.		< HS	accept
104	X	S	K2409822-040		1	14,832,666	1,800	356		< HS	accept
105	Y	MBA	MB-3		1	55,096	5.85	0.117	0.117	<1.0	accept
106	X	OPR	OPR-2		1	2,090,216	254	5.07	101	70-130	accept
107	Y	VER	VER-8		1	1,028,152	124	4.97	99.4	77-123	accept

Analyst Comments:

PMT: 513
OFFSET: 3034
NOISE: 40
VOA Vial Lot# 070823-3AWA

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QA Summary Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Bias and Precision

Type	Name/ID	Final Result	Units	Spike Level	Source Result	% REC	% REC Limit	RPD	RPD Limit	Notes
MS	K2410276-001	219	µg/Kg	61.7	158	98.9	70-130			accept
	K2409822-062	455	µg/Kg	249	213	97.0	70-130			accept
	K2409822-001	481	µg/Kg	248	264	87.4	70-130			accept
	K2409822-002	298	µg/Kg	249	115	73.6	70-130			accept
	K2409822-021	343	µg/Kg	249	117	90.6	70-130			accept
	K2409822-022	417	µg/Kg	248	166	101	70-130			accept
~~MSD~~	~~K2410276-001~~	~~169~~	~~µg/Kg~~	~~61.3~~	~~158~~	~~17.9~~	~~70-130~~	~~5.66~~	~~< 30~~	~~reject~~
	K2410276-001	207	µg/Kg	61.3	158	79.9	70-130	5.66	< 30	accept
	K2409822-062	465	µg/Kg	246	213	103	70-130	2.30	< 30	accept
	K2409822-001	502	µg/Kg	248	264	95.9	70-130	4.29	< 30	accept
	K2409822-002	345	µg/Kg	248	115	92.7	70-130	14.6	< 30	accept
	K2409822-021	359	µg/Kg	248	117	97.4	70-130	4.53	< 30	accept
	K2409822-022	405	µg/Kg	249	166	96.2	70-130			accept
SRM	QCS-1	4.70	µg/Kg	5.0		94.0	70-130			accept
	TORT-3	245	µg/Kg	292		84.0	70-130			accept
	TORT-3	254	µg/Kg	292		86.9	70-130			accept
	TORT-3	253	µg/Kg	292		86.8	70-130			accept
OPR	OPR-1	5.14	µg/Kg	5.0		103	70-130			accept
	OPR-2	5.04	µg/Kg	5.0		101	70-130			accept
	OPR-1	5.05	µg/Kg	5.0		101	70-130			accept
	OPR-2	5.06	µg/Kg	5.0		101	70-130			accept
	OPR-1	5.05	µg/Kg	5.0		101	70-130			accept

SA 10/16/24

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QA Summary Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Bias and Precision

Type	Name/ID	Final Result	Units	Spike Level	Source Result	% REC	% REC Limit	RPD	RPD Limit	Notes
OPR	OPR-2	4.93	µg/Kg	5.0		98.6	70-130			accept
	OPR-1	4.88	µg/Kg	5.0		97.7	70-130			accept
	OPR-2	5.07	µg/Kg	5.0		101	70-130			accept
VER	VER-5	4.97	µg/Kg	5.0		99.5	77-123			accept
	VER-6	4.91	µg/Kg	5.0		98.2	77-123			accept
	VER-7	5.43	µg/Kg	5.0		109	77-123			accept
	VER-8	4.97	µg/Kg	5.0		99.4	77-123			accept

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QA Summary Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Calibration									
QA Sample Type	**Name/ID**	**Analyzed Result**	**Units**	**Spike Level**	**% REC**	**% REC Limit**	**RSD**	**RSD Limit**	**Notes**
Calibration	12.5 pg	12.9	pg	12.5	103	75-125			accept
	25 pg	25.0	pg	25	100.	75-125			accept
	100 pg	98.0	pg	100	98.0	75-125			accept
	500 pg	512	pg	500	102	75-125			accept
	2500 pg	2,560	pg	2500	103	75-125			accept
	10000 pg	9,450	pg	10000	94.5	75-125			accept
Calibration Factor		0.000122	pg/PA				3.42	< 15	accept
Calibration Date		10/16/24							

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1631 Extended Calibration Point Verification

Instruemt:	ASF-04
Date:	10/16/24
Run Number:	857782

	Raw Peak Area	Blank Corrected Peak Area			
CB-1	6,239				
CB-2	8,115				
CB-3	6,413				
CB-4	7,477				
STD 12.5	112,919	105,858	0.0001181		
STD 25	212,382	205,321	0.0001218		
STD 100	812,006	804,945	0.0001242		
STD 500	4,217,264	4,210,203	0.0001188		
STD 2500	21,065,566	21,058,505	0.0001187	0.0001203	0.5 - 100 ng/L Ave. Cal. Factor
STD 10000	77,689,524	77,682,463	0.0001287	-7.0	% Difference (Limit ± 15%)
			Result:	**PASS**	
	Cal. Factor	0.0001217			

QA Summary Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Blank Summary

QA Sample Type	Name/ID	Analyzed Result	Units	Criteria	StDev	StDev Limit	Notes
CB	CB-1	0.759	pg	< 50			accept
	CB-2	0.988	pg	< 50			accept
	CB-3	0.781	pg	< 50			accept
	CB-4	0.910	pg	< 50			accept
Average		0.859	pg	< 25	0.108	< 10	accept
MBA	MB-1	0.0716	µg/Kg	<1.0			accept
	MB-2	0.0949	µg/Kg	<1.0			accept
	MB-3	0.0801	µg/Kg	<1.0			accept
	MB-1	0.0951	µg/Kg	<1.0			accept
	MB-2	0.0702	µg/Kg	<1.0			accept
	MB-3	0.0975	µg/Kg	<1.0			accept
	MB-1	0.0701	µg/Kg	<1.0			accept
	MB-2	0.0629	µg/Kg	<1.0			accept
	MB-3	0.0859	µg/Kg	<1.0			accept
	MB-1	0.0661	µg/Kg	<1.0			accept
	MB-2	0.0612	µg/Kg	<1.0			accept
	MB-3	0.117	µg/Kg	<1.0			accept
Average		0.0810	µg/Kg		0.0172		

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QA Summary Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

QA Comments:

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Sample Results Summary Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Run	Name/ID	Final Result (µg/Kg)	Notes
48	K2409822-001	264	accept
61	K2409822-002	115	accept
51	K2409822-003	151	accept
52	K2409822-004	369	accept
53	K2409822-005	137	accept
54	K2409822-006	166	accept
55	K2409822-007	141	accept
56	K2409822-008	162	accept
57	K2409822-009	152	accept
58	K2409822-010	84.7	accept
59	K2409822-011	113	accept
64	K2409822-012	93.2	accept
65	K2409822-013	163	accept
66	K2409822-014	99.5	accept
67	K2409822-015	121	accept
68	K2409822-016	166	accept
69	K2409822-017	192	accept
70	K2409822-018	84.7	accept
71	K2409822-019	100.	accept
72	K2409822-020	148	accept
80	K2409822-021	117	accept
93	K2409822-022	166	accept
83	K2409822-023	322	accept
84	K2409822-024	505	accept
85	K2409822-025	335	accept
86	K2409822-026	334	accept
87	K2409822-027	290.	accept
88	K2409822-028	310.	accept
89	K2409822-029	325	accept

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Sample Results Summary Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Run	Name/ID	Final Result (µg/Kg)	Notes
90	K2409822-030	265	accept
91	K2409822-031	160.	accept
96	K2409822-032	286	accept
97	K2409822-033	244	accept
98	K2409822-034	295	accept
99	K2409822-035	312	accept
100	K2409822-036	247	accept
101	K2409822-037	311	accept
102	K2409822-038	242	accept
103	K2409822-039	250.	accept
104	K2409822-040	356	accept
~~38~~	~~K2409822-061~~	~~4.47~~	~~reject~~
39	K2409822-061	89.6	accept
35	K2409822-062	213	accept
40	K2409822-063	187	accept
18	K2410276-001	158	accept
~~21~~	~~K2410276-002~~	~~1,540~~	~~reject~~
28	K2410276-002	1,630	accept
22	K2410592-001	402	accept
23	K2410737-014	0.516	accept
24	K2410738-014	1.11	accept

SS 10/16/24

SS 10/16/24

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Run Information Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Sample Vol/Wt	Dilution Vol (ml)	Analyzed Vol (ml)	Expected Value	Notes
1	X	CCB	RINSE						
2	Y	CCB	RINSE						
3	X	CB	CB-1						
4	Y	CB	CB-2						
5	X	CB	CB-3						
6	Y	CB	CB-4						
7	X	STD	12.5 pg					12.5	0.125mL AF3-17-G
8	Y	STD	25 pg					25	0.25mL AF3-17-G
9	X	STD	100 pg					100	1.00mL AF3-17-G
10	Y	STD	500 pg					500	0.05mL AF3-17-F
11	X	STD	2500 pg					2500	0.25mL AF3-17-F
12	Y	STD	10000 pg					10000	1.00mL AF3-17-F
13	X	VER	VER-1		25	25	25	5.0	
14	Y	OPR	OPR-1		400	40	5.0	5.0	
15	X	MBA	MB-1		400	40	5.0		
16	Y	MBA	MB-2		400	40	5.0		
17	X	SRM	QCS-1		400	40	5.0	5.0	
18	Y	S	K2410276-001		550	40	1.0		5X DILUTION
19	X	MS	K2410276-001		648	40	1.0	61.7	5X DILUTION
~~20~~	~~Y~~	~~MSD~~	~~K2410276-001~~		~~652~~	~~40~~	~~1.0~~	~~61.3~~	~~5X DILUTION~~
~~21~~	~~X~~	~~S~~	~~K2410276-002~~		~~656~~	~~40~~	~~0.5~~		~~10X DILUTION~~
22	Y	S	K2410592-001		251	40	1.0		5X DILUTION
23	X	S	K2410737-014		400	40	5.0		
24	Y	S	K2410738-014		400	40	5.0		
25	X	MBA	MB-3		400	40	5.0		
26	Y	OPR	OPR-2		400	40	5.0	5.0	
27	X	VER	VER-2		25	25	25	5.0	
28	Y	S	K2410276-002		656	40	0.25		20X DILUTION
29	X	MSD	K2410276-001		652	40	1.0	61.3	5X DILUTION
30	Y	VER	VER-3		25	25	25	5.0	
31	X	OPR	OPR-1		400	40	5.0	5.0	
32	Y	MBA	MB-1		400	40	5.0		
33	X	MBA	MB-2		400	40	5.0		

AD
10/16/24

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Run Information Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Sample Vol/Wt	Dilution Vol (ml)	Analyzed Vol (ml)	Expected Value	Notes
34	Y	SRM	TORT-3		397	40	1.0	292	
35	X	S	K2409822-062		404	40	0.5		10X DILUTION
36	Y	MS	K2409822-062		402	40	0.5	249	10X DILUTION
37	X	MSD	K2409822-062		406	40	0.5	246	10X DILUTION
~~38~~	~~Y~~	~~S~~	~~K2409822-061~~		~~405~~	~~40~~	~~0.5~~		~~10X DILUTION~~
39	Y	S	K2409822-061		405	40	0.5		10X DILUTION
40	X	S	K2409822-063		406	40	0.5		10X DILUTION
41	Y	MBA	MB-3		400	40	5.0		
42	X	OPR	OPR-2		400	40	5.0	5.0	
43	Y	VER	VER-4		25	25	25	5.0	
44	X	OPR	OPR-1		400	40	5.0	5.0	
45	Y	MBA	MB-1		400	40	5.0		
46	X	MBA	MB-2		400	40	5.0		
47	Y	SRM	TORT-3		402	40	1.0	292	
48	X	S	K2409822-001		405	40	0.5		10X DILUTION
49	Y	MS	K2409822-001		403	40	0.5	248	10X DILUTION
50	X	MSD	K2409822-001		403	40	0.5	248	10X DILUTION
51	Y	S	K2409822-003		405	40	0.5		10X DILUTION
52	X	S	K2409822-004		402	40	0.5		10X DILUTION
53	Y	S	K2409822-005		402	40	0.5		10X DILUTION
54	X	S	K2409822-006		403	40	0.5		10X DILUTION
55	Y	S	K2409822-007		403	40	0.5		10X DILUTION
56	X	S	K2409822-008		402	40	0.5		10X DILUTION
57	Y	S	K2409822-009		401	40	0.5		10X DILUTION
58	X	S	K2409822-010		404	40	0.5		10X DILUTION
59	Y	S	K2409822-011		403	40	0.5		10X DILUTION
60	X	VER	VER-5		25	25	25	5.0	
61	Y	S	K2409822-002		401	40	0.5		10X DILUTION
62	X	MS	K2409822-002		402	40	0.5	249	10X DILUTION
63	Y	MSD	K2409822-002		403	40	0.5	248	10X DILUTION
64	X	S	K2409822-012		404	40	0.5		10X DILUTION
65	Y	S	K2409822-013		404	40	0.5		10X DILUTION
66	X	S	K2409822-014		405	40	0.5		10X DILUTION

DS 10/16/24

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Run Information Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Sample Vol/Wt	Dilution Vol (ml)	Analyzed Vol (ml)	Expected Value	Notes
67	Y	S	K2409822-015		406	40	0.5		10X DILUTION
68	X	S	K2409822-016		403	40	0.5		10X DILUTION
69	Y	S	K2409822-017		401	40	0.5		10X DILUTION
70	X	S	K2409822-018		406	40	0.5		10X DILUTION
71	Y	S	K2409822-019		405	40	0.5		10X DILUTION
72	X	S	K2409822-020		404	40	0.5		10X DILUTION
73	Y	MBA	MB-3		400	40	5.0		
74	X	OPR	OPR-2		400	40	5.0	5.0	
75	Y	VER	VER-6		25	25	25	5.0	
76	X	OPR	OPR-1		400	40	5.0	5.0	
77	Y	MBA	MB-1		400	40	5.0		
78	X	MBA	MB-2		400	40	5.0		
79	Y	SRM	TORT-3		399	40	1.0	292	
80	X	S	K2409822-021		405	40	0.5		10X DILUTION
81	Y	MS	K2409822-021		401	40	0.5	249	10X DILUTION
82	X	MSD	K2409822-021		404	40	0.5	248	10X DILUTION
83	Y	S	K2409822-023		402	40	0.5		10X DILUTION
84	X	S	K2409822-024		406	40	0.5		10X DILUTION
85	Y	S	K2409822-025		404	40	0.5		10X DILUTION
86	X	S	K2409822-026		402	40	0.5		10X DILUTION
87	Y	S	K2409822-027		404	40	0.5		10X DILUTION
88	X	S	K2409822-028		401	40	0.5		10X DILUTION
89	Y	S	K2409822-029		402	40	0.5		10X DILUTION
90	X	S	K2409822-030		404	40	0.5		10X DILUTION
91	Y	S	K2409822-031		403	40	0.5		10X DILUTION
92	X	VER	VER-7		25	25	25	5.0	
93	Y	S	K2409822-022		405	40	0.5		10X DILUTION
94	X	MS	K2409822-022		403	40	0.5	248	10X DILUTION
95	Y	MSD	K2409822-022		402	40	0.5	249	10X DILUTION
96	X	S	K2409822-032		402	40	0.5		10X DILUTION
97	Y	S	K2409822-033		405	40	0.5		10X DILUTION
98	X	S	K2409822-034		406	40	0.5		10X DILUTION
99	Y	S	K2409822-035		404	40	0.5		10X DILUTION

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Run Information Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Sample Vol/Wt	Dilution Vol (ml)	Analyzed Vol (ml)	Expected Value	Notes
100	X	S	K2409822-036		401	40	0.5		10X DILUTION
101	Y	S	K2409822-037		404	40	0.5		10X DILUTION
102	X	S	K2409822-038		404	40	0.5		10X DILUTION
103	Y	S	K2409822-039		403	40	0.5		10X DILUTION
104	X	S	K2409822-040		406	40	0.5		10X DILUTION
105	Y	MBA	MB-3		400	40	5.0		
106	X	OPR	OPR-2		400	40	5.0	5.0	
107	Y	VER	VER-8		25	25	25	5.0	

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StarLims Number:	446415
Method : **1631EApp.**	Analysis for : **CVAFS**

Sample	Matrices	Dry	Wet	Initial Weight (g)	Final Volume (ml)	Matrix
VER-1	Water		x	25ml	25ml	0.5% BrCl
Method Blank		x		0.400	40	0.02N BrCl
Method Blank		x		0.400	40	0.02N BrCl
Method Blank		x		0.400	40	0.02N BrCl
OPR-1		x		0.400	40	0.02N BrCl
QCS-1		x		0.400	40	0.02N BrCl
K2410276-001			x	0.555	40	0.02N BrCl
K2410276-001S			x	0.654	40	0.02N BrCl
K2410276-001SD			x	0.658	40	0.02N BrCl
K2410276-002			x	0.680	40	0.02N BrCl
K2410592-001			x	1.529	40	0.02N BrCl
K2410737-014			x	0.400	40	0.02N BrCl
K2410738-014			x	0.400	40	0.02N BrCl
OPR-2		x		0.400	40	0.02N BrCl
VER-2	Water		x	25ml	25ml	0.5% BrCl

VOA Vial Lot # 100223-3AWA/070823-3AWA **BrCl =** AF3-15-D

AF3-17-H *(40ppb)* **OPR:** 0.05mL **Digestion Acid Mixture:** AF3-15-J
AF3-17-E (2.5ppb) **QCS:** 0.8mL

1st MS / DMS: 1.0ml 40ppb Soil OPR (AF3-17-H) **Balance ID:** 37/49/50

Comments: K2410737-014 spiked with .064ml and K2410738-014 spiked with 0.16ml QCS (AF3-17-E)

HotBlock: K-BlockDigester: 19 IR Thermometer ID: IR03 Temp: 104°C Temp Check Location: G

Time Digestion Started: 8:09am **Dilution Completed:** 1:54pm

Analyst AL **Date** 10/15/24

1631Dig.XLS
6/17/2004

Conversion from wet weight to dry weight:

Standard MRL =	1.0
Standard MDL =	0.2
Standard Dilution =	1
Standard Sample Mass =	0.40

Sample I.D.	Wet Weight	Percent Solids	Dry Weight	Dilution	Weight & Dilution Adjusted MRL	Weight & Dilution Adjusted MDL
K2410276-001	0.5550	99.1	0.5500	5	3.6	0.73
K2410276-001	0.6540	99.1	0.6481	5	3.1	0.62
K2410276-001	0.6580	99.1	0.6521	5	3.1	0.61
K2410276-002	0.6800	96.4	0.6555	20	12.2	2.44
K2410592-001	1.5290	16.4	0.2508	5	8.0	1.60
K2410737-014	0.4000	100.0	0.4000	1	1.0	0.20
K2410738-014	0.400	100.0	0.4000	1	1.0	0.20
			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
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			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
			0.0000		#DIV/0!	#DIV/0!
Method Blank	0.400	100.0	0.4000	1	1.0	0.20

StarLims Number:						446610
Method :	1631EApp.		Analysis for :	CVAFS		

Sample	Matrices	Dry	Wet	Initial Weight (g)	Final Volume (ml)	Matrix
VER-1	Water		x	25ml	25ml	0.5% BrCl
Method Blank		x		0.400	40	0.02N BrCl
Method Blank		x		0.400	40	0.02N BrCl
Method Blank		x		0.400	40	0.02N BrCl
OPR-1		x		0.400	40	0.02N BrCl
TORT-3		x		.408	40	0.02N BrCl
K2409822-061		x		.405	40	0.02N BrCl
K2409822-062		x		.404	40	0.02N BrCl
K2409822-062S		x		.402	40	0.02N BrCl
K2409822-062SD		x		.406	40	0.02N BrCl
K2409822-063		x		.406	40	0.02N BrCl
OPR-2		x		0.400	40	0.02N BrCl
VER-2	Water		x	25ml	25ml	0.5% BrCl

VOA Vial Lot # 070823-3AWA **BrCl =** AF3-15-D

AF3-17-H *(40ppb)* **OPR:** 0.05mL **Digestion Acid Mixture:** AF3-15-J

1st MS / DMS: 0.1ml 1ppm QCS Parent (AF3-7-F) **Balance ID:** 37 10/15/24 AA

Comments: TORT-3 Solids: 97.4%

HotBlock: K-BlockDigester: 19 IR Thermometer ID: IR03 Temp: 104°C Temp Check Location: 6

Time Digestion Started: 11:18 **Dilution Completed:** 3:28 pm

Analyst _____ **Date** 10/15/24

1631Dig.XLS
6/17/2004

Tissue Dry Wt. MRL and MDL Calculations:

Standard MRL =	1.0
Standard MDL =	0.2
Standard Dilution =	1
Standard Sample Mass =	0.40

Sample I.D.	Dry Weight	Dilution	Weight & Dilution Adjuste MRL	MDL
K2409822-061	0.4050	10	9.9	1.98
K2409822-062	0.4040	10	9.9	1.98
K2409822-062S	0.4020	10	10.0	1.99
K2409822-062SD	0.4060	10	9.9	1.97
K2409822-063	0.4060	10	9.9	1.97
			#DIV/0!	#DIV/0!
			#DIV/0!	#DIV/0!
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			#DIV/0!	#DIV/0!
Method Blank	0.4000	1	1.0	0.20

Metals Digestion Sheet

StarLims Number:						446574
Method :	1631EApp.		Analysis for :	CVAFS		

Sample	Matrices	Dry	Wet	Initial Weight (g)	Final Volume (ml)	Matrix
VER-1	Water		x	25ml	25ml	0.5% BrCl
VER-2	Water		x	25ml	25ml	0.5% BrCl
Method Blank		x		0.400	40	0.02N BrCl
Method Blank		x		0.400	40	0.02N BrCl
Method Blank		x		0.400	40	0.02N BrCl
OPR-1		x		0.400	40	0.02N BrCl
TORT-3		x		.413	40	0.02N BrCl
K2409822-001		x		.405	40	0.02N BrCl
K2409822-001S		x		.403	40	0.02N BrCl
K2409822-001SD		x		.403	40	0.02N BrCl
K2409822-002		x		.401	40	0.02N BrCl
K2409822-002S		x		.402	40	0.02N BrCl
K2409822-002SD		x		.403	40	0.02N BrCl
K2409822-003		x		.405	40	0.02N BrCl
K2409822-004		x		.402	40	0.02N BrCl
K2409822-005		x		.402	40	0.02N BrCl
K2409822-006		x		.403	40	0.02N BrCl
K2409822-007		x		.403	40	0.02N BrCl
K2409822-008		x		.402	40	0.02N BrCl
K2409822-009		x		.401	40	0.02N BrCl
K2409822-010		x		.404	40	0.02N BrCl
K2409822-011		x		.403	40	0.02N BrCl
K2409822-012		x		.404	40	0.02N BrCl
K2409822-013		x		.404	40	0.02N BrCl
K2409822-014		x		.405	40	0.02N BrCl
K2409822-015		x		.406	40	0.02N BrCl
K2409822-016		x		.403	40	0.02N BrCl
K2409822-017		x		.401	40	0.02N BrCl
K2409822-018		x		.406	40	0.02N BrCl
K2409822-019		x		.405	40	0.02N BrCl
K2409822-020		x		.404	40	0.02N BrCl
OPR-2		x		0.400	40	0.02N BrCl
VER-3	Water		x	25ml	25ml	0.5% BrCl

VOA Vial Lot # 070823-3AWA **BrCl =** AF3-15-D

AF3-17-H *(40ppb)* **OPR:** 0.05mL **Digestion Acid Mixture:** AF3-15-J

1st MS / DMS: 0.1ml 1ppm QCS Parent (AF3-7-F) **Balance ID:** 37 DS 10/15/24

2nd MS / DMS: 0.1ml 1ppm QCS Parent (AF3-7-F)

Comments: TORT-3 Solids: 97.4%

HotBlock: K-BlockDigester: 19 IR Thermometer ID: IR03 Temp: 104°C Temp Check Location: 6

Time Digestion Started: 8:09am **Dilution Completed:** 2:16pm

Analyst _____ **Date** 10/15/24

1631Dig.XLS

6/17/2004

Tissue Dry Wt. MRL and MDL Calculations:

Standard MRL =	1.0
Standard MDL =	0.2
Standard Dilution =	1
Standard Sample Mass =	0.40

Sample I.D.	Dry Weight	Dilution	Weight & Dilution Adjuste MRL	MDL
K2409822-001	0.4050	10	9.9	1.98
K2409822-001S	0.4030	10	9.9	1.99
K2409822-001SD	0.4030	10	9.9	1.99
K2409822-002	0.4010	10	10.0	2.00
K2409822-002S	0.4020	10	10.0	1.99
K2409822-002SD	0.4030	10	9.9	1.99
K2409822-003	0.4050	10	9.9	1.98
K2409822-004	0.4020	10	10.0	1.99
K2409822-005	0.4020	10	10.0	1.99
K2409822-006	0.4030	10	9.9	1.99
K2409822-007	0.4030	10	9.9	1.99
K2409822-008	0.4020	10	10.0	1.99
K2409822-009	0.4010	10	10.0	2.00
K2409822-010	0.4040	10	9.9	1.98
K2409822-011	0.4030	10	9.9	1.99
K2409822-012	0.4040	10	9.9	1.98
K2409822-013	0.4040	10	9.9	1.98
K2409822-014	0.4050	10	9.9	1.98
K2409822-015	0.4060	10	9.9	1.97
K2409822-016	0.4030	10	9.9	1.99
K2409822-017	0.4010	10	10.0	2.00
K2409822-018	0.4060	10	9.9	1.97
K2409822-019	0.4050	10	9.9	1.98
K2409822-020	0.4040	10	9.9	1.98
Method Blank	0.4000	1	1.0	0.20

Metals Digestion Sheet

StarLims Number:						446606
Method :	1631EApp.		Analysis for :	CVAFS		

Sample	Matrices	Dry	Wet	Initial Weight (g)	Final Volume (ml)	Matrix
VER-1	Water		x	25ml	25ml	0.5% BrCl
VER-2	Water		x	25ml	25ml	0.5% BrCl
Method Blank		x		0.400	40	0.02N BrCl
Method Blank		x		0.400	40	0.02N BrCl
Method Blank		x		0.400	40	0.02N BrCl
OPR-1		x		0.400	40	0.02N BrCl
TORT-3		x		.410	40	0.02N BrCl
K2409822-021		x		.405	40	0.02N BrCl
K2409822-021S		x		.401	40	0.02N BrCl
K2409822-021SD		x		.404	40	0.02N BrCl
K2409822-022		x		.405	40	0.02N BrCl
K2409822-022S		x		.403	40	0.02N BrCl
K2409822-022SD		x		.402	40	0.02N BrCl
K2409822-023		x		.402	40	0.02N BrCl
K2409822-024		x		.406	40	0.02N BrCl
K2409822-025		x		.404	40	0.02N BrCl
K2409822-026		x		.402	40	0.02N BrCl
K2409822-027		x		.404	40	0.02N BrCl
K2409822-028		x		.401	40	0.02N BrCl
K2409822-029		x		.402	40	0.02N BrCl
K2409822-030		x		.404	40	0.02N BrCl
K2409822-031		x		.403	40	0.02N BrCl
K2409822-032		x		.402	40	0.02N BrCl
K2409822-033		x		.405	40	0.02N BrCl
K2409822-034		x		.406	40	0.02N BrCl
K2409822-035		x		.404	40	0.02N BrCl
K2409822-036		x		.401	40	0.02N BrCl
K2409822-037		x		.404	40	0.02N BrCl
K2409822-038		x		.404	40	0.02N BrCl
K2409822-039		x		.403	40	0.02N BrCl
K2409822-040		x		.406	40	0.02N BrCl
OPR-2		x		0.400	40	0.02N BrCl
VER-3	Water		x	25ml	25ml	0.5% BrCl

VOA Vial Lot # 070823-3AWA **BrCl =** AF3-15-D

AF3-17-H *(40ppb)* **OPR:** 0.05mL **Digestion Acid Mixture:** AF3-15-J

1st MS / DMS: 0.1ml 1ppm QCS Parent (AF3-7-F) **Balance ID:** 37 10/15/24 AJ

2nd MS / DMS: 0.1ml 1ppm QCS Parent (AF3-7-F)

Comments: TORT-3 Solids: 97.4%

HotBlock: K-BlockDigester: 19 IR Thermometer ID: IR03 Temp: 104°C Temp Check Location: 6

Time Digestion Started: 11:18 am **Dilution Completed:** 3:21 pm

Analyst AF **Date** 10/15/24

1631Dig.XLS

6/17/2004

Tissue Dry Wt. MRL and MDL Calculations:

Standard MRL =	1.0
Standard MDL =	0.2
Standard Dilution =	1
Standard Sample Mass =	0.40

Sample I.D.	Dry Weight	Dilution	Weight & Dilution Adjuste MRL	MDL
K2409822-021	0.4050	10	9.9	1.98
K2409822-021S	0.4010	10	10.0	2.00
K2409822-021SD	0.4040	10	9.9	1.98
K2409822-022	0.4050	10	9.9	1.98
K2409822-022S	0.4030	10	9.9	1.99
K2409822-022SD	0.4020	10	10.0	1.99
K2409822-023	0.4020	10	10.0	1.99
K2409822-024	0.4060	10	9.9	1.97
K2409822-025	0.4040	10	9.9	1.98
K2409822-026	0.4020	10	10.0	1.99
K2409822-027	0.4040	10	9.9	1.98
K2409822-028	0.4010	10	10.0	2.00
K2409822-029	0.4020	10	10.0	1.99
K2409822-030	0.4040	10	9.9	1.98
K2409822-031	0.4030	10	9.9	1.99
K2409822-032	0.4020	10	10.0	1.99
K2409822-033	0.4050	10	9.9	1.98
K2409822-034	0.4060	10	9.9	1.97
K2409822-035	0.4040	10	9.9	1.98
K2409822-036	0.4010	10	10.0	2.00
K2409822-037	0.4040	10	9.9	1.98
K2409822-038	0.4040	10	9.9	1.98
K2409822-039	0.4030	10	9.9	1.99
K2409822-040	0.4060	10	9.9	1.97
Method Blank	0.4000	1	1.0	0.20

Pre-Prep Information Benchsheet

Prep Run #: 446415 **Container Lot No:** 518885 **Prep Due Date:** Oct-11-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2410276-001	.02	Hg LL T : 1631app/	0.555g		PPRICE k-balance-49
2	K2410276-001 MS KQ2416431-01	.02	Hg LL T : 1631app/	0.654g		PPRICE k-balance-49
3	K2410276-001 DMS KQ2416431-02	.02	Hg LL T : 1631app/	0.658g		PPRICE k-balance-49
4	K2410276-002	.02	Hg LL T : 1631app/	0.680g		PPRICE k-balance-49

Relinquished By:	Date/Time:	Received By:	Date/Time:
pelp	10/10/24 1605		10/15/24 800

Pre-Prep Information Benchsheet

Prep Run #: ~~446302~~ added to 446415

Container Lot No: 100223-3AWA

Prep Due Date: Oct-16-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2410592-001	.04	Hg LL T : 1631app/	0.541g		ZBIBI k-Balance-50
2	K2410592-001 MS KQ2416283-01	.04	Hg LL T : 1631app/	0.510g		ZBIBI k-Balance-50
3	K2410592-001 DMS KQ2416283-02	.04	Hg LL T : 1631app/	0.544g		ZBIBI k-Balance-50

QC not used

Combine all weights due to low TS

*AS 10/15/24

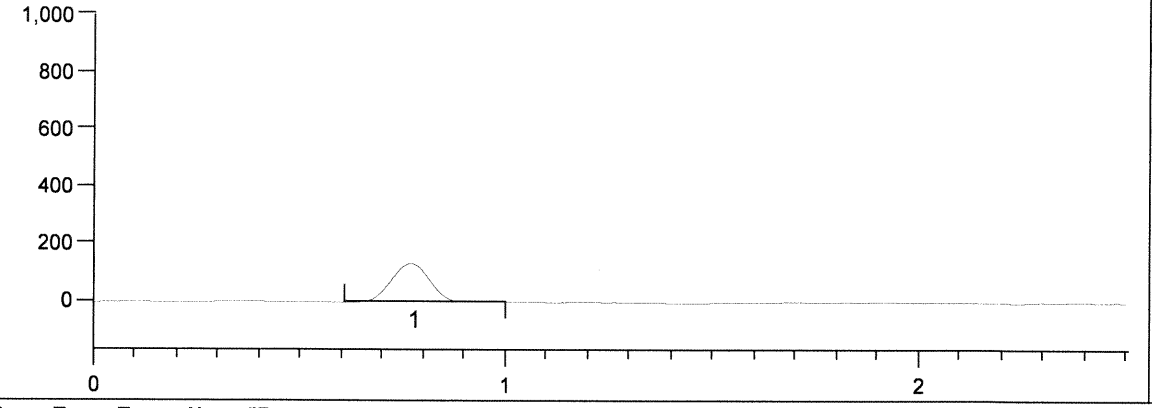
Relinquished By: ZZB	Date/Time: 10/8/24 15:25	Received By:	Date/Time: 800 10/15/24

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

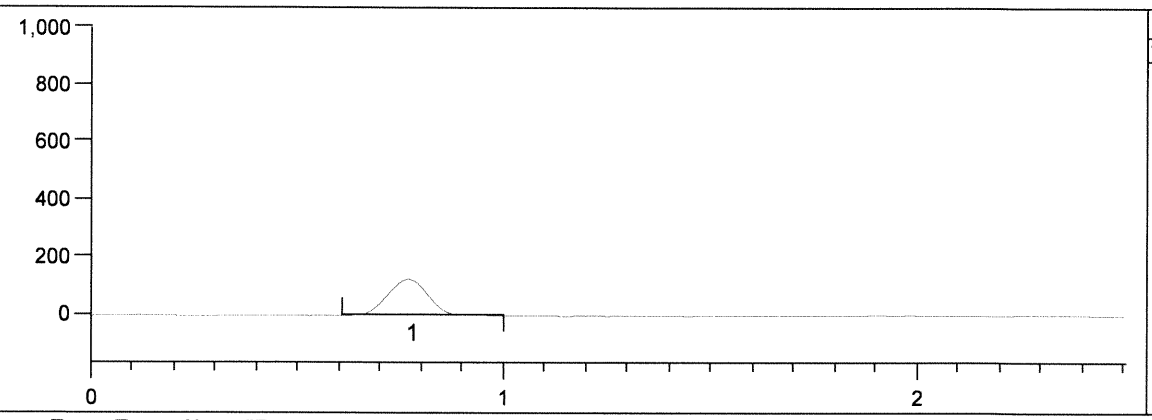


Date:	10/16/24
Time:	8:42 AM

Peak	rt	Area
1	0.77	9,514

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
1	X	CCB	RINSE		1	9,514	0.299		0.299	< 50	accept

Notes

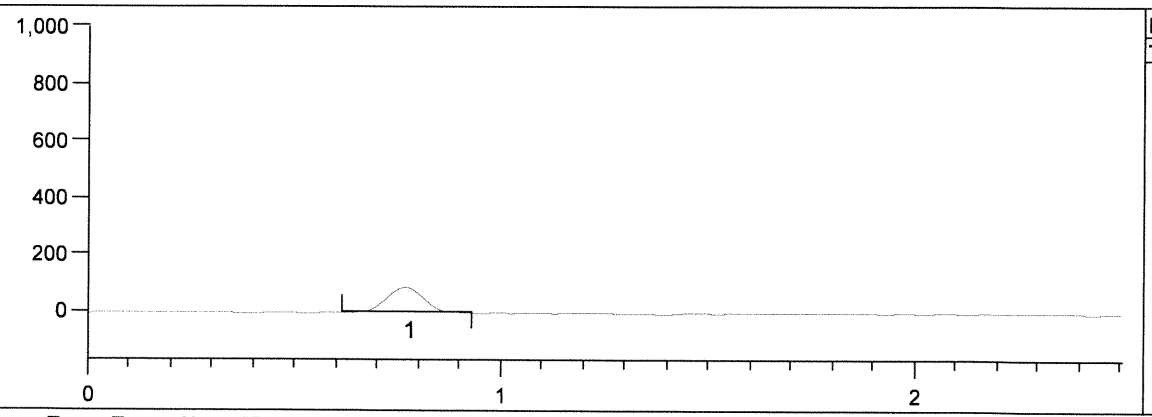


Date:	10/16/24
Time:	8:47 AM

Peak	rt	Area
1	0.76	9,307

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
2	Y	CCB	RINSE		1	9,307	0.273		0.273	< 50	accept

Notes



Date:	10/16/24
Time:	8:52 AM

Peak	rt	Area
1	0.76	6,239

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
3	X	CB	CB-1		1	6,239	0.759		0.759	< 50	accept

Notes

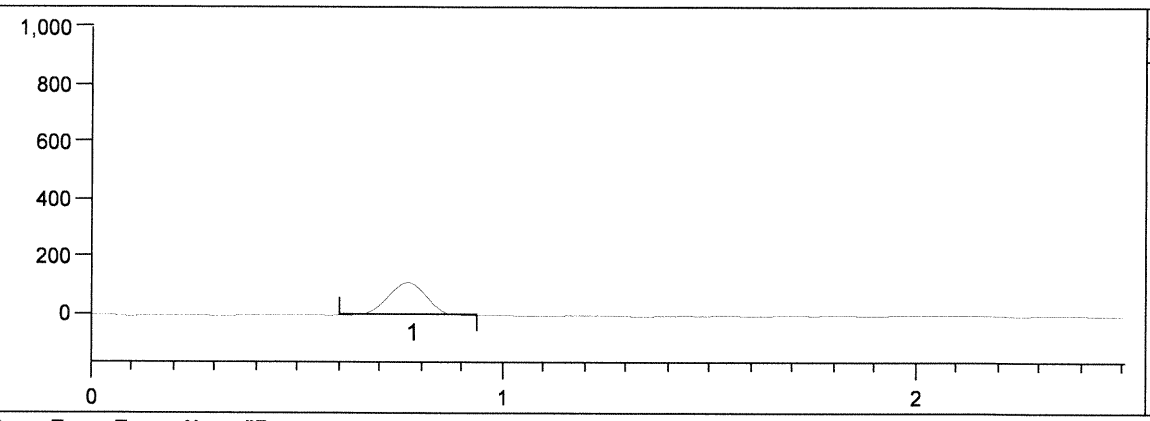
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

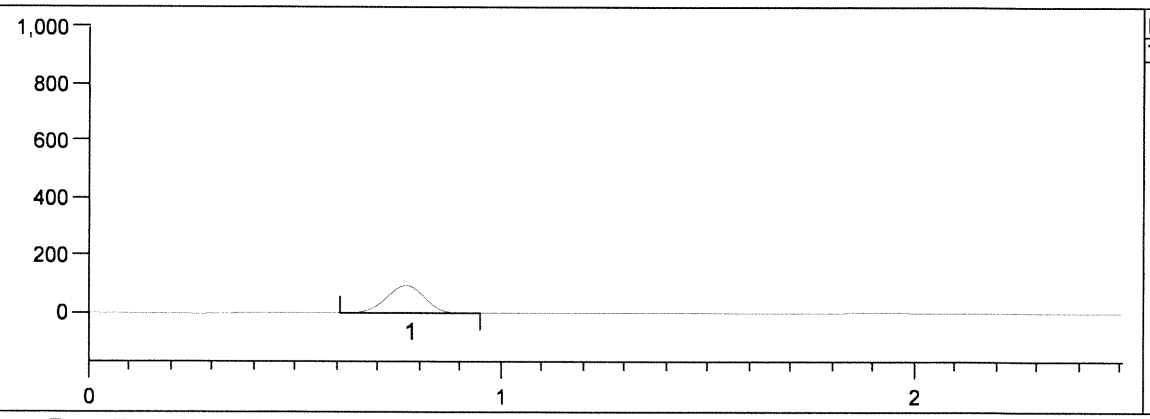


Date: 10/16/24
Time: 8:57 AM

Peak	rt	Area
1	0.76	8,115

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
4	Y	CB	CB-2		1	8,115	0.988		0.988	< 50	accept

Notes

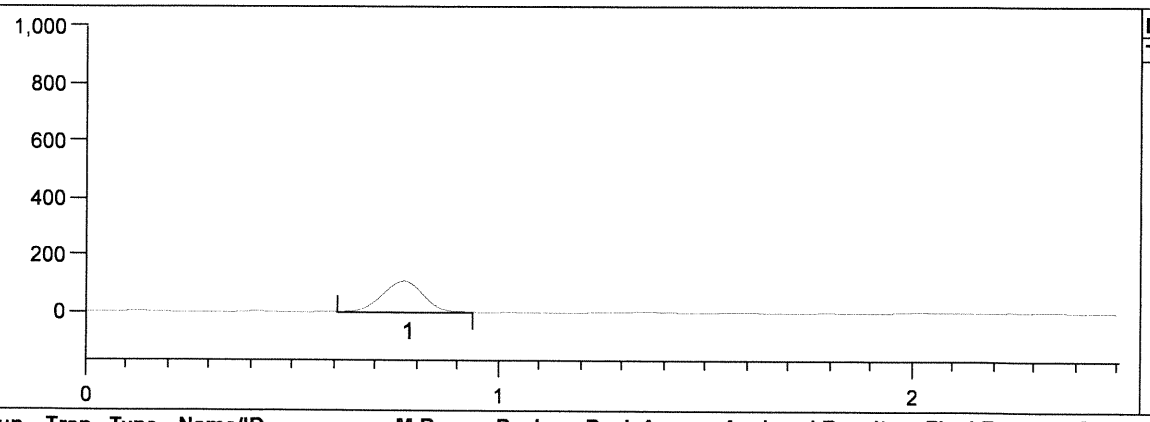


Date: 10/16/24
Time: 9:02 AM

Peak	rt	Area
1	0.76	6,413

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
5	X	CB	CB-3		1	6,413	0.781		0.781	< 50	accept

Notes



Date: 10/16/24
Time: 9:07 AM

Peak	rt	Area
1	0.76	7,477

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
6	Y	CB	CB-4		1	7,477	0.910		0.910	< 50	accept

Notes

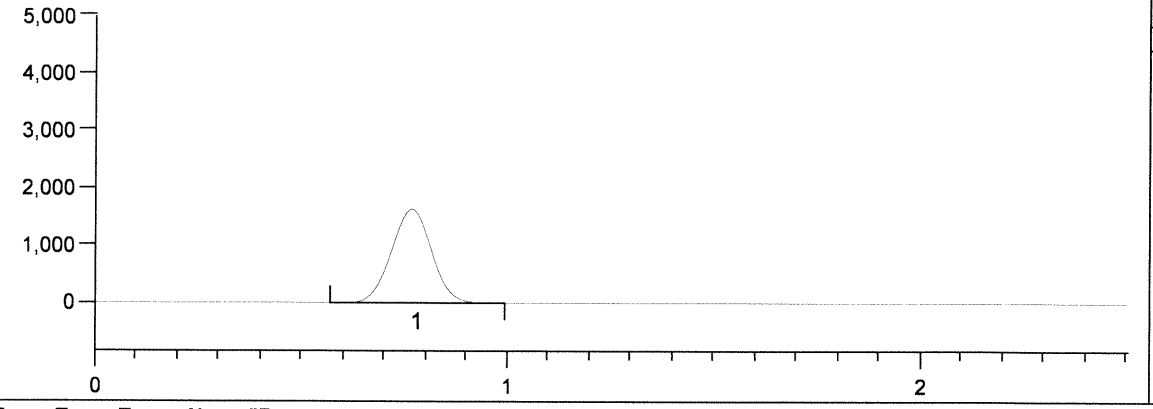
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

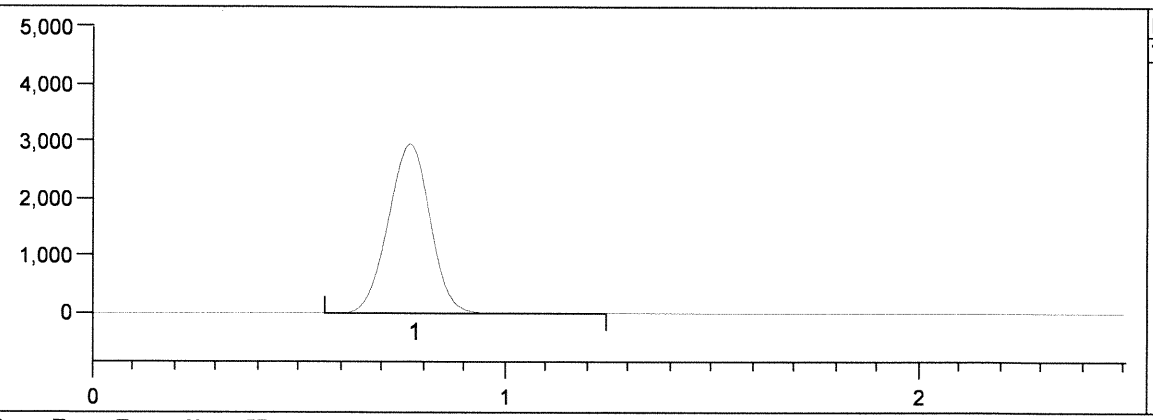


Date: 10/16/24
Time: 9:12 AM

Peak	rt	Area
1	0.76	112,919

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
7	X	STD	12.5 pg		1	112,919	12.9		103	75-125	accept

Notes0.125mL AF3-17-G

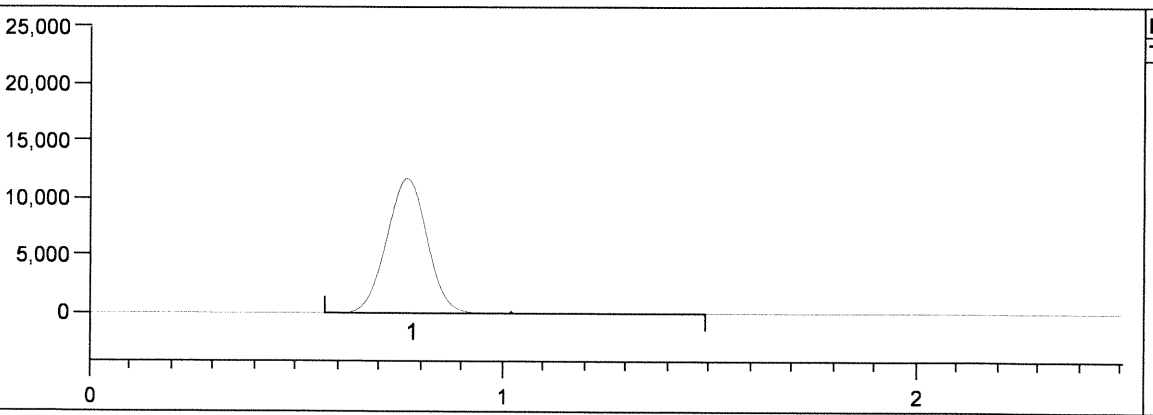


Date: 10/16/24
Time: 9:17 AM

Peak	rt	Area
1	0.76	212,382

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
8	Y	STD	25 pg		1	212,382	25.0		100.	75-125	accept

Notes0.25mL AF3-17-G



Date: 10/16/24
Time: 9:22 AM

Peak	rt	Area
1	0.76	812,006

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
9	X	STD	100 pg		1	812,006	98.0		98.0	75-125	accept

Notes1.00mL AF3-17-G

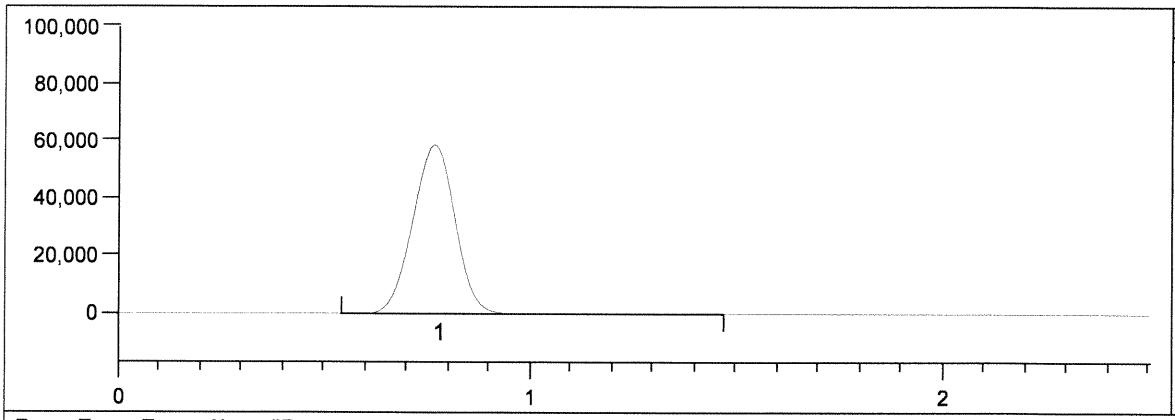
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

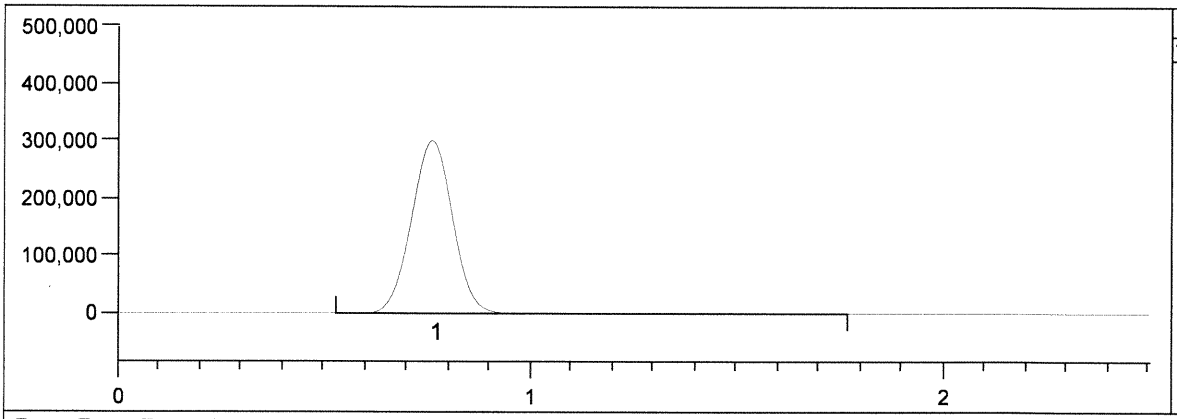


Date:	10/16/24
Time:	9:27 AM

Peak	rt	Area
1	0.76	4,217,264

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
10	Y	STD	500 pg		1	4,217,264	512		102	75-125	accept

Notes0.05mL AF3-17-F

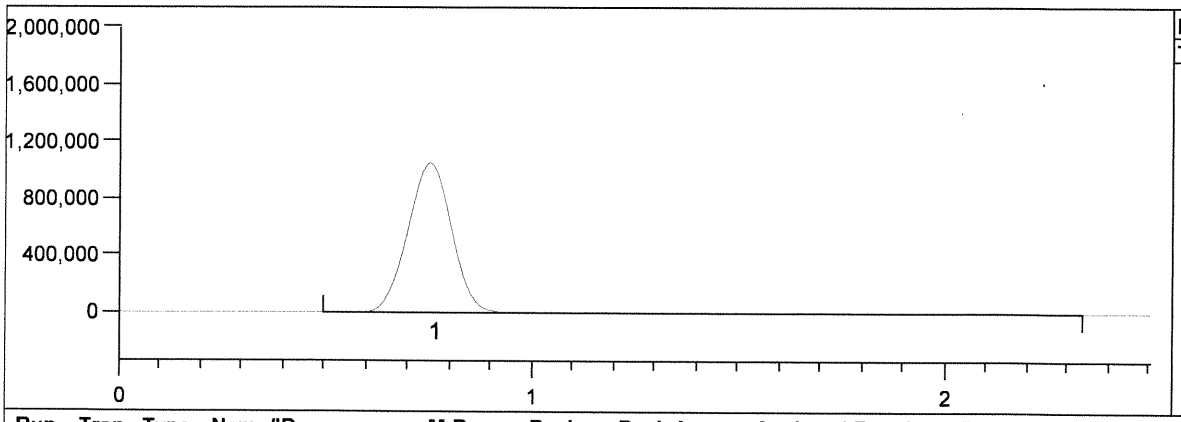


Date:	10/16/24
Time:	9:32 AM

Peak	rt	Area
1	0.76	21,065,566

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
11	X	STD	2500 pg		1	21,065,566	2,560		103	75-125	accept

Notes0.25mL AF3-17-F



Date:	10/16/24
Time:	9:37 AM

Peak	rt	Area
1	0.75	77,689,524

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
12	Y	STD	10000 pg		1	77,689,524	9,450		94.5	75-125	accept

Notes1.00mL AF3-17-F

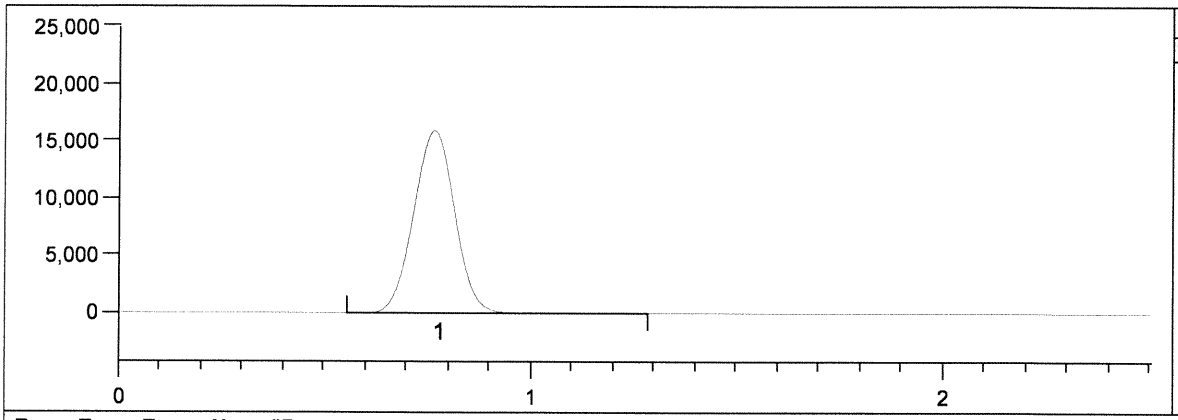
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

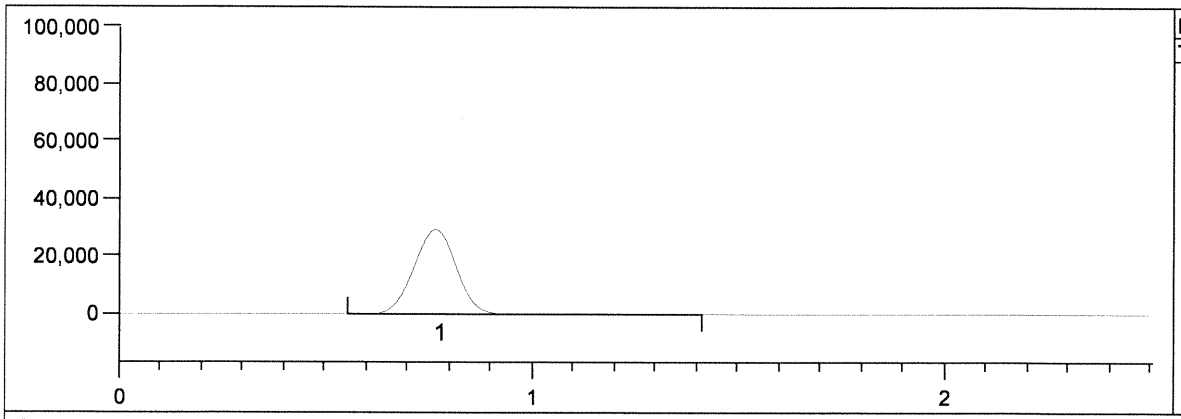


Date: 10/16/24
Time: 9:42 AM

Peak	rt	Area
1	0.76	1,106,404

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
13	X	VER	VER-1		1	1,106,404	134	5.35	107	77-123	accept

Notes

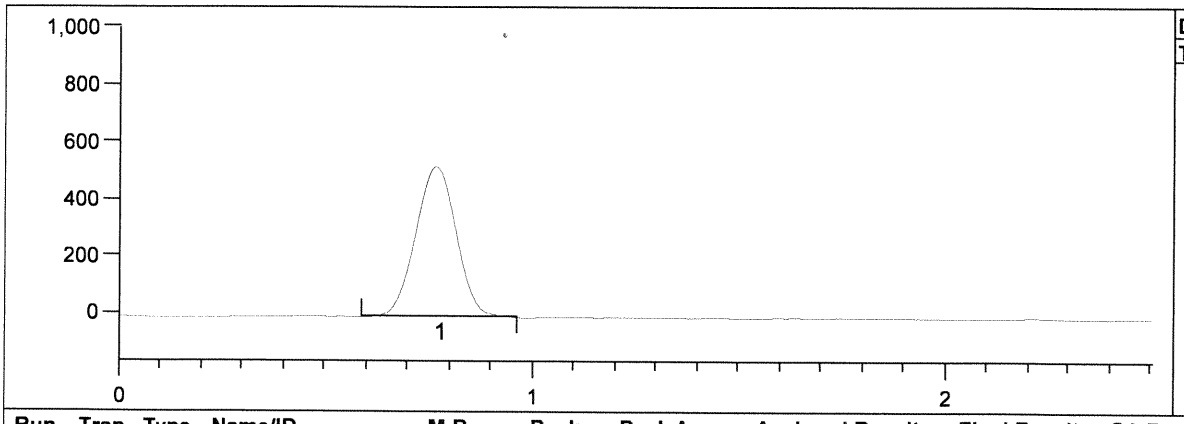


Date: 10/16/24
Time: 9:47 AM

Peak	rt	Area
1	0.76	2,117,736

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
14	Y	OPR	OPR-1		1	2,117,736	257	5.14	103	70-130	accept

Notes



Date: 10/16/24
Time: 9:52 AM

Peak	rt	Area
1	0.76	36,472

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
15	X	MBA	MB-1		1	36,472	3.58	0.0716	0.0716	<1.0	accept

Notes

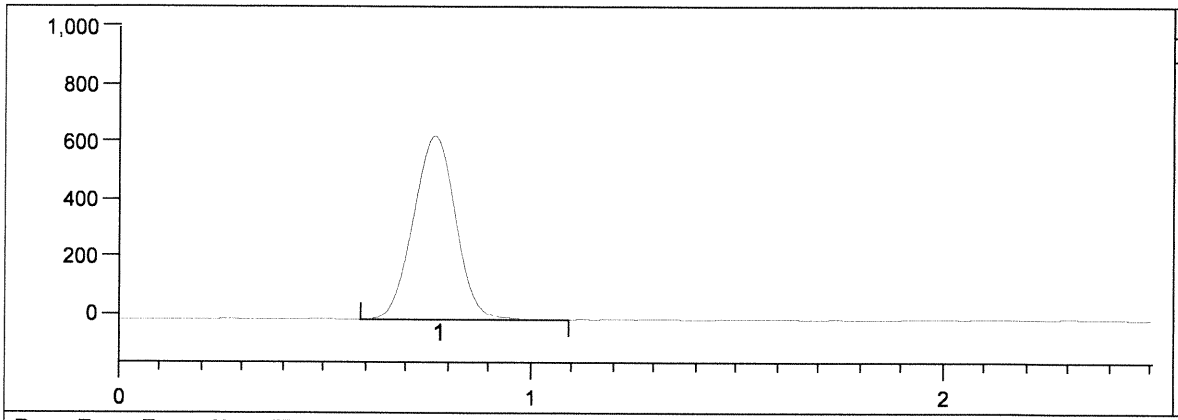
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

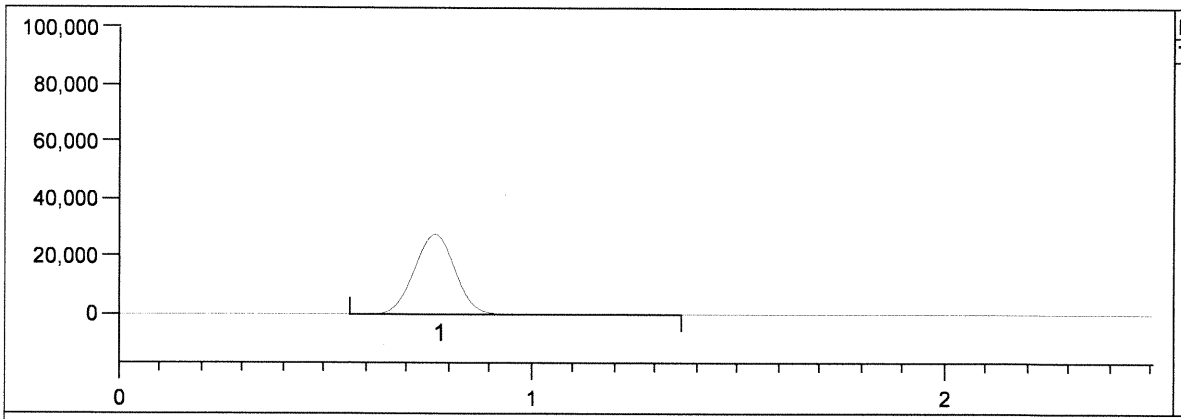


Date: 10/16/24
Time: 9:57 AM

Peak	rt	Area
1	0.76	46,042

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
16	Y	MBA	MB-2		1	46,042	4.74	0.0949	0.0949	<1.0	accept

Notes

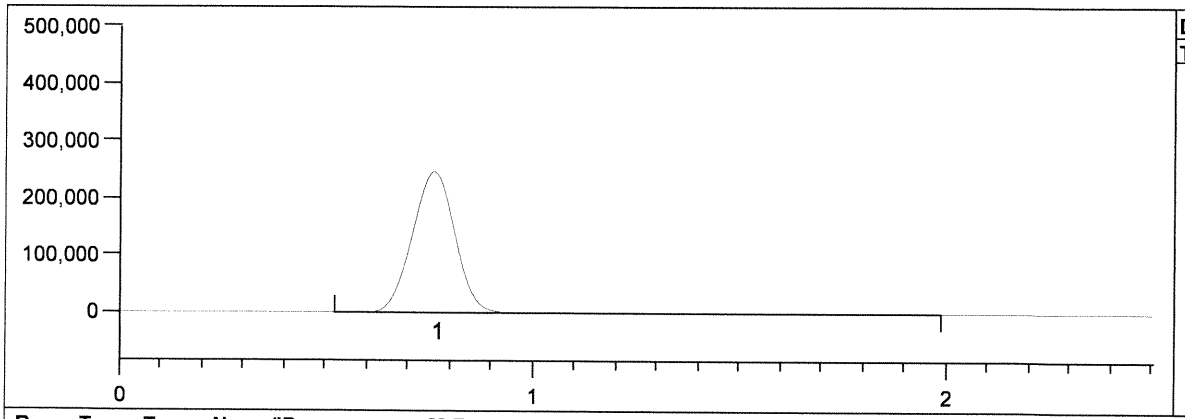


Date: 10/16/24
Time: 10:02 AM

Peak	rt	Area
1	0.76	1,938,385

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
17	X	SRM	QCS-1		1	1,938,385	235	4.70	94.0	70-130	accept

Notes



Date: 10/16/24
Time: 10:07 AM

Peak	rt	Area
1	0.76	17,827,960

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
18	Y	S	K2410276-001		1	17,827,960	2,170	158		< HS	accept

Notes5X DILUTION

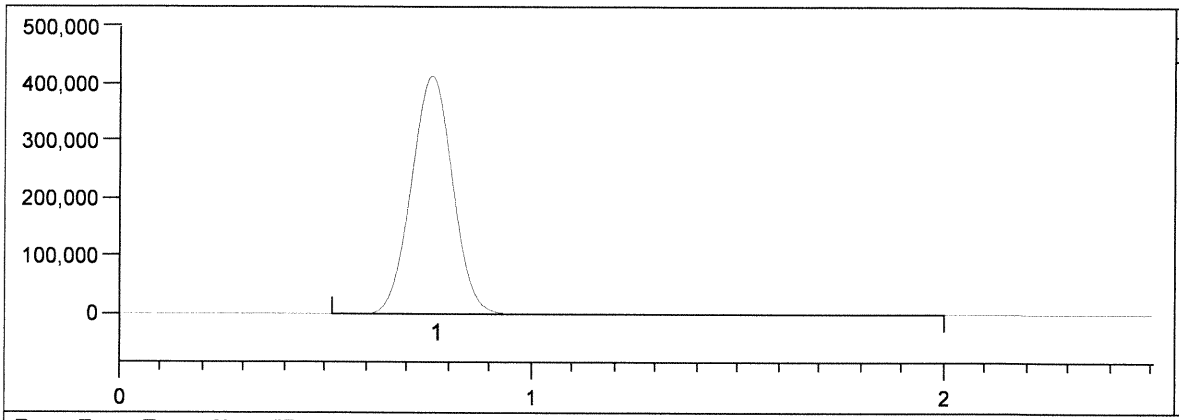
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

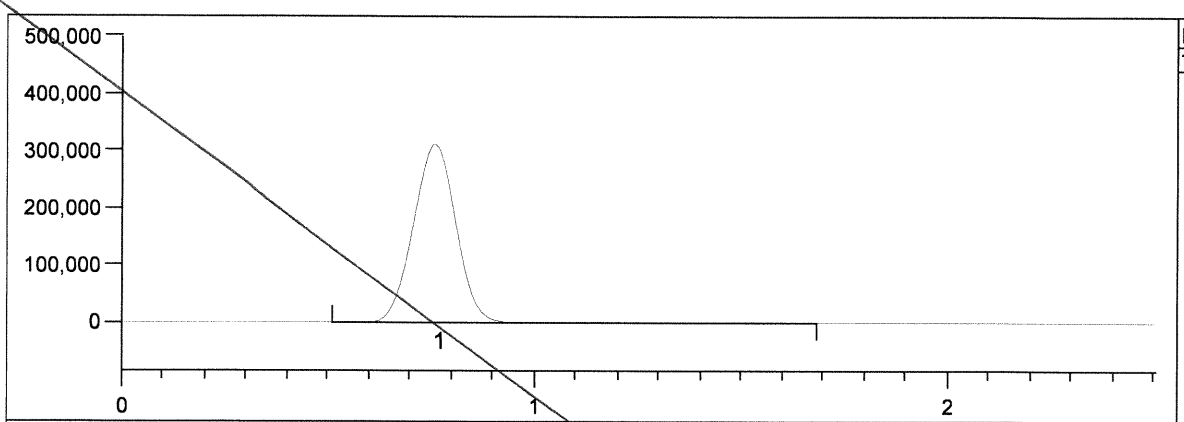


Date:	10/16/24
Time:	10:12 AM

Peak	rt	Area
1	0.76	29,124,483

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
19	X	MS	K2410276-001		1	29,124,483	3,540	219	98.9	70-130	accept

Notes5X DILUTION

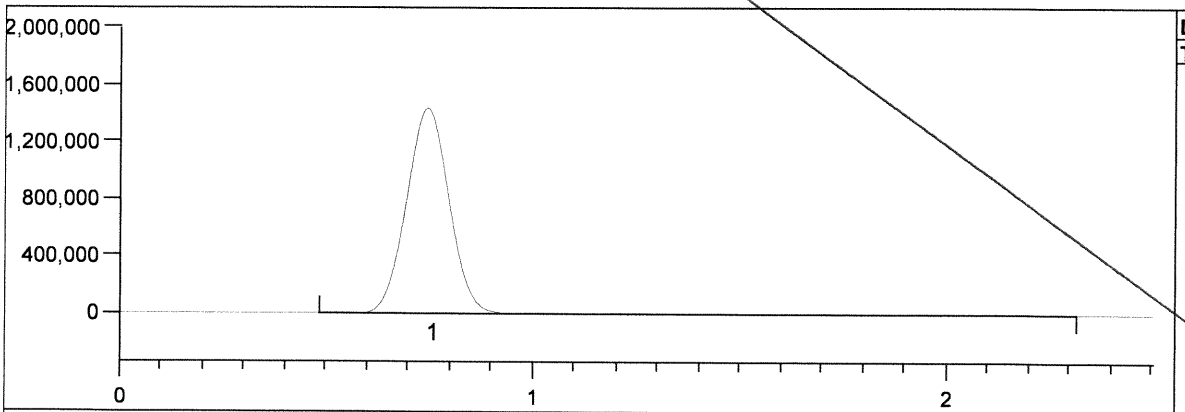


Date:	10/16/24
Time:	10:17 AM

Peak	rt	Area
1	0.76	22,605,006

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
20	Y	MSD	K2410276-001		1	22,605,006	2,750	169	17.9	70-130	reject

Notes5X DILUTION



Date:	10/16/24
Time:	10:22 AM

Peak	rt	Area
1	0.74	104,045,914

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
21	X	S	K2410276-002		1	104,045,914	12,700	1,540		< HS	reject

Notes10X DILUTION

DD 10/16/24

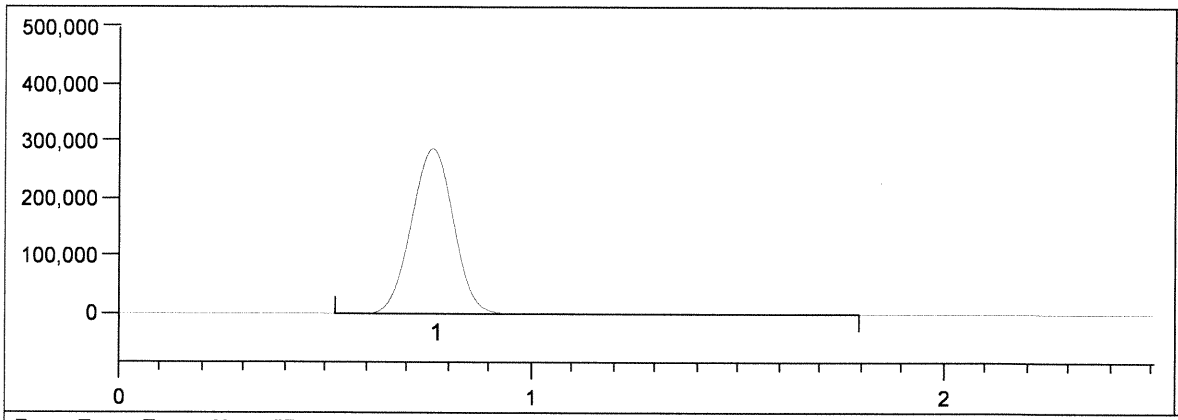
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

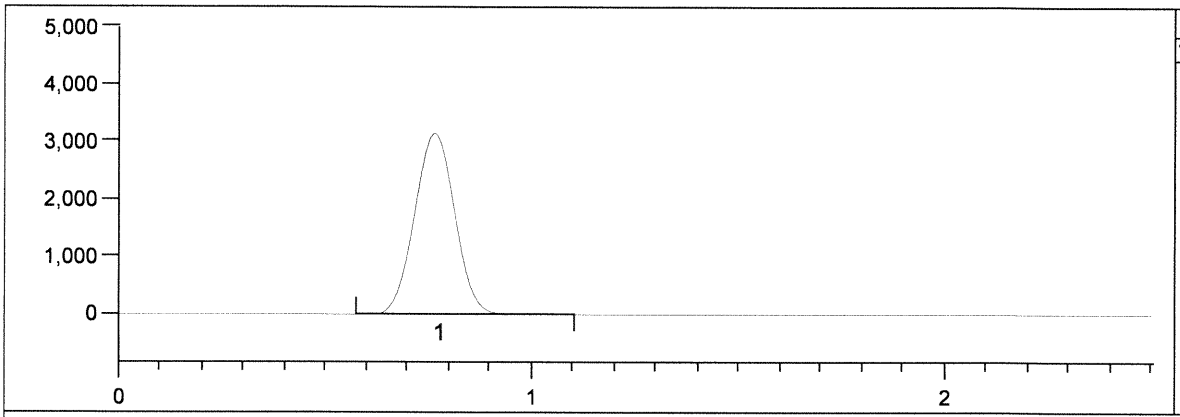
Date Analyzed: 10/16/24
Analyst Name:



Date:	10/16/24
Time:	10:27 AM

Peak	rt	Area
1	0.76	20,708,769

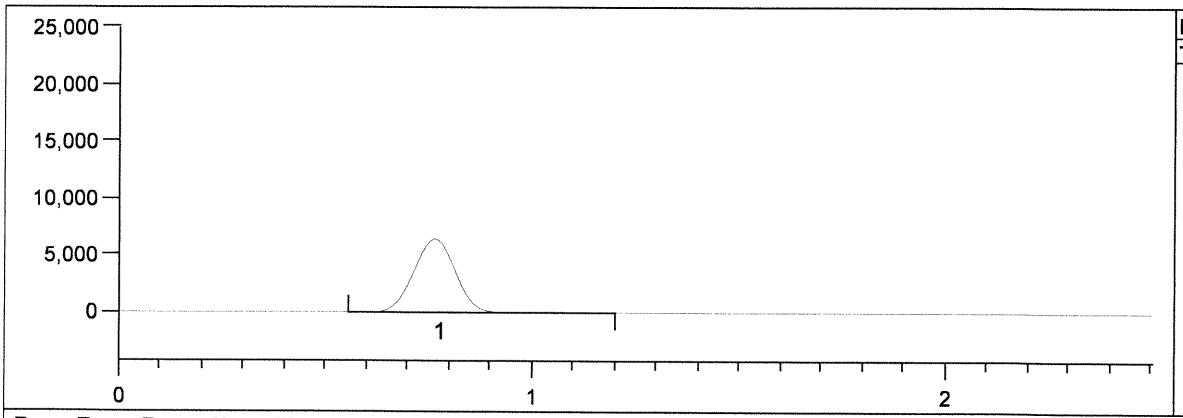
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
22	Y	S	K2410592-001		1	20,708,769	2,520	402		< HS	accept
Notes5X DILUTION											



Date:	10/16/24
Time:	10:32 AM

Peak	rt	Area
1	0.76	218,961

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
23	X	S	K2410737-014		1	218,961	25.8	0.516		< HS	accept
Notes											



Date:	10/16/24
Time:	10:37 AM

Peak	rt	Area
1	0.76	462,563

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
24	Y	S	K2410738-014		1	462,563	55.4	1.11		< HS	accept
Notes											

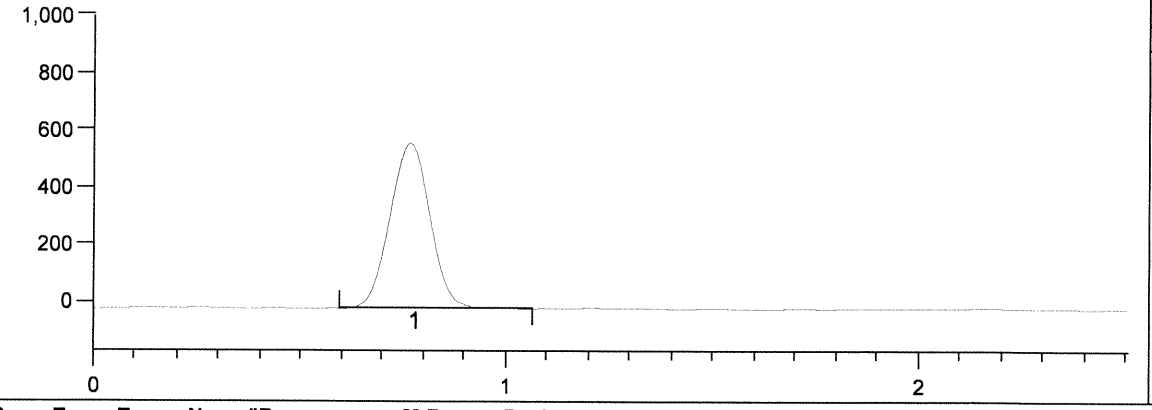
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

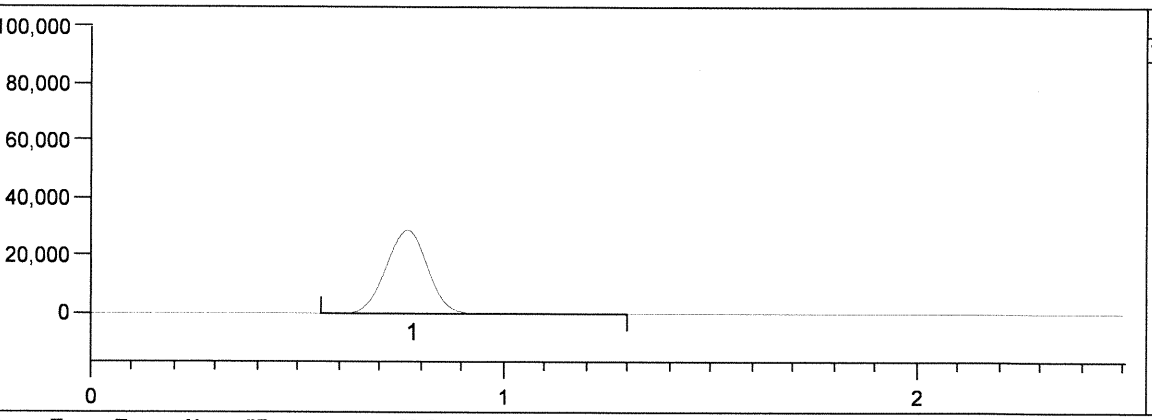


Date:	10/16/24
Time:	10:42 AM

Peak	rt	Area
1	0.76	39,986

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
25	X	MBA	MB-3		1	39,986	4.01	0.0801	0.0801	<1.0	accept

Notes

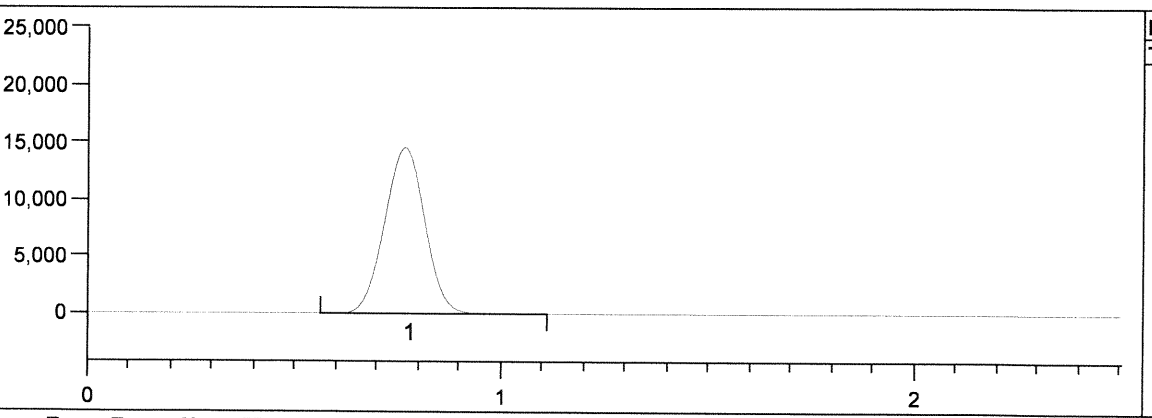


Date:	10/16/24
Time:	10:47 AM

Peak	rt	Area
1	0.76	2,078,237

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
26	Y	OPR	OPR-2		1	2,078,237	252	5.04	101	70-130	accept

Notes



Date:	10/16/24
Time:	10:52 AM

Peak	rt	Area
1	0.76	1,009,768

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
27	X	VER	VER-2		1	1,009,768	122	4.88	97.6	77-123	accept

Notes

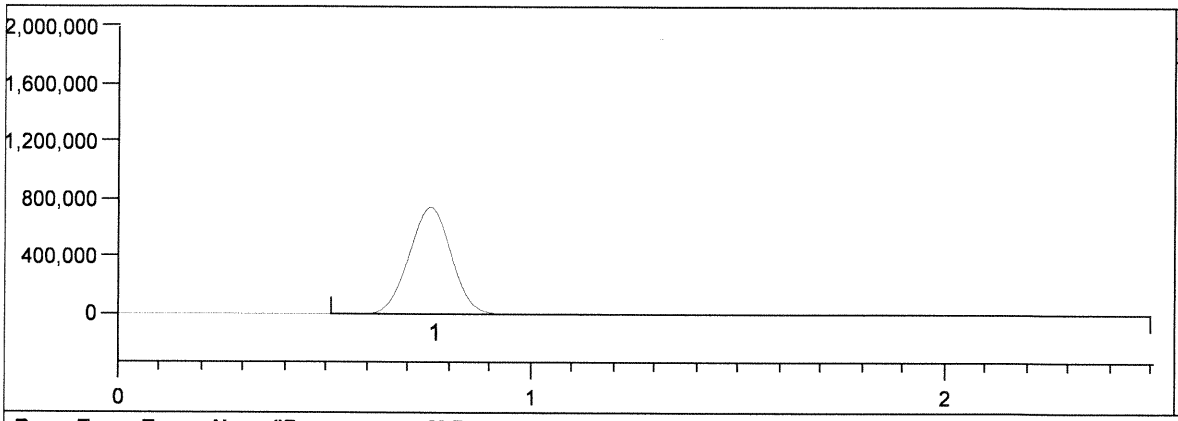
Mercury Guru ver 4.7.6 © 1995-2014 Brooks Rand Inc

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

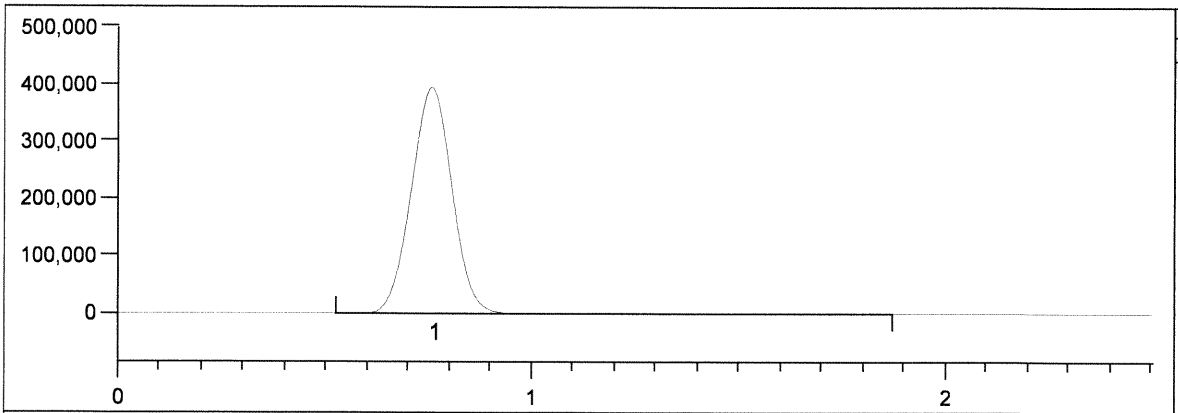
Date Analyzed: 10/16/24
Analyst Name:



Date: 10/16/24
Time: 11:28 AM

Peak	rt	Area
1	0.75	54,812,886

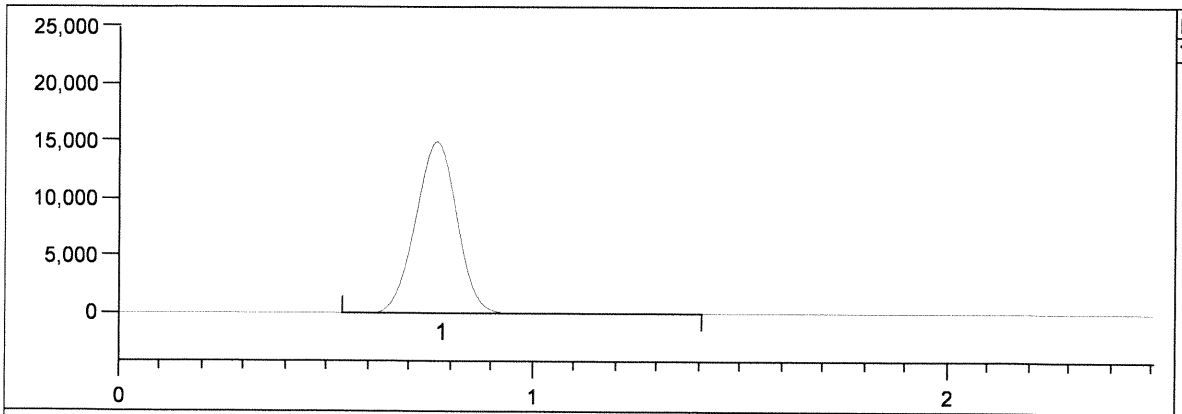
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
28	Y	S	K2410276-002		1	54,812,886	6,670	1,630		< HS	accept
Notes20X DILUTION											



Date: 10/16/24
Time: 11:33 AM

Peak	rt	Area
1	0.75	27,692,166

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
29	X	MSD	K2410276-001		1	27,692,166	3,370	207	79.9	70-130	accept
Notes5X DILUTION											



Date: 10/16/24
Time: 11:38 AM

Peak	rt	Area
1	0.76	1,072,505

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
30	Y	VER	VER-3		1	1,072,505	130.	5.19	104	77-123	accept
Notes											

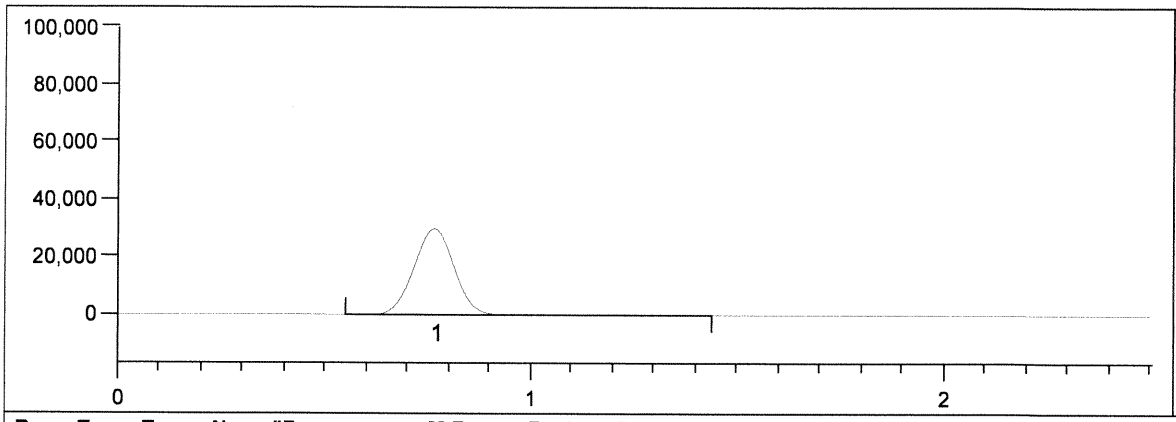
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

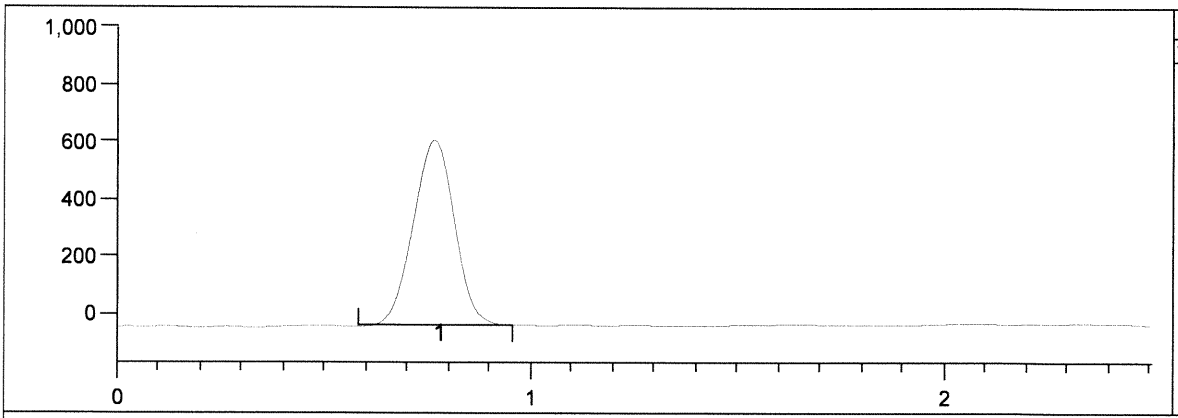


Date:	10/16/24
Time:	11:43 AM

Peak	rt	Area
1	0.76	2,081,429

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
31	X	OPR	OPR-1		1	2,081,429	252	5.05	101	70-130	accept

Notes

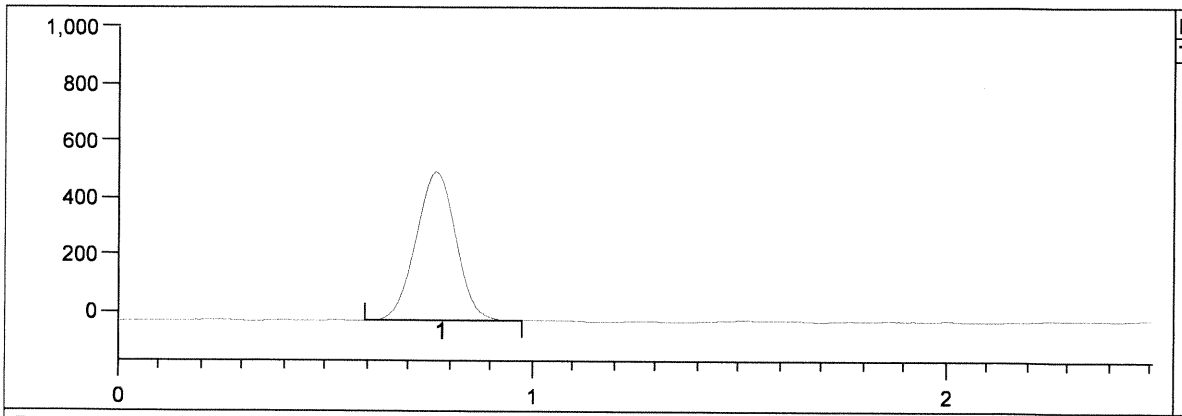


Date:	10/16/24
Time:	11:48 AM

Peak	rt	Area
1	0.76	46,144

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
32	Y	MBA	MB-1		1	46,144	4.76	0.0951	0.0951	<1.0	accept

Notes



Date:	10/16/24
Time:	11:53 AM

Peak	rt	Area
1	0.76	35,904

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
33	X	MBA	MB-2		1	35,904	3.51	0.0702	0.0702	<1.0	accept

Notes

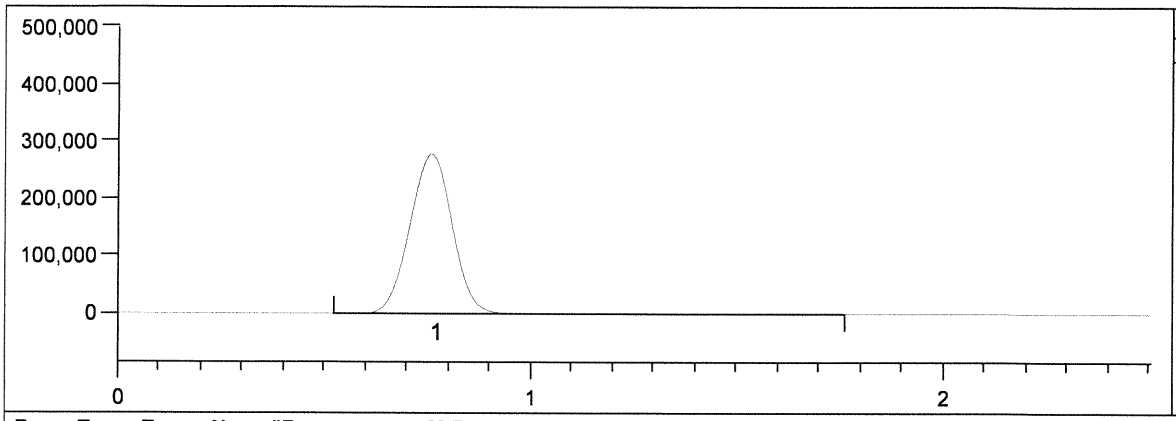
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

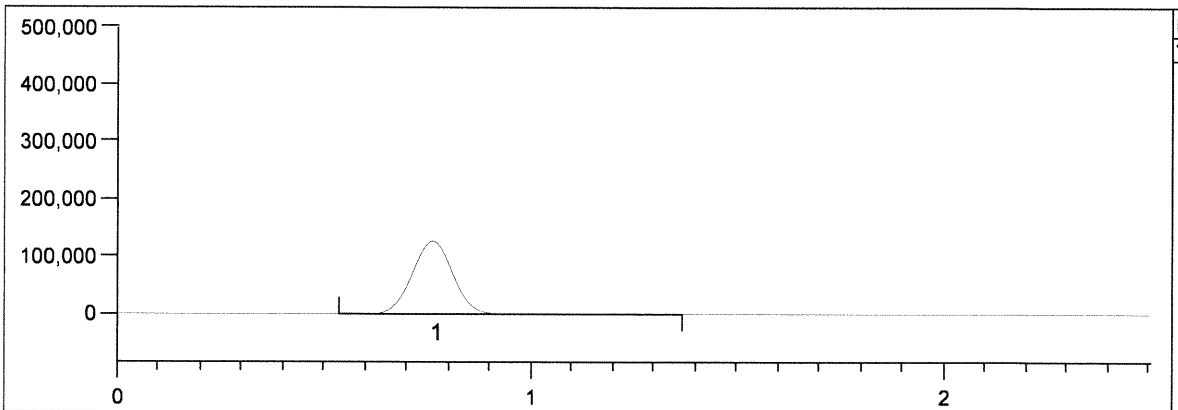


Date:	10/16/24
Time:	11:58 AM

Peak	rt	Area
1	0.76	20,003,937

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
34	Y	SRM	TORT-3		1	20,003,937	2,430	245	84.0	70-130	accept

Notes

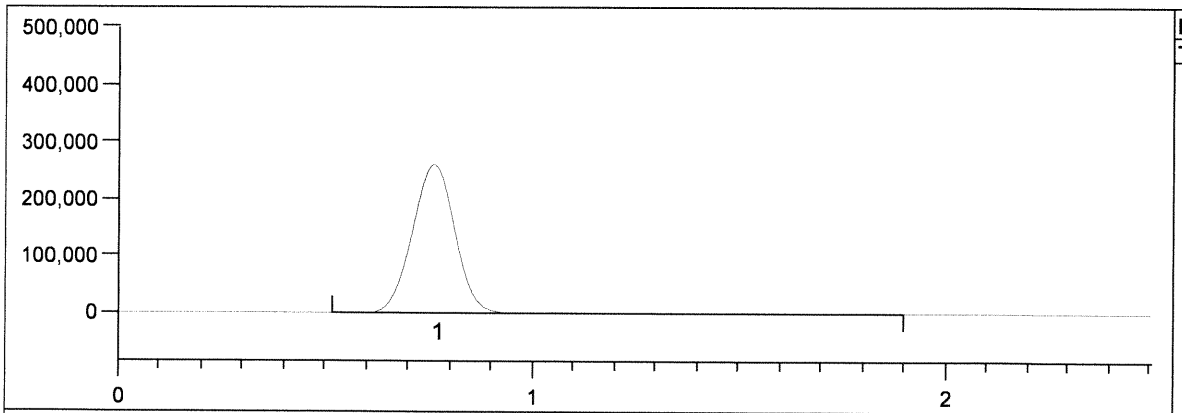


Date:	10/16/24
Time:	12:03 PM

Peak	rt	Area
1	0.76	8,850,339

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
35	X	S	K2409822-062		1	8,850,339	1,080	213		< HS	accept

Notes10X DILUTION



Date:	10/16/24
Time:	12:08 PM

Peak	rt	Area
1	0.76	18,780,734

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
36	Y	MS	K2409822-062		1	18,780,734	2,290	455	97.0	70-130	accept

Notes10X DILUTION

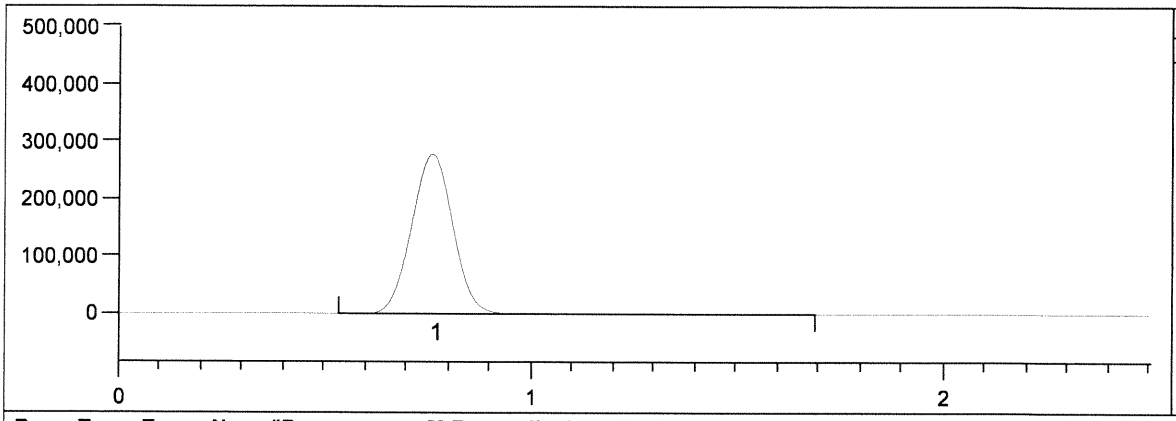
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

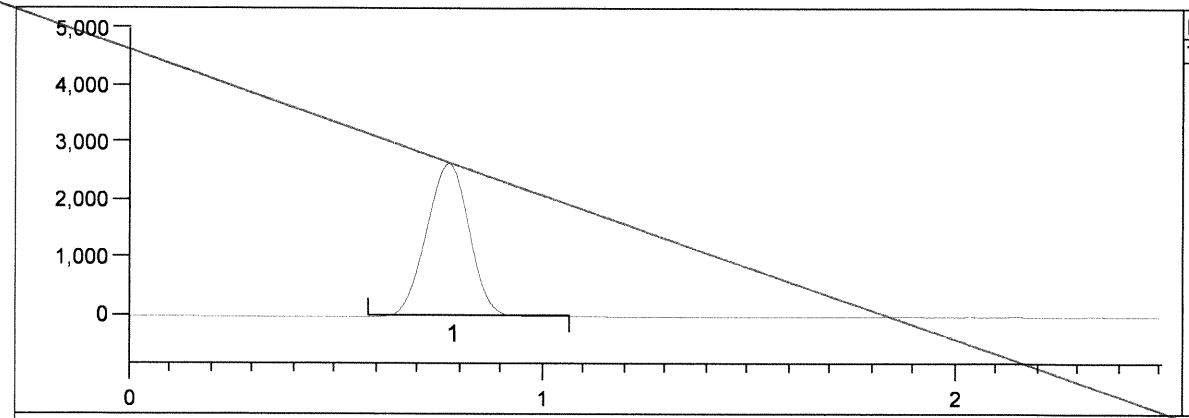


Date: 10/16/24
Time: 12:13 PM

Peak	rt	Area
1	0.76	19,408,912

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
37	X	MSD	K2409822-062		1	19,408,912	2,360	465	103	70-130	accept

Notes10X DILUTION



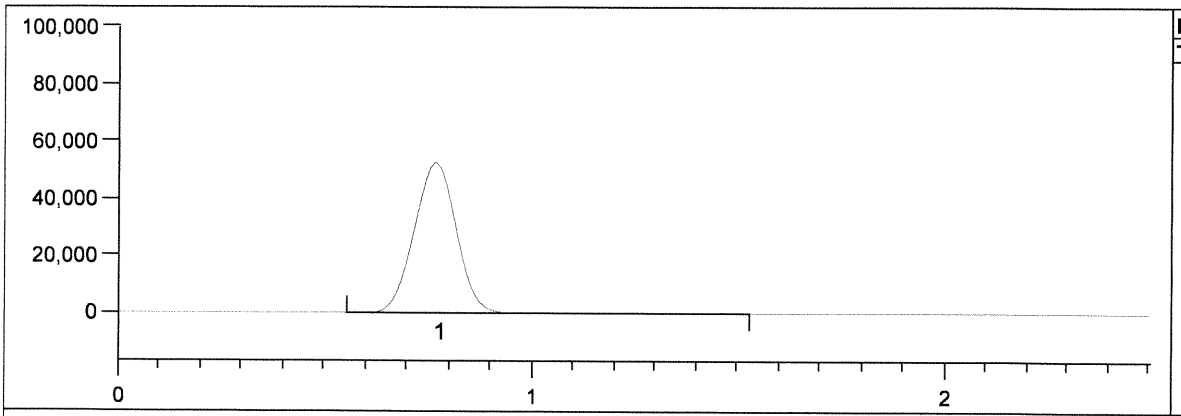
Date: 10/16/24
Time: 12:18 PM

Peak	rt	Area
1	0.77	193,149

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
38	Y	S	K2409822-061		1	193,149	22.6	4.47		< HS	reject

Notes10X DILUTION

SS 10/16/24



Date: 10/16/24
Time: 12:41 PM

Peak	rt	Area
1	0.76	3,732,787

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
39	Y	S	K2409822-061		1	3,732,787	453	89.6		< HS	accept

Notes10X DILUTION

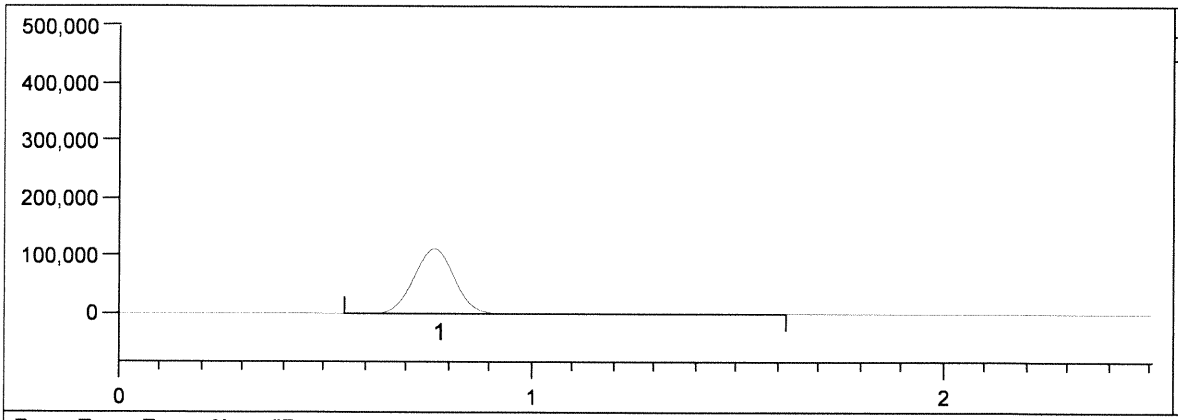
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

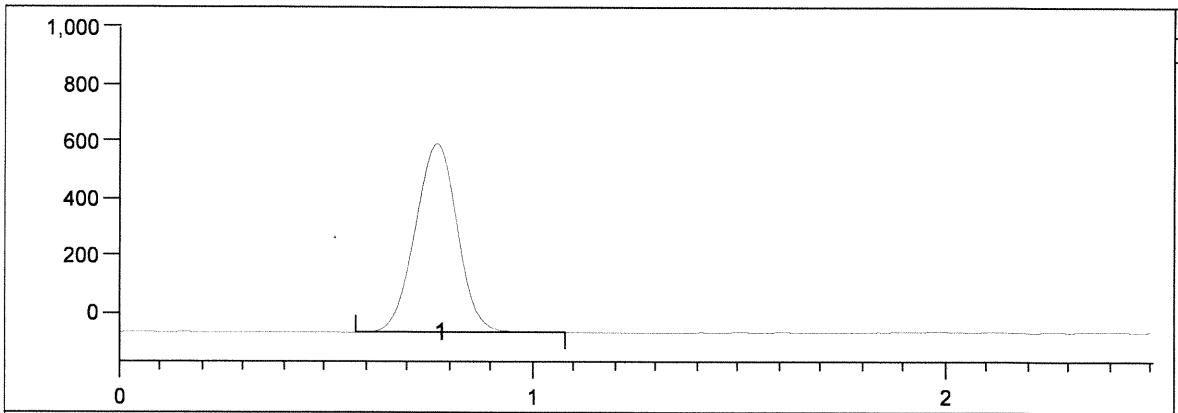
Date Analyzed: 10/16/24
Analyst Name:



Date:	10/16/24
Time:	12:46 PM

Peak	rt	Area
1	0.76	7,820,733

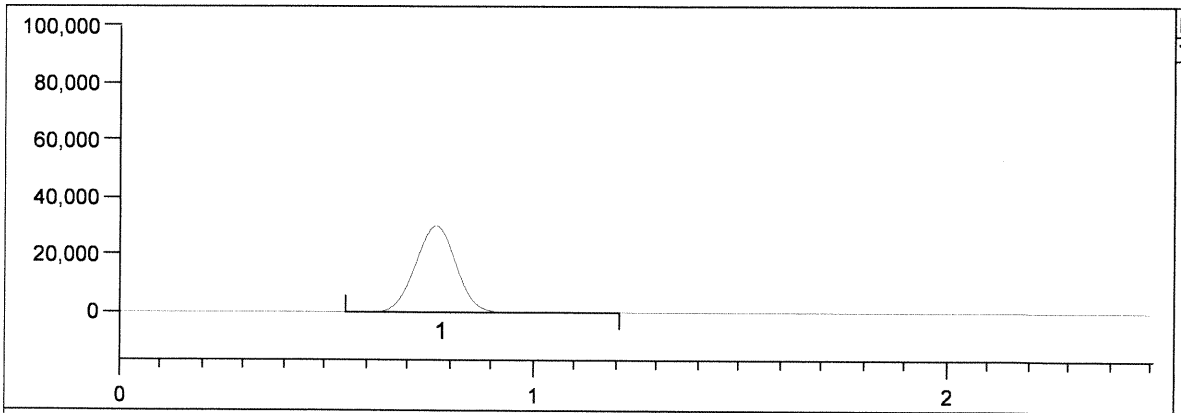
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
40	X	S	K2409822-063		1	7,820,733	951	187		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	12:51 PM

Peak	rt	Area
1	0.77	47,099

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
41	Y	MBA	MB-3		1	47,099	4.87	0.0975	0.0975	<1.0	accept
Notes											



Date:	10/16/24
Time:	12:56 PM

Peak	rt	Area
1	0.76	2,084,713

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
42	X	OPR	OPR-2		1	2,084,713	253	5.06	101	70-130	accept
Notes											

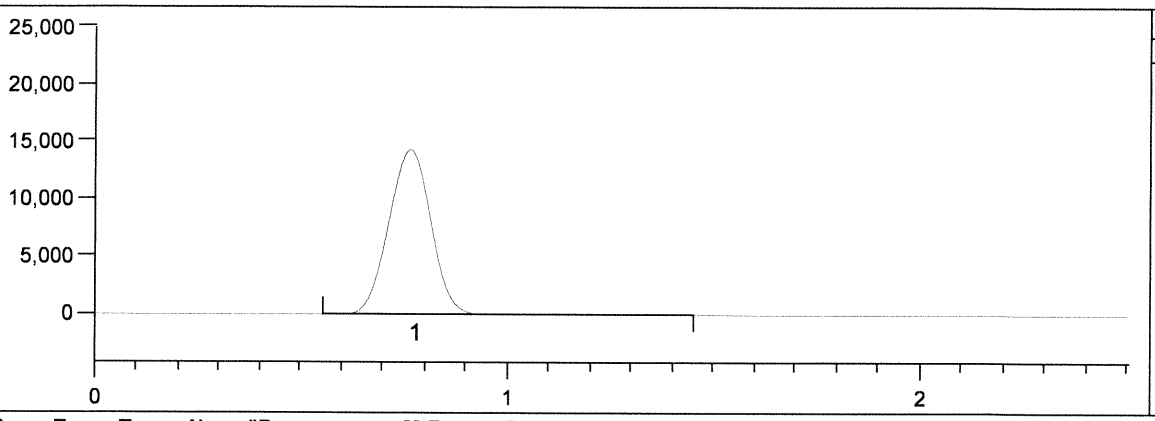
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

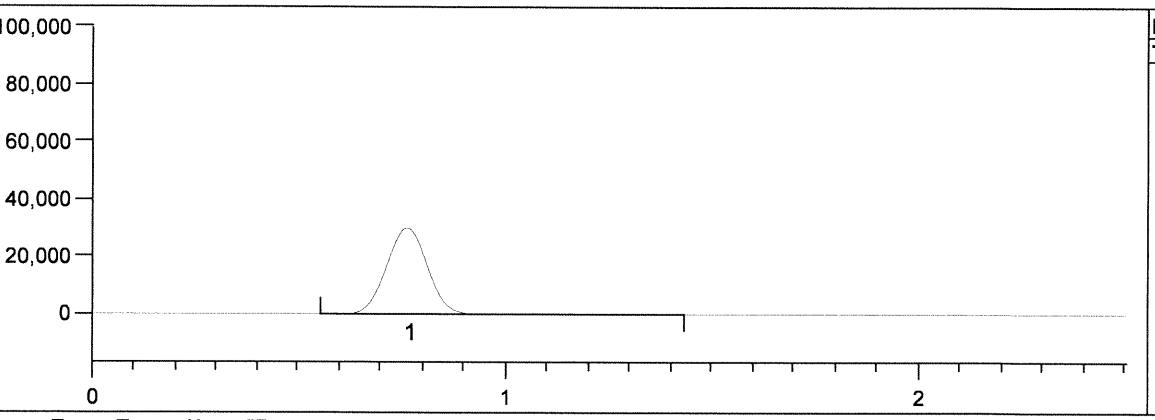


Date:	10/16/24
Time:	1:01 PM

Peak	rt	Area
1	0.76	1,021,085

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
43	Y	VER	VER-4		1	1,021,085	123	4.94	98.7	77-123	accept

Notes

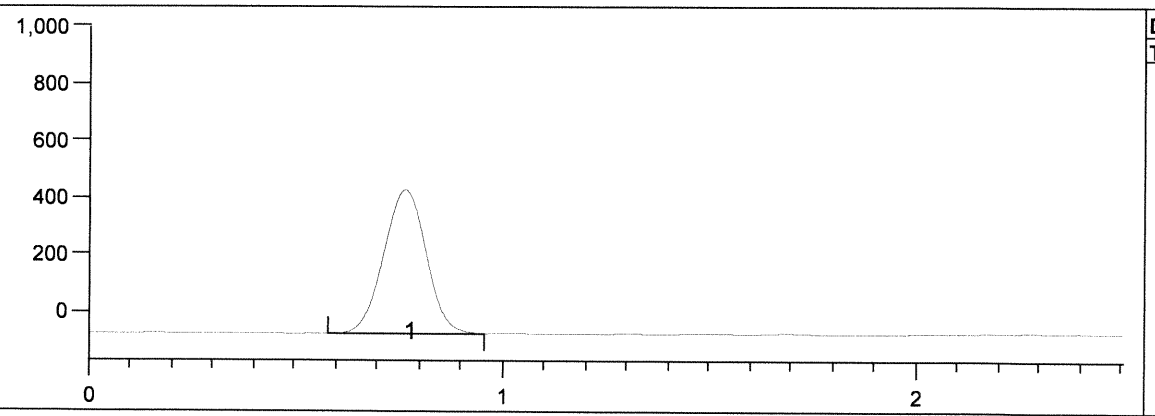


Date:	10/16/24
Time:	1:06 PM

Peak	rt	Area
1	0.76	2,082,676

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
44	X	OPR	OPR-1		1	2,082,676	253	5.05	101	70-130	accept

Notes



Date:	10/16/24
Time:	1:11 PM

Peak	rt	Area
1	0.76	35,868

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
45	Y	MBA	MB-1		1	35,868	3.51	0.0701	0.0701	<1.0	accept

Notes

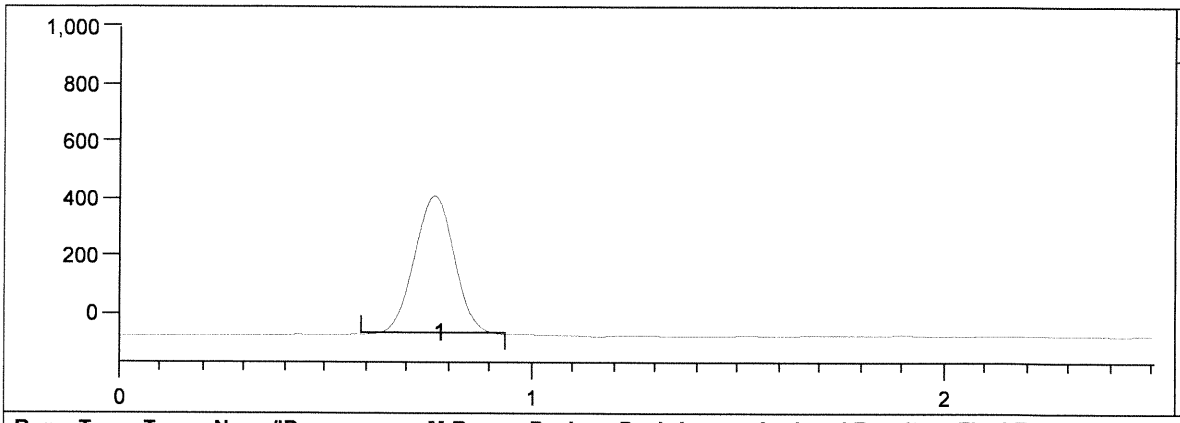
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

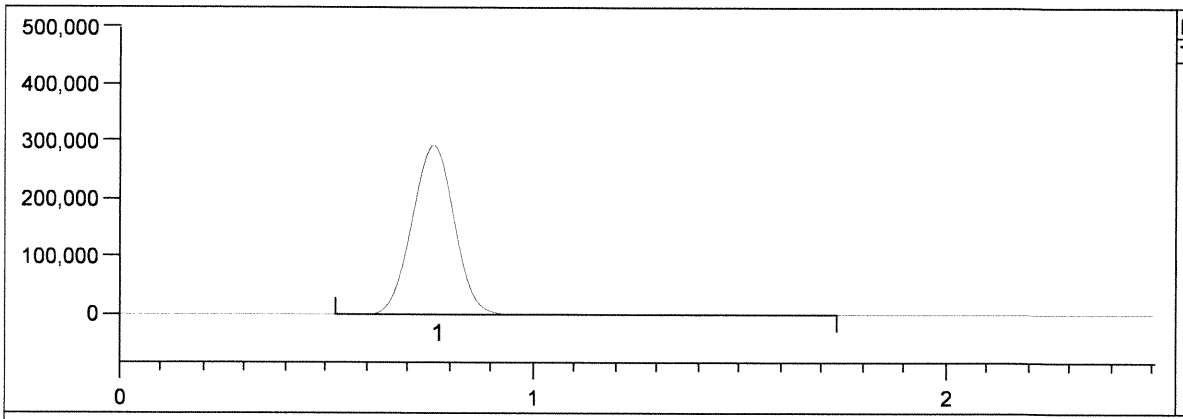


Date: 10/16/24
Time: 1:16 PM

Peak	rt	Area
1	0.76	32,885

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
46	X	MBA	MB-2		1	32,885	3.14	0.0629	0.0629	<1.0	accept

Notes

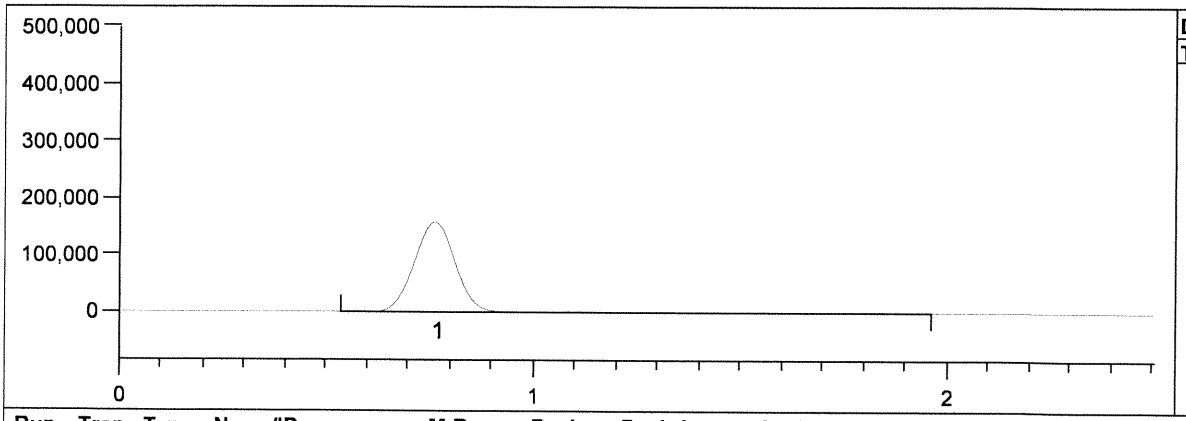


Date: 10/16/24
Time: 1:21 PM

Peak	rt	Area
1	0.76	20,966,595

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
47	Y	SRM	TORT-3		1	20,966,595	2,550	254	86.9	70-130	accept

Notes



Date: 10/16/24
Time: 1:26 PM

Peak	rt	Area
1	0.76	10,982,075

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
48	X	S	K2409822-001		1	10,982,075	1,340	264		< HS	accept

Notes10X DILUTION

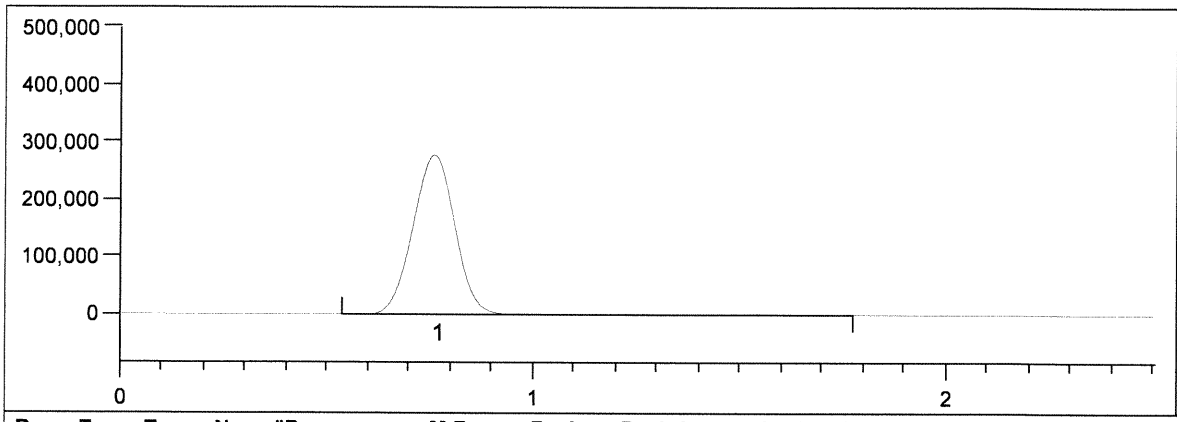
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

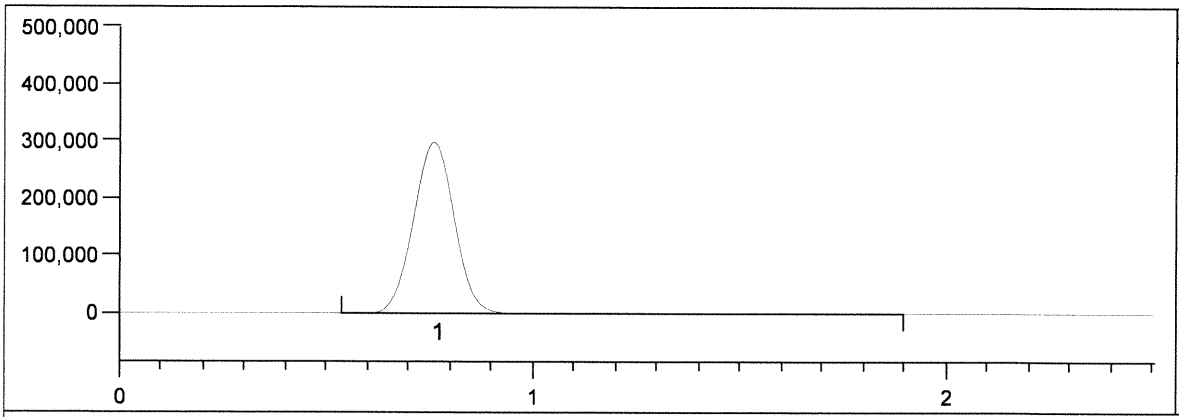


Date:	10/16/24
Time:	1:31 PM

Peak	rt	Area
1	0.76	19,896,783

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
49	Y	MS	K2409822-001		1	19,896,783	2,420	481	87.4	70-130	accept

Notes10X DILUTION

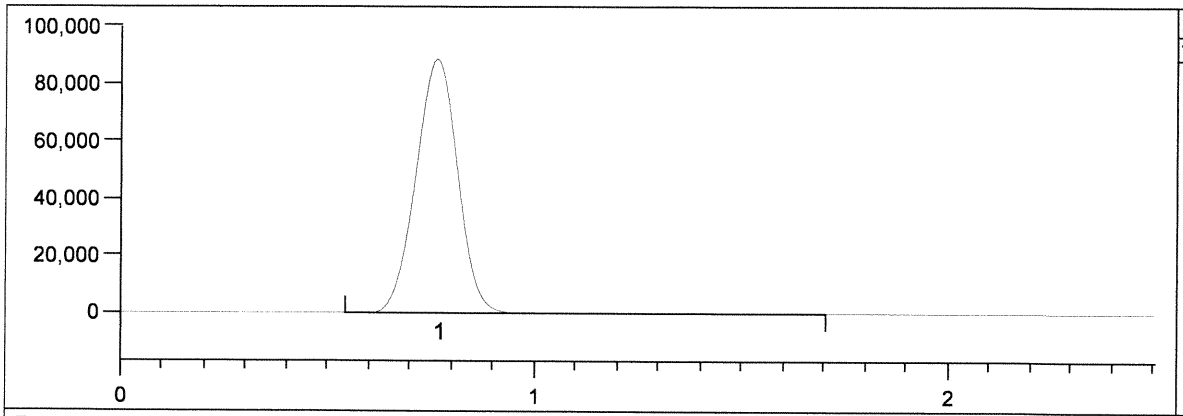


Date:	10/16/24
Time:	1:36 PM

Peak	rt	Area
1	0.76	20,768,271

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
50	X	MSD	K2409822-001		1	20,768,271	2,530	502	95.9	70-130	accept

Notes10X DILUTION



Date:	10/16/24
Time:	1:41 PM

Peak	rt	Area
1	0.76	6,300,900

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
51	Y	S	K2409822-003		1	6,300,900	766	151		< HS	accept

Notes10X DILUTION

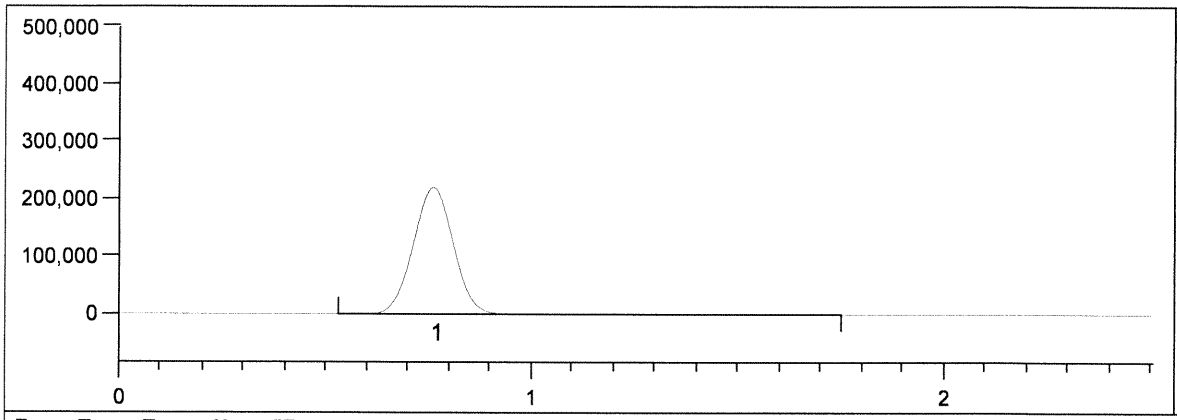
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

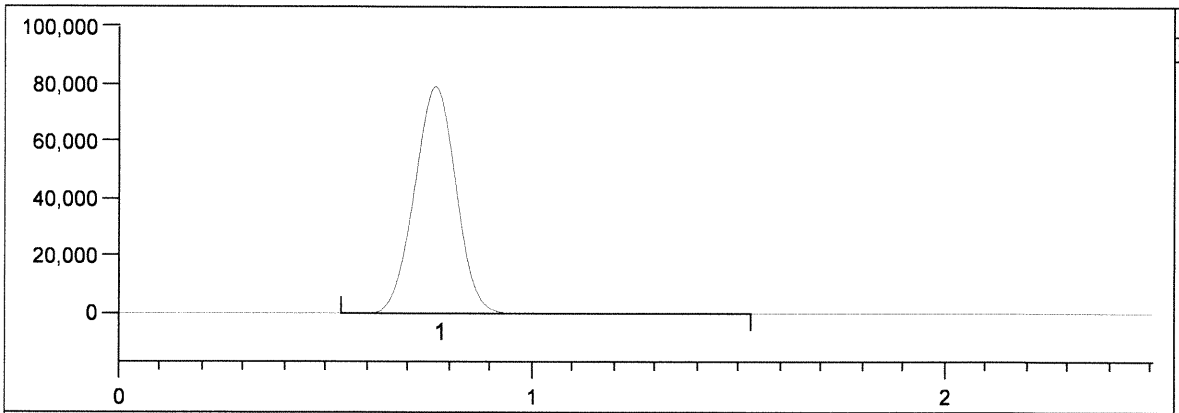
Date Analyzed: 10/16/24
Analyst Name:



Date:	10/16/24
Time:	1:46 PM

Peak	rt	Area
1	0.76	15,244,949

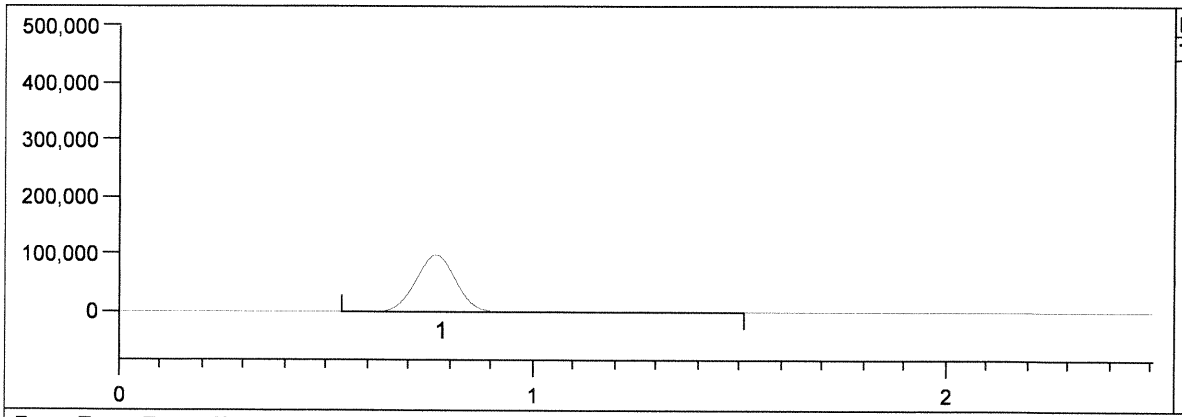
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
52	X	S	K2409822-004		1	15,244,949	1,850	369		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	1:51 PM

Peak	rt	Area
1	0.76	5,659,761

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
53	Y	S	K2409822-005		1	5,659,761	688	137		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	1:56 PM

Peak	rt	Area
1	0.76	6,887,854

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
54	X	S	K2409822-006		1	6,887,854	837	166		< HS	accept
Notes10X DILUTION											

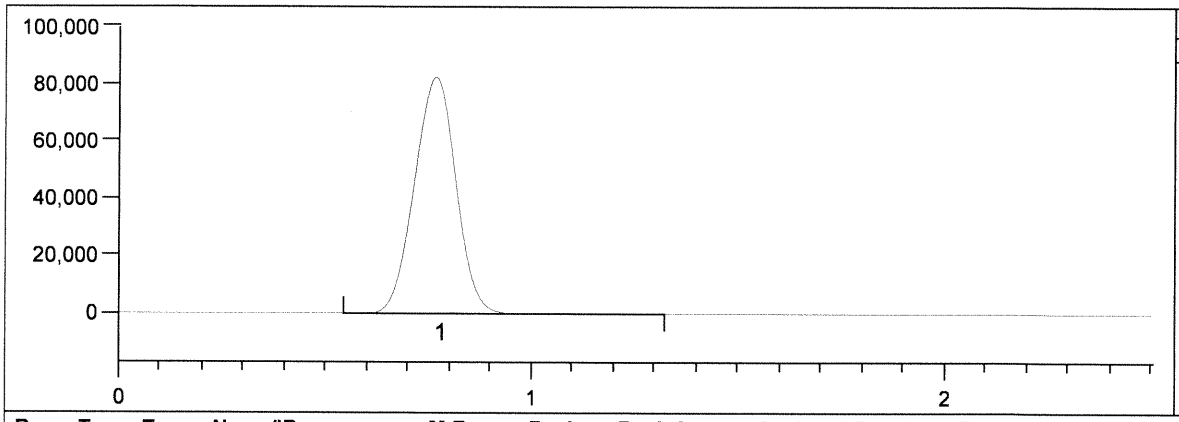
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

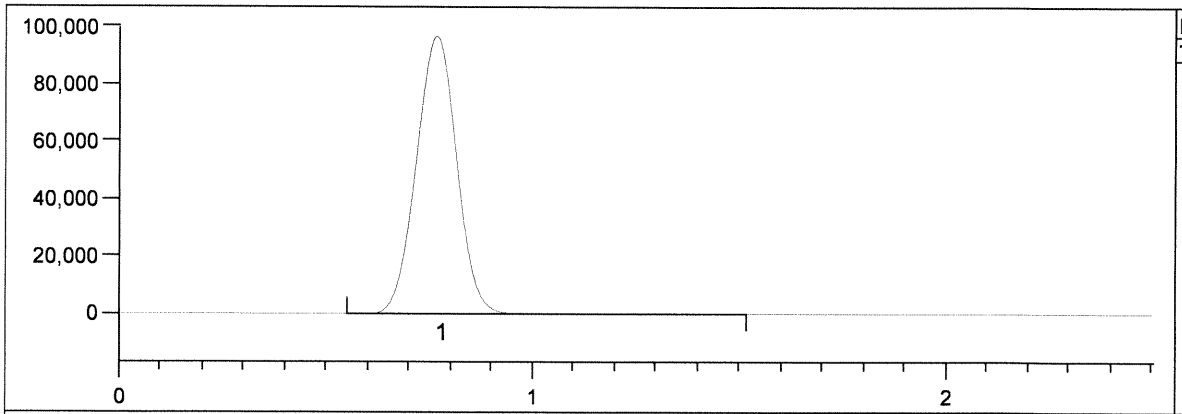
Date Analyzed: 10/16/24
Analyst Name:



Date:	10/16/24
Time:	2:01 PM

Peak	rt	Area
1	0.76	5,861,375

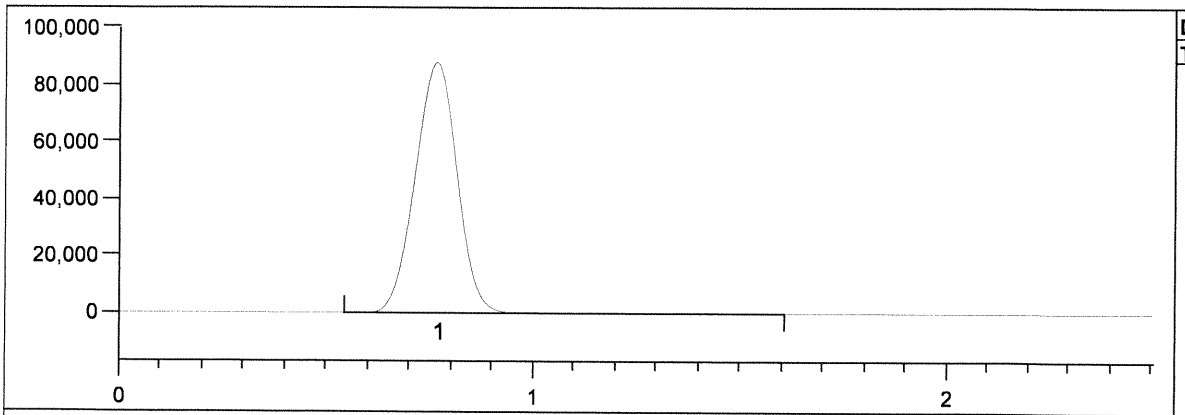
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
55	Y	S	K2409822-007		1	5,861,375	713	141		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	2:06 PM

Peak	rt	Area
1	0.76	6,691,800

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
56	X	S	K2409822-008		1	6,691,800	814	162		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	2:11 PM

Peak	rt	Area
1	0.76	6,274,040

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
57	Y	S	K2409822-009		1	6,274,040	763	152		< HS	accept
Notes10X DILUTION											

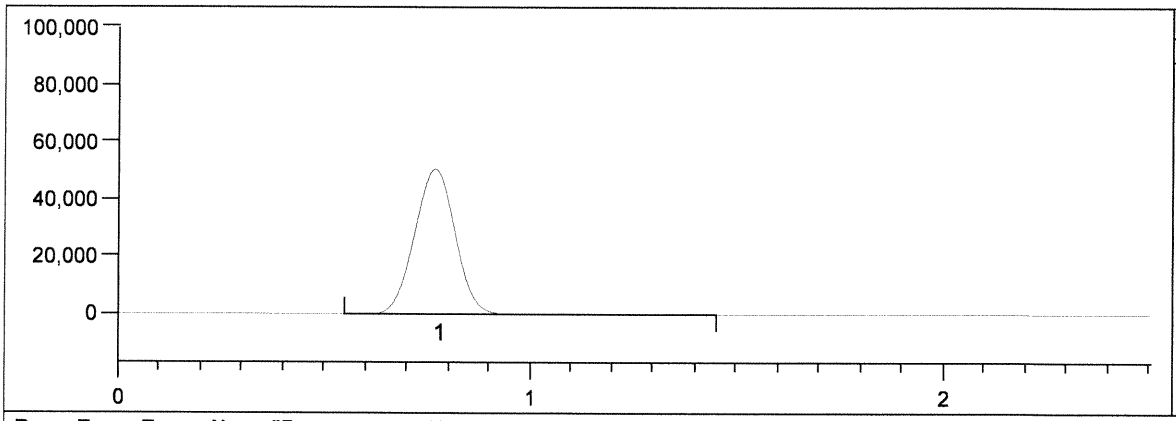
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

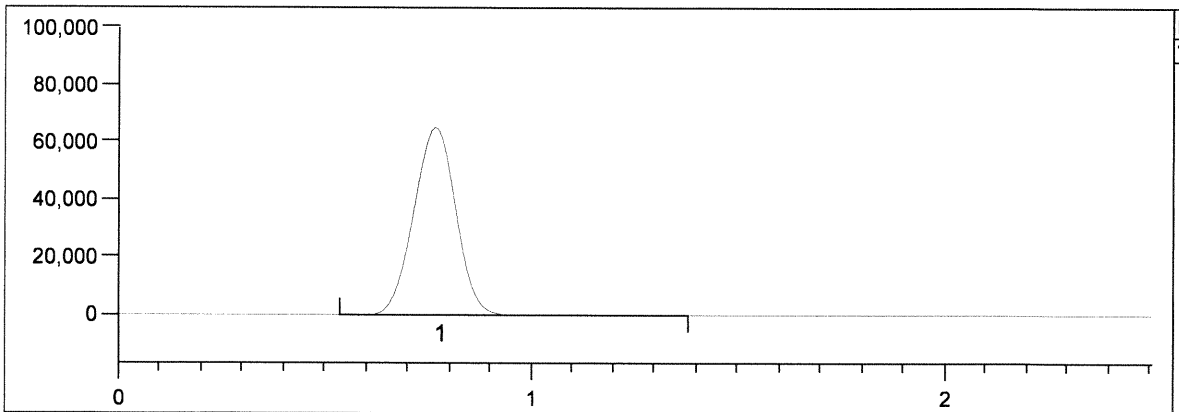
Date Analyzed: 10/16/24
Analyst Name:



Date:	10/16/24
Time:	2:16 PM

Peak	rt	Area
1	0.76	3,519,641

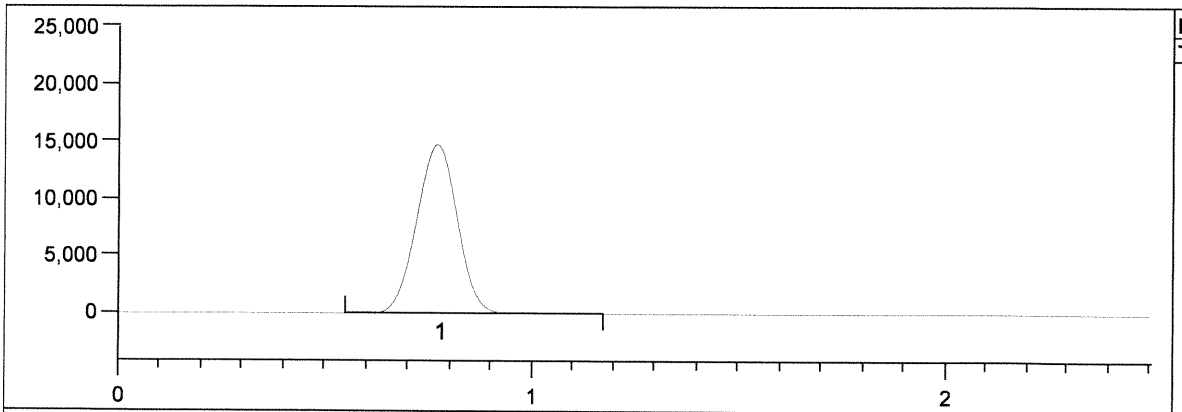
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
58	X	S	K2409822-010		1	3,519,641	428	84.7		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	2:21 PM

Peak	rt	Area
1	0.76	4,668,855

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
59	Y	S	K2409822-011		1	4,668,855	567	113		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	2:26 PM

Peak	rt	Area
1	0.77	1,028,684

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
60	X	VER	VER-5		1	1,028,684	124	4.97	99.5	77-123	accept
Notes											

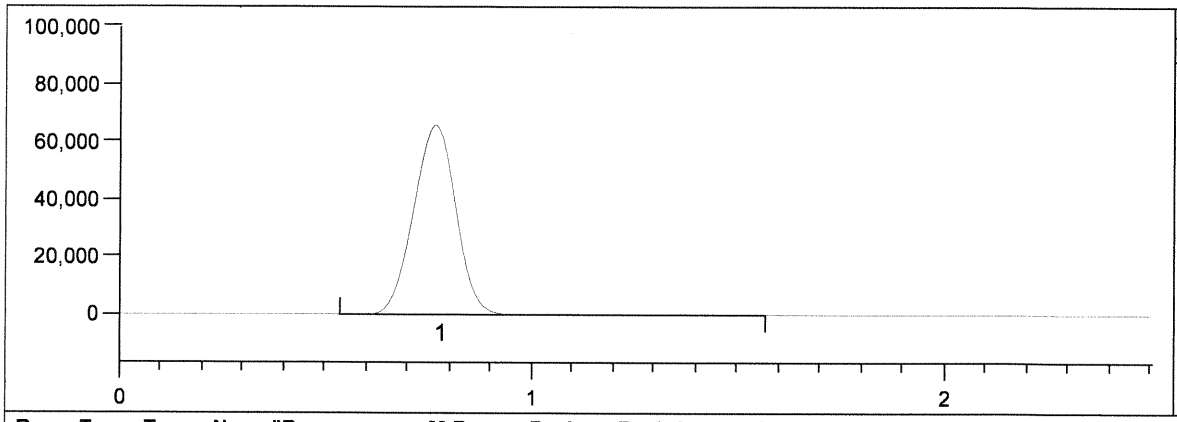
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

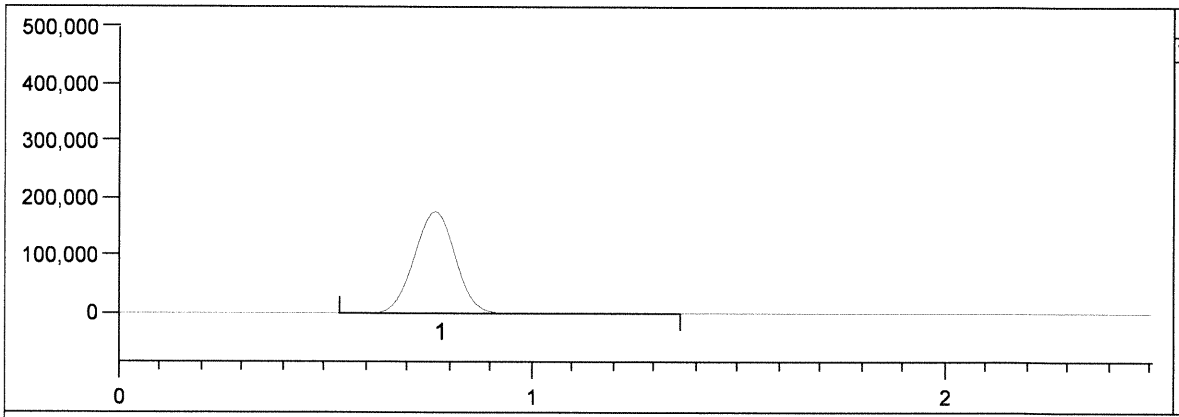
Date Analyzed: 10/16/24
Analyst Name:



Date:	10/16/24
Time:	2:31 PM

Peak	rt	Area
1	0.76	4,738,065

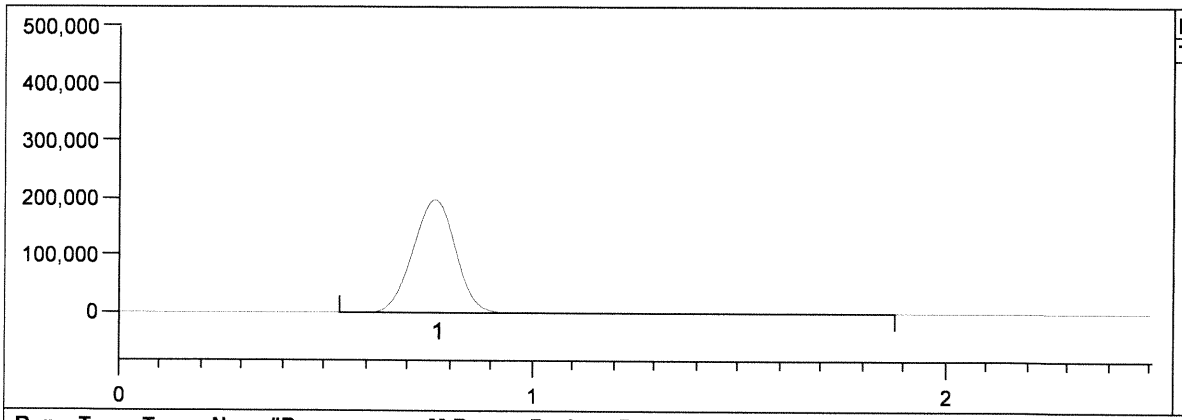
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
61	Y	S	K2409822-002		1	4,738,065	576	115		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	2:36 PM

Peak	rt	Area
1	0.76	12,313,039

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
62	X	MS	K2409822-002		1	12,313,039	1,500	298	73.6	70-130	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	2:41 PM

Peak	rt	Area
1	0.76	14,280,292

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
63	Y	MSD	K2409822-002		1	14,280,292	1,740	345	92.7	70-130	accept
Notes10X DILUTION											

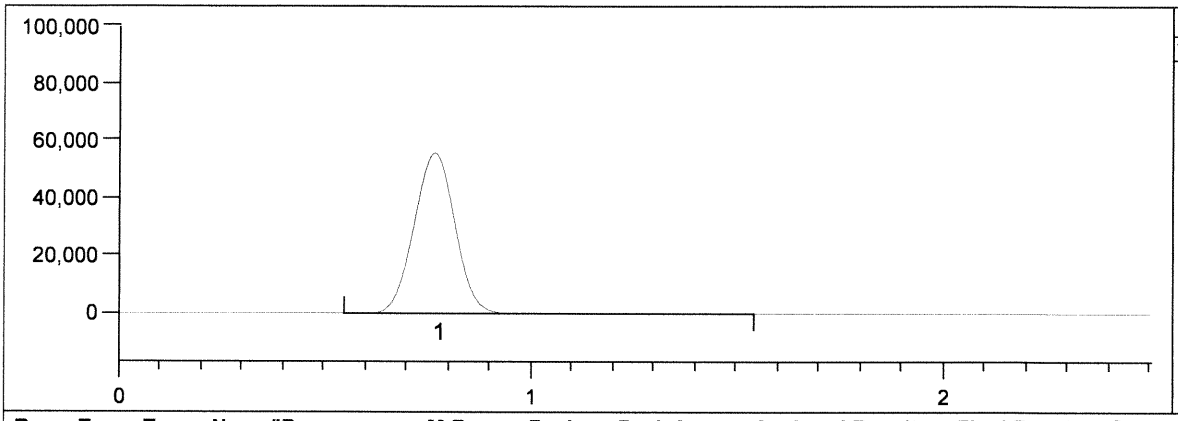
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

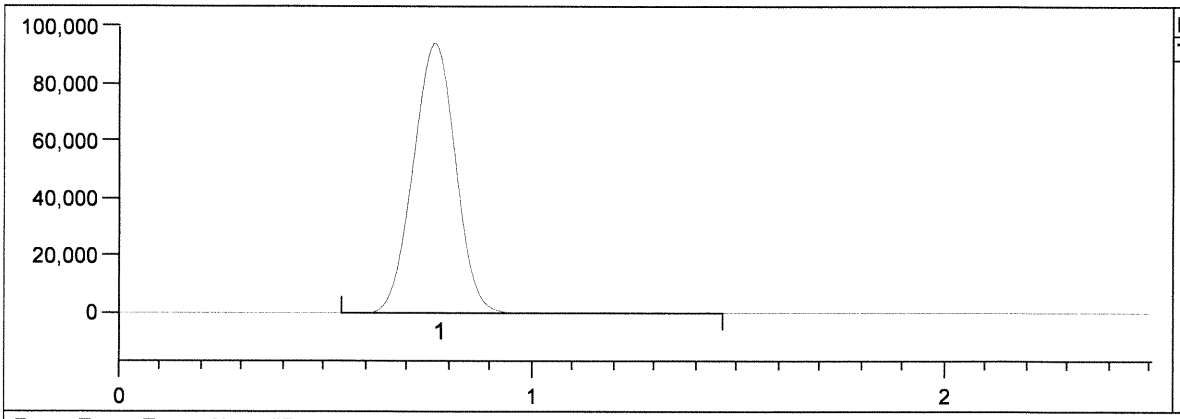


Date:	10/16/24
Time:	2:46 PM

Peak	rt	Area
1	0.76	3,872,631

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
64	X	S	K2409822-012		1	3,872,631	470.	93.2		< HS	accept

Notes10X DILUTION

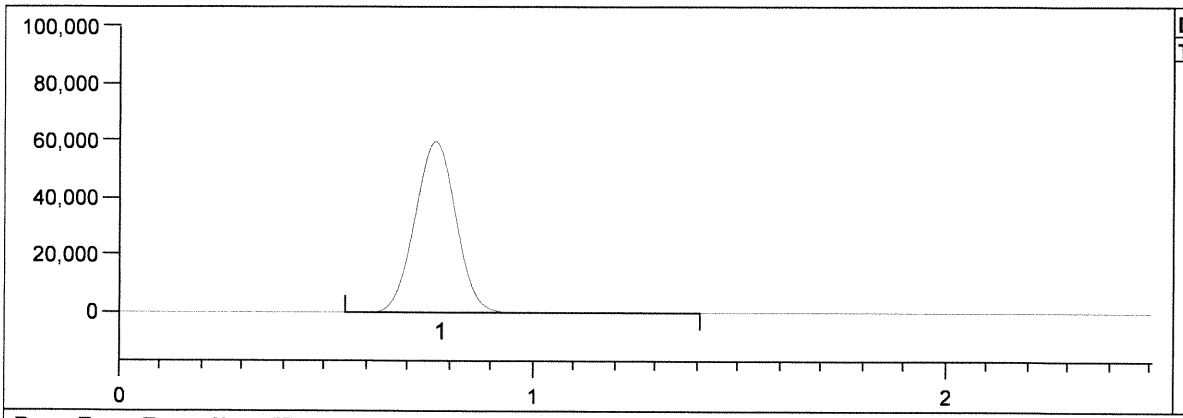


Date:	10/16/24
Time:	2:51 PM

Peak	rt	Area
1	0.76	6,754,816

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
65	Y	S	K2409822-013		1	6,754,816	821	163		< HS	accept

Notes10X DILUTION



Date:	10/16/24
Time:	2:56 PM

Peak	rt	Area
1	0.76	4,144,869

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
66	X	S	K2409822-014		1	4,144,869	504	99.5		< HS	accept

Notes10X DILUTION

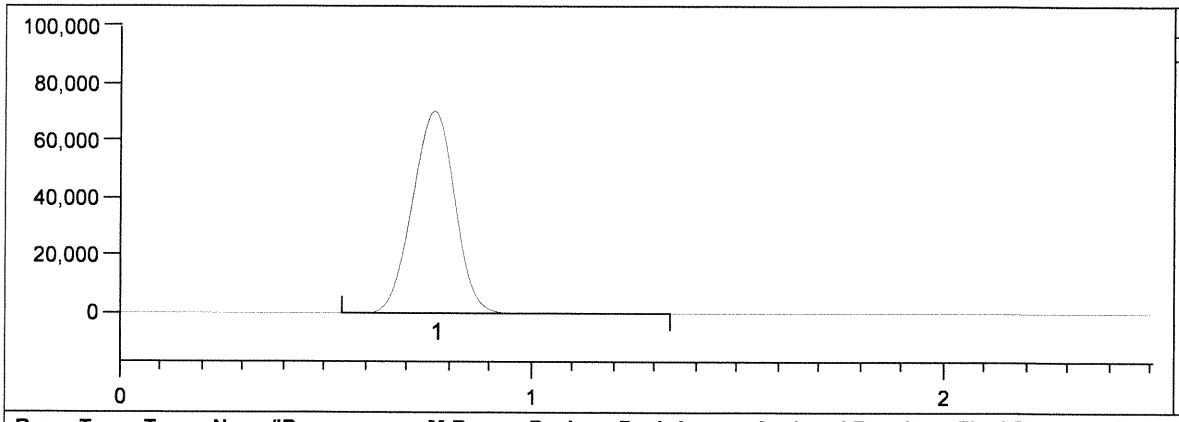
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

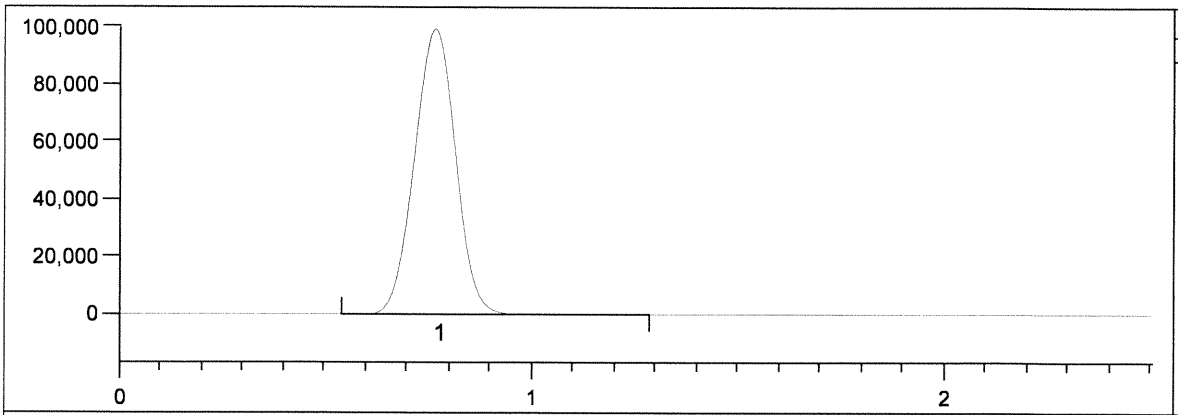
Date Analyzed: 10/16/24
Analyst Name:



Date:	10/16/24
Time:	3:01 PM

Peak	rt	Area
1	0.76	5,047,155

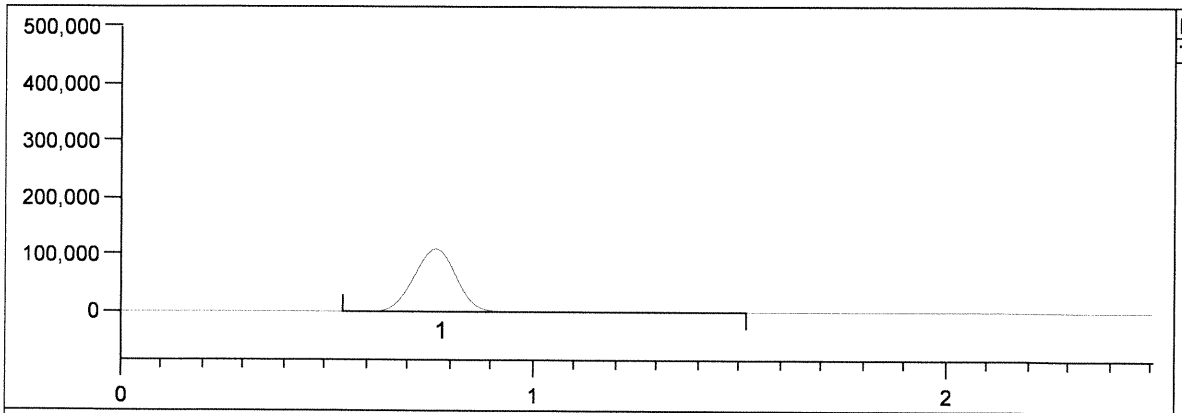
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
67	Y	S	K2409822-015		1	5,047,155	613	121		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	3:06 PM

Peak	rt	Area
1	0.76	6,895,945

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
68	X	S	K2409822-016		1	6,895,945	838	166		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	3:11 PM

Peak	rt	Area
1	0.76	7,916,752

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
69	Y	S	K2409822-017		1	7,916,752	963	192		< HS	accept
Notes10X DILUTION											

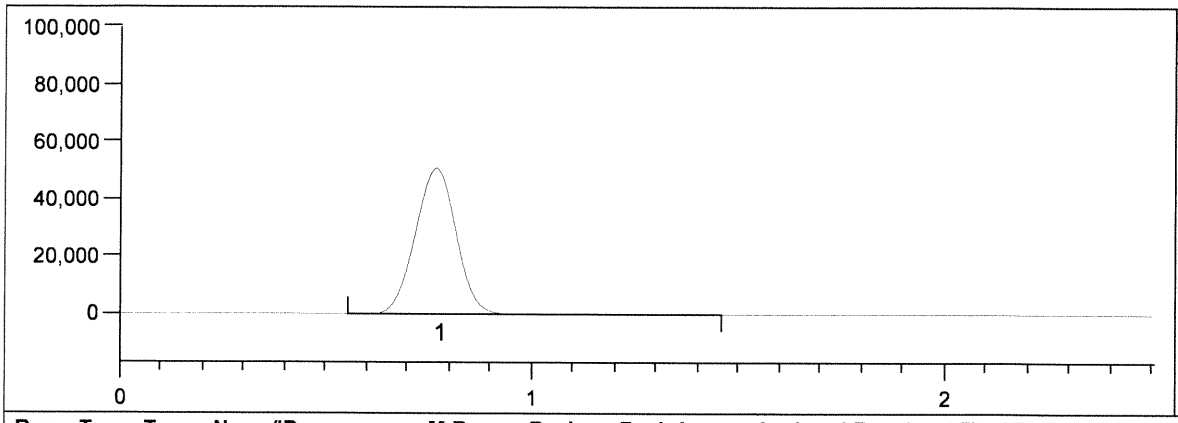
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

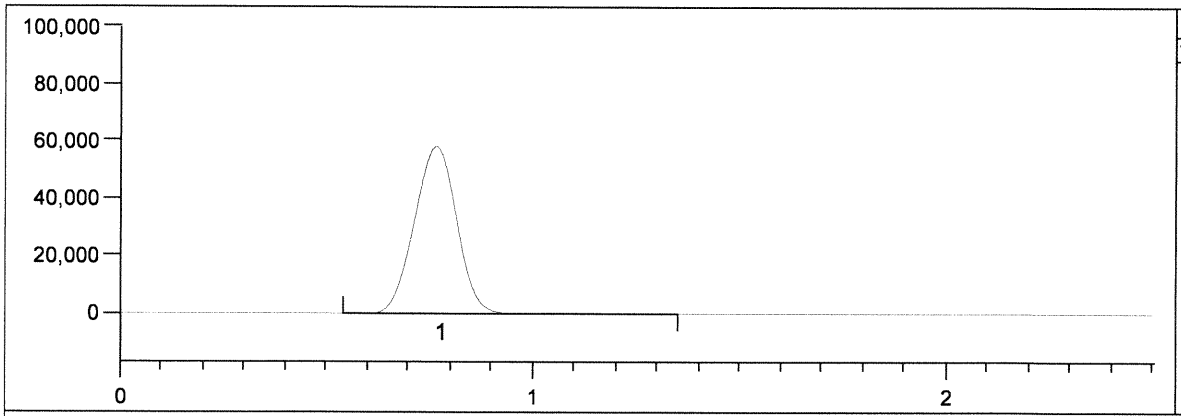
Date Analyzed: 10/16/24
Analyst Name:



Date:	10/16/24
Time:	3:16 PM

Peak	rt	Area
1	0.76	3,538,846

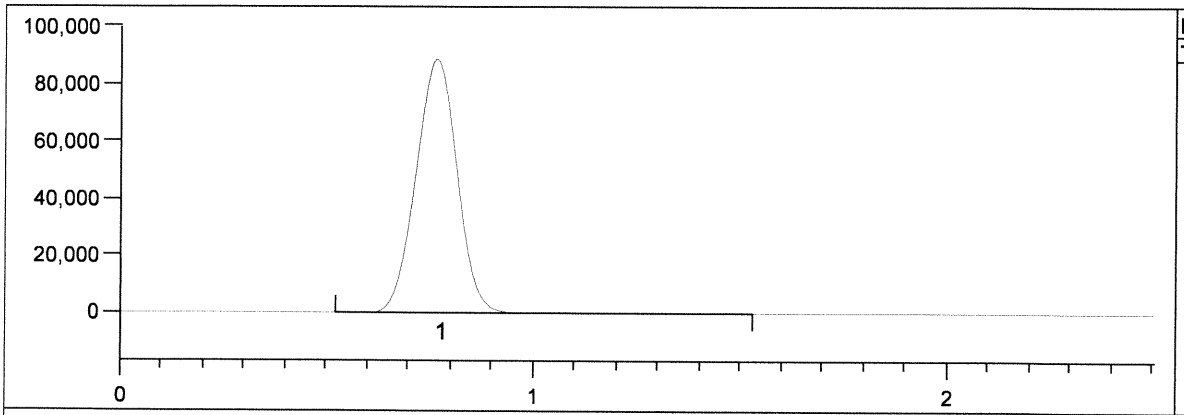
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
70	X	S	K2409822-018		1	3,538,846	430.	84.7		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	3:21 PM

Peak	rt	Area
1	0.76	4,166,048

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
71	Y	S	K2409822-019		1	4,166,048	506	100.		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	3:26 PM

Peak	rt	Area
1	0.76	6,162,797

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
72	X	S	K2409822-020		1	6,162,797	749	148		< HS	accept
Notes10X DILUTION											

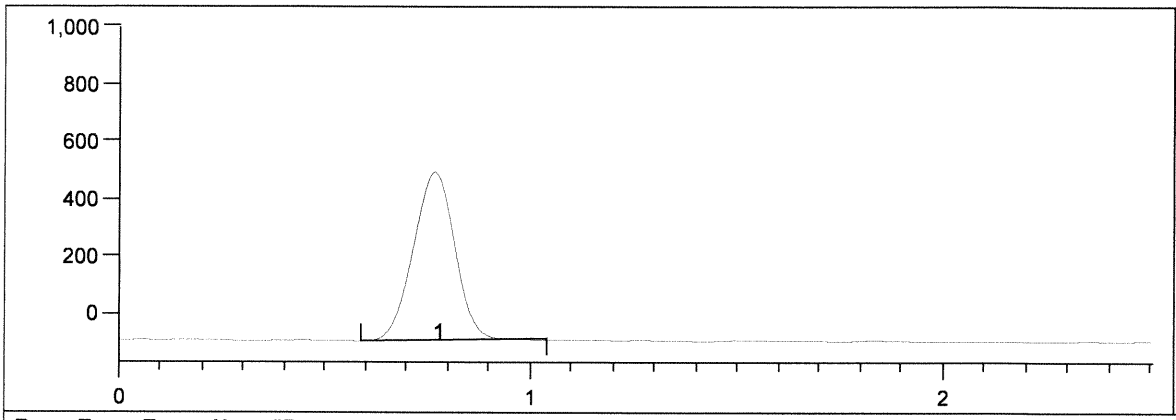
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

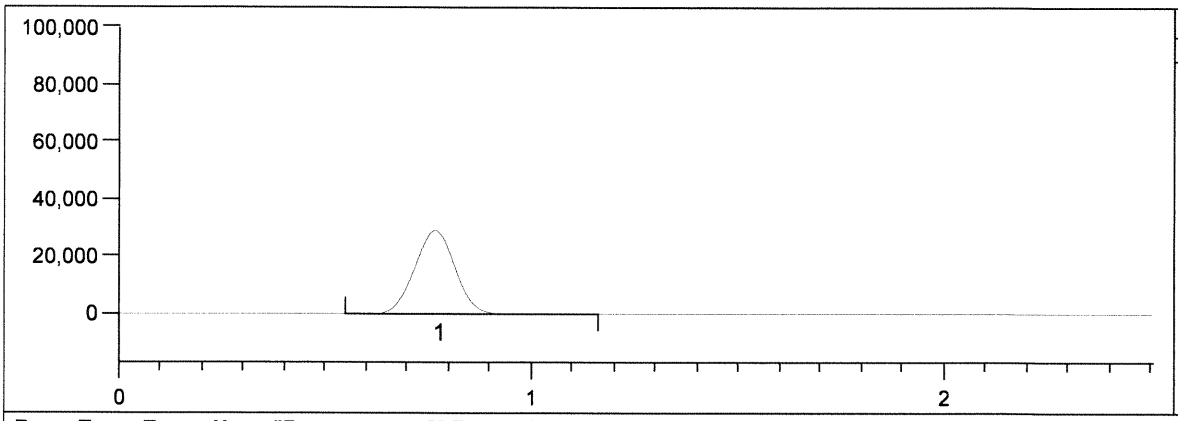


Date: 10/16/24
Time: 3:31 PM

Peak	rt	Area
1	0.76	42,360

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
73	Y	MBA	MB-3		1	42,360	4.30	0.0859	0.0859	<1.0	accept

Notes

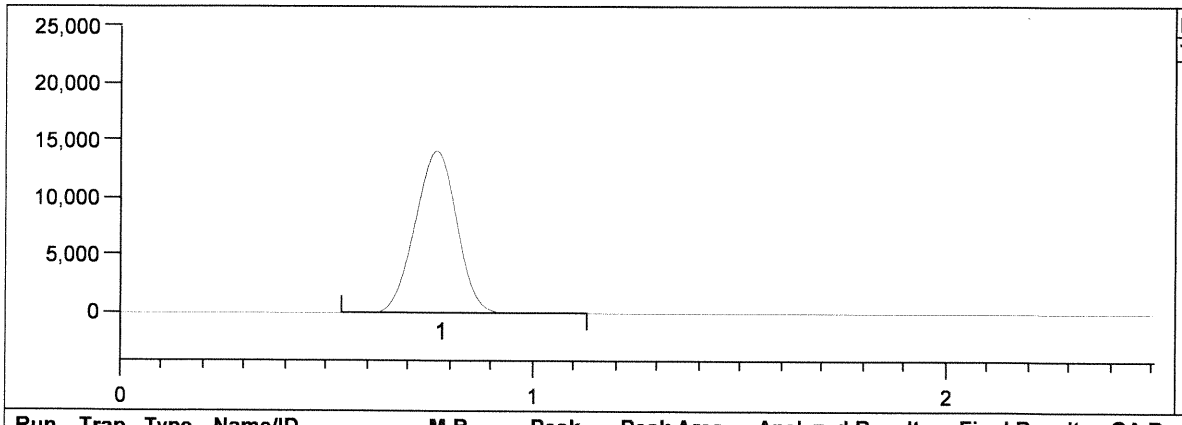


Date: 10/16/24
Time: 3:36 PM

Peak	rt	Area
1	0.76	2,032,473

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
74	X	OPR	OPR-2		1	2,032,473	247	4.93	98.6	70-130	accept

Notes



Date: 10/16/24
Time: 3:41 PM

Peak	rt	Area
1	0.76	1,015,207

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
75	Y	VER	VER-6		1	1,015,207	123	4.91	98.2	77-123	accept

Notes

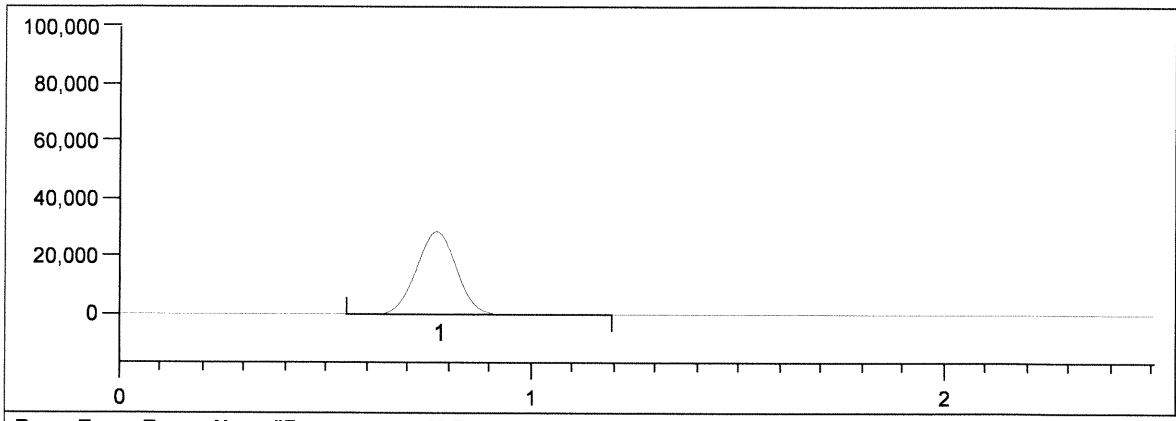
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

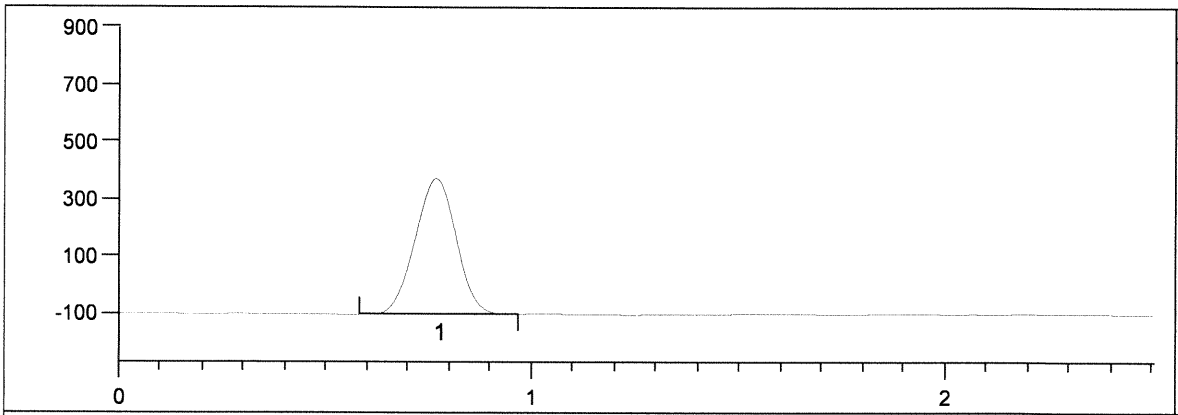


Date:	10/16/24
Time:	3:46 PM

Peak	rt	Area
1	0.77	2,013,071

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
76	X	OPR	OPR-1		1	2,013,071	244	4.88	97.7	70-130	accept

Notes

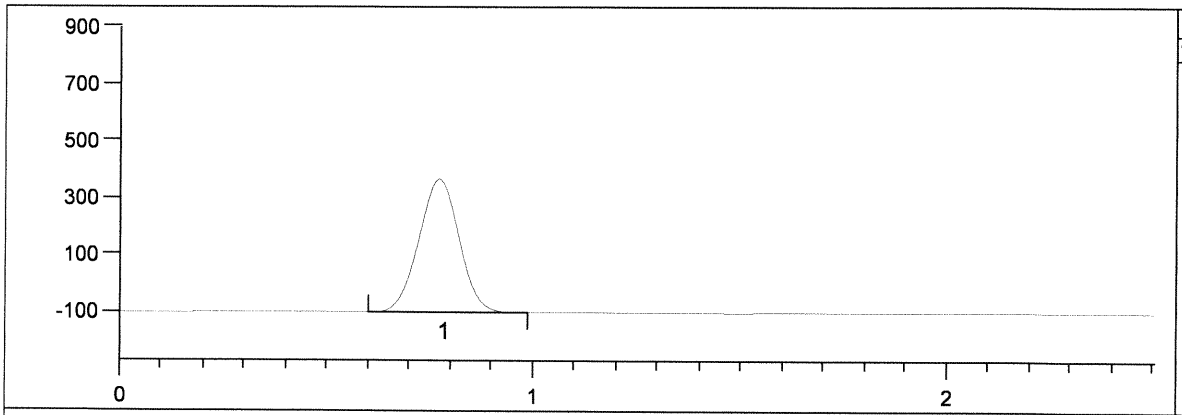


Date:	10/16/24
Time:	3:51 PM

Peak	rt	Area
1	0.77	34,213

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
77	Y	MBA	MB-1		1	34,213	3.30	0.0661	0.0661	<1.0	accept

Notes



Date:	10/16/24
Time:	3:56 PM

Peak	rt	Area
1	0.77	32,203

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
78	X	MBA	MB-2		1	32,203	3.06	0.0612	0.0612	<1.0	accept

Notes

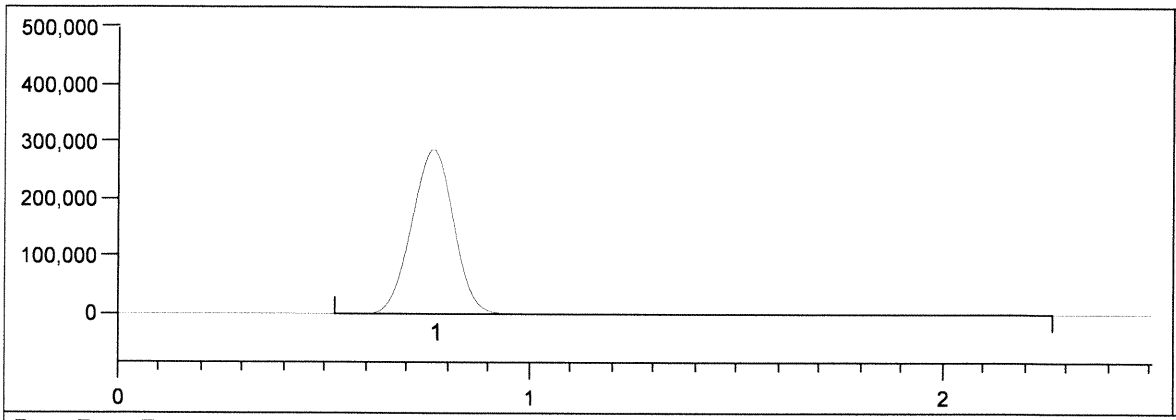
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

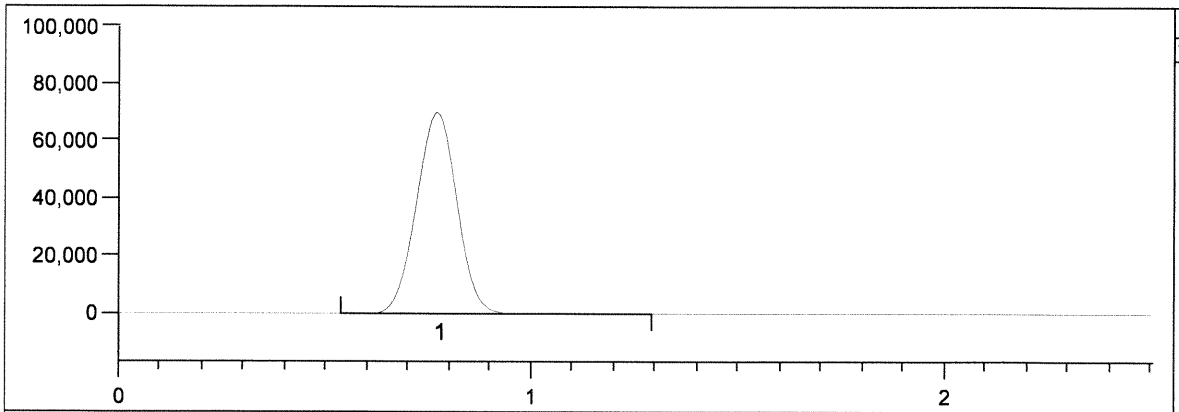


Date:	10/16/24
Time:	4:01 PM

Peak	rt	Area
1	0.76	20,774,116

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
79	Y	SRM	TORT-3		1	20,774,116	2,530	253	86.8	70-130	accept

Notes

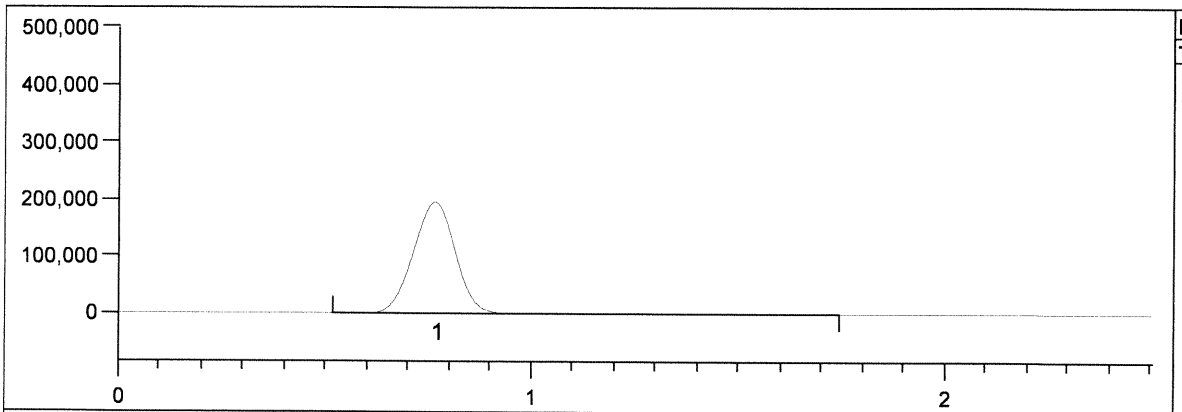


Date:	10/16/24
Time:	4:06 PM

Peak	rt	Area
1	0.77	4,889,621

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
80	X	S	K2409822-021		1	4,889,621	594	117		< HS	accept

Notes10X DILUTION



Date:	10/16/24
Time:	4:11 PM

Peak	rt	Area
1	0.76	14,136,495

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
81	Y	MS	K2409822-021		1	14,136,495	1,720	343	90.6	70-130	accept

Notes10X DILUTION

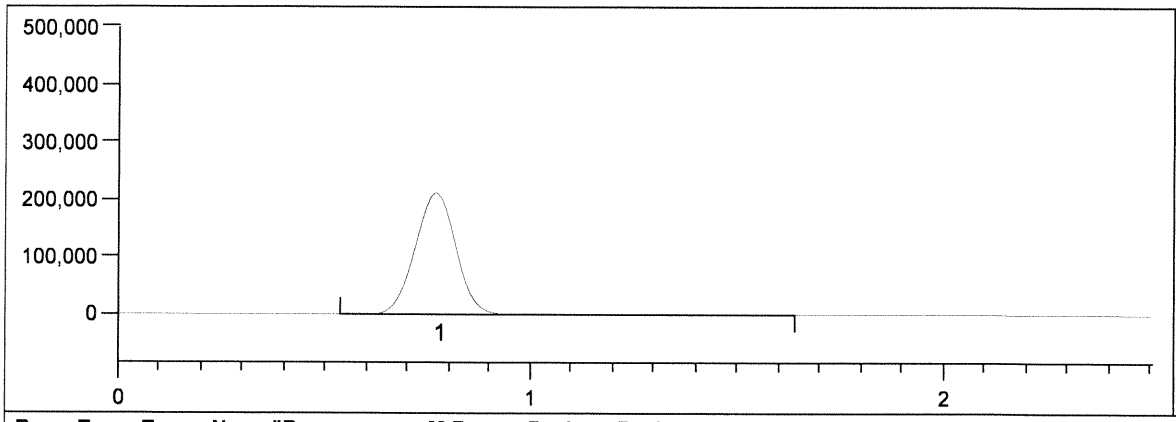
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

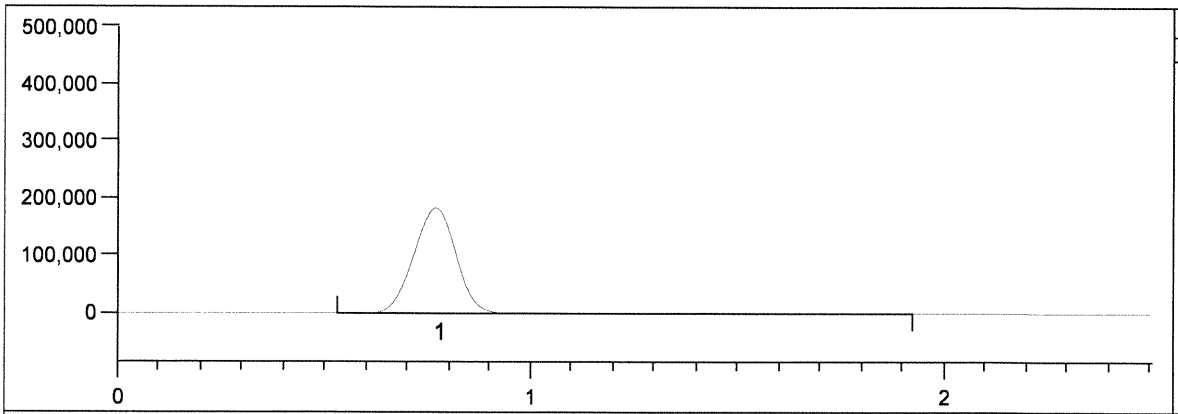
Date Analyzed: 10/16/24
Analyst Name:



Date:	10/16/24
Time:	4:16 PM

Peak	rt	Area
1	0.76	14,902,508

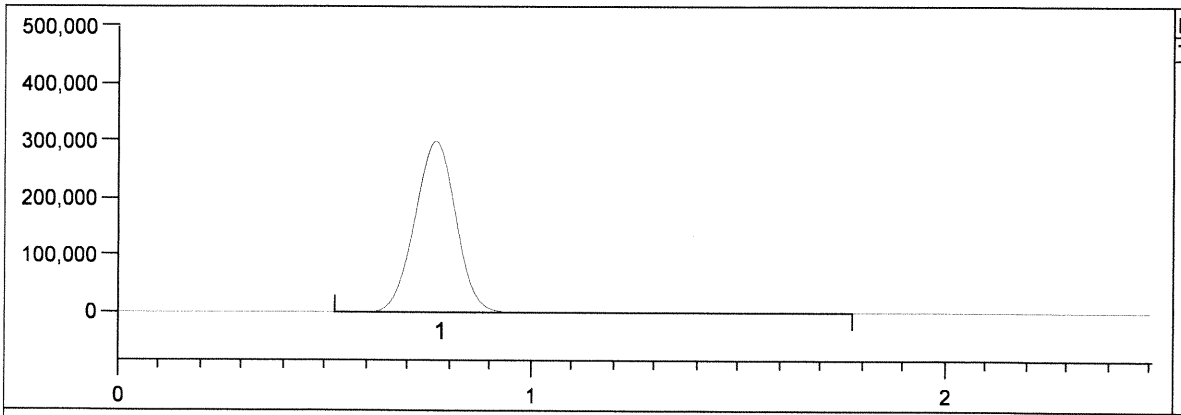
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
82	X	MSD	K2409822-021		1	14,902,508	1,810	359	97.4	70-130	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	4:21 PM

Peak	rt	Area
1	0.76	13,289,500

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
83	Y	S	K2409822-023		1	13,289,500	1,620	322		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	4:26 PM

Peak	rt	Area
1	0.76	21,052,832

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
84	X	S	K2409822-024		1	21,052,832	2,560	505		< HS	accept
Notes10X DILUTION											

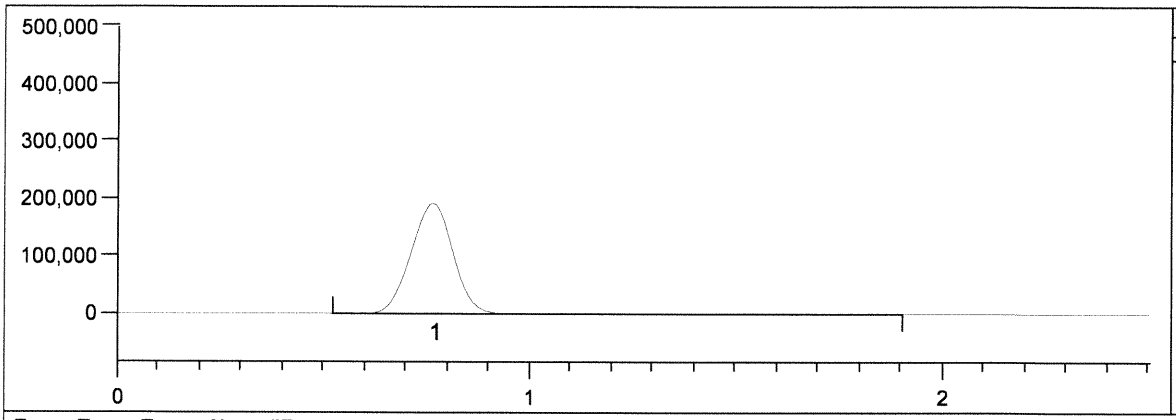
Mercury Guru ver 4.7.6 © 1995-2014 Brooks Rand Inc

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

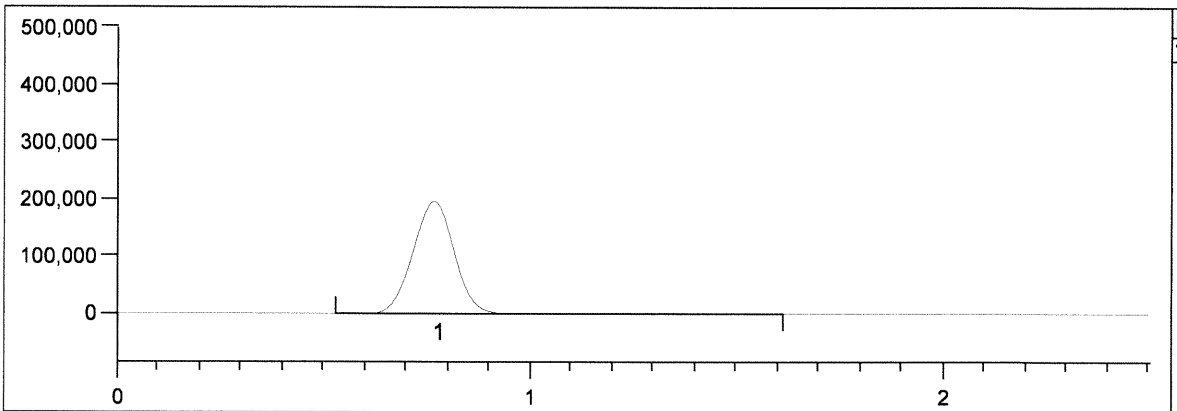


Date: 10/16/24
Time: 4:31 PM

Peak	rt	Area
1	0.76	13,890,779

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
85	Y	S	K2409822-025		1	13,890,779	1,690	335		< HS	accept

Notes10X DILUTION

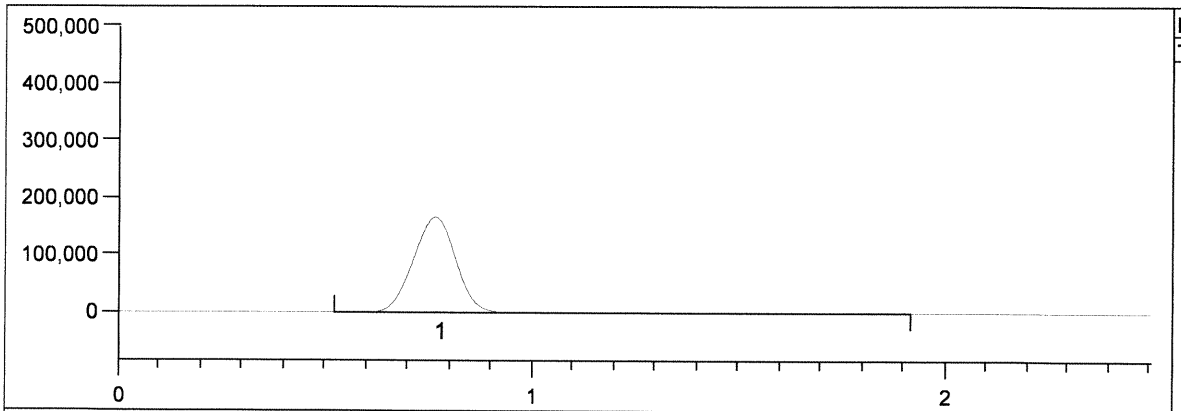


Date: 10/16/24
Time: 4:36 PM

Peak	rt	Area
1	0.76	13,811,860

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
86	X	S	K2409822-026		1	13,811,860	1,680	334		< HS	accept

Notes10X DILUTION



Date: 10/16/24
Time: 4:41 PM

Peak	rt	Area
1	0.76	12,044,341

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
87	Y	S	K2409822-027		1	12,044,341	1,470	290.		< HS	accept

Notes10X DILUTION

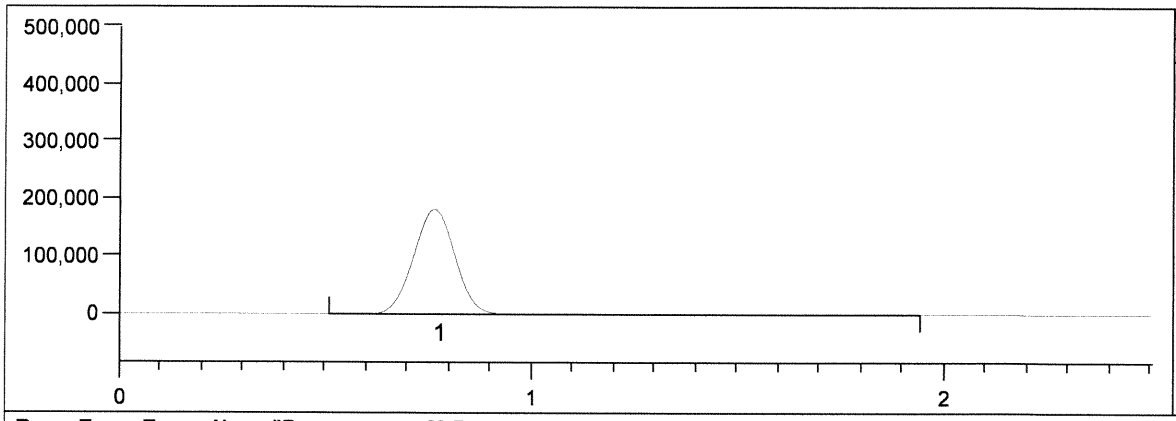
Mercury Guru ver 4.7.6 © 1995-2014 Brooks Rand Inc

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

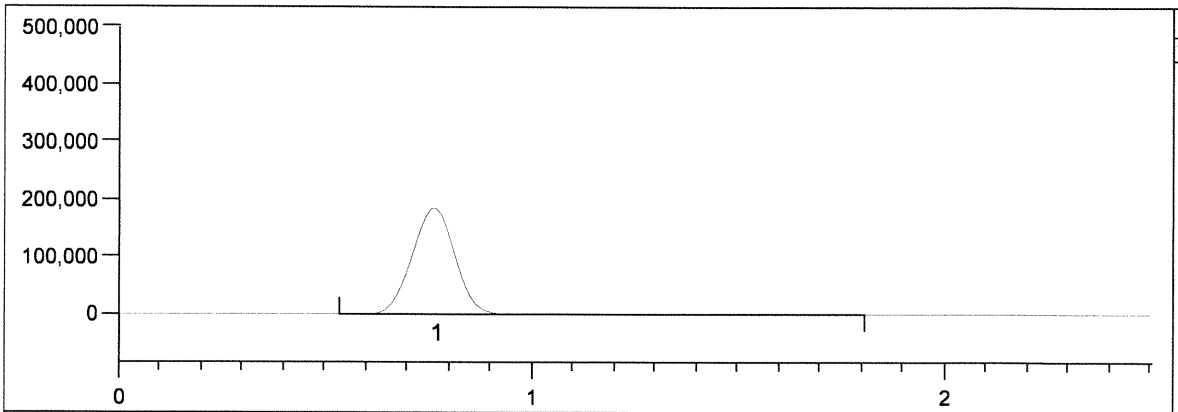


Date: 10/16/24
Time: 4:46 PM

Peak	rt	Area
1	0.76	12,782,387

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
88	X	S	K2409822-028		1	12,782,387	1,550	3,030		< HS	accept

Notes10X DILUTION

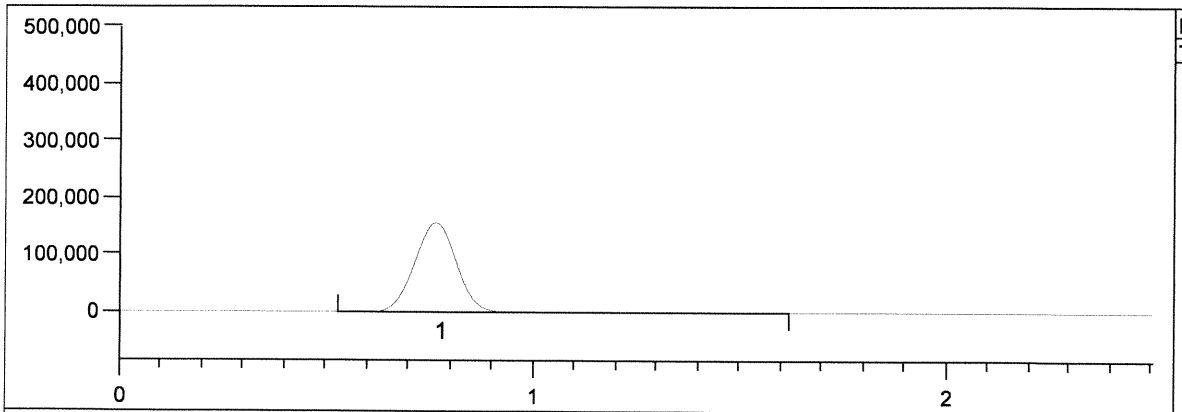


Date: 10/16/24
Time: 4:51 PM

Peak	rt	Area
1	0.76	13,437,664

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
89	Y	S	K2409822-029		1	13,437,664	1,630	325		< HS	accept

Notes10X DILUTION



Date: 10/16/24
Time: 4:56 PM

Peak	rt	Area
1	0.76	11,018,200

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
90	X	S	K2409822-030		1	11,018,200	1,340	265		< HS	accept

Notes10X DILUTION

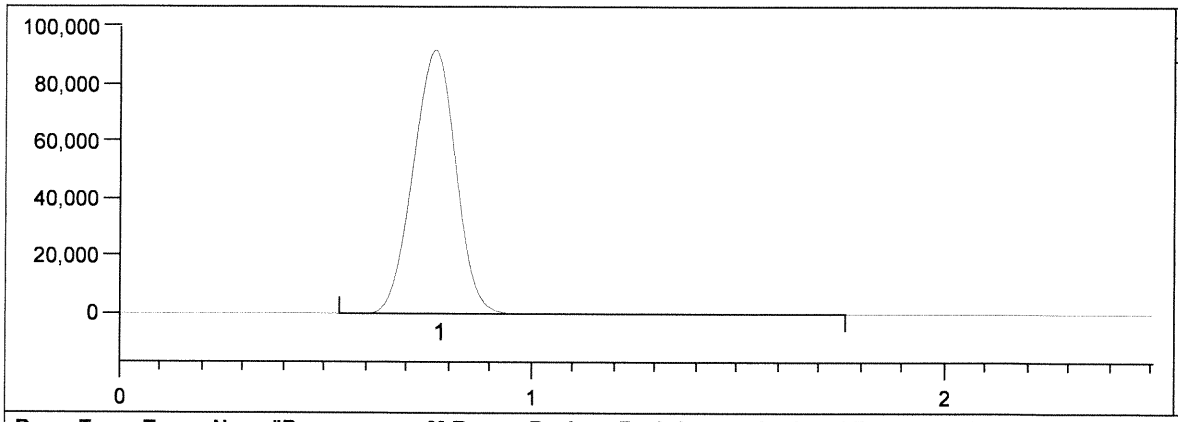
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

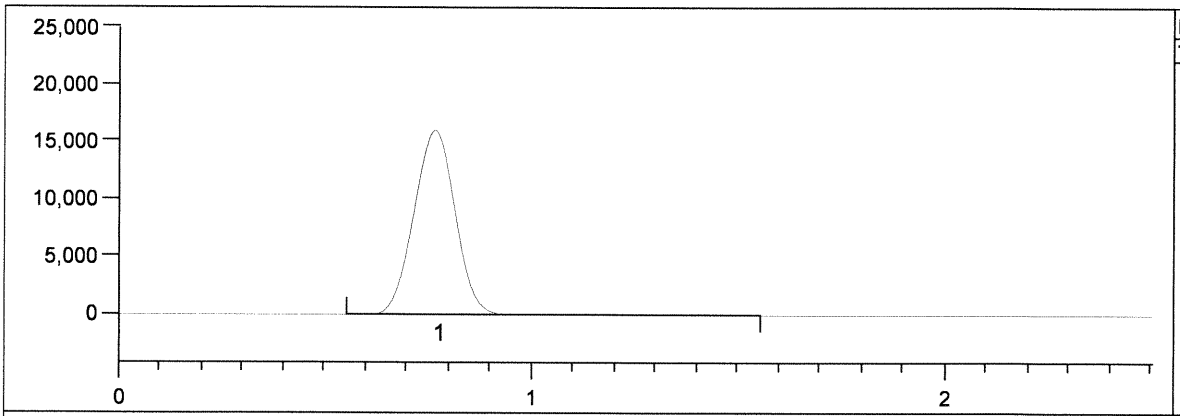


Date: 10/16/24
Time: 5:01 PM

Peak	rt	Area
1	0.76	6,649,152

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
91	Y	S	K2409822-031		1	6,649,152	808	160.		< HS	accept

Notes10X DILUTION

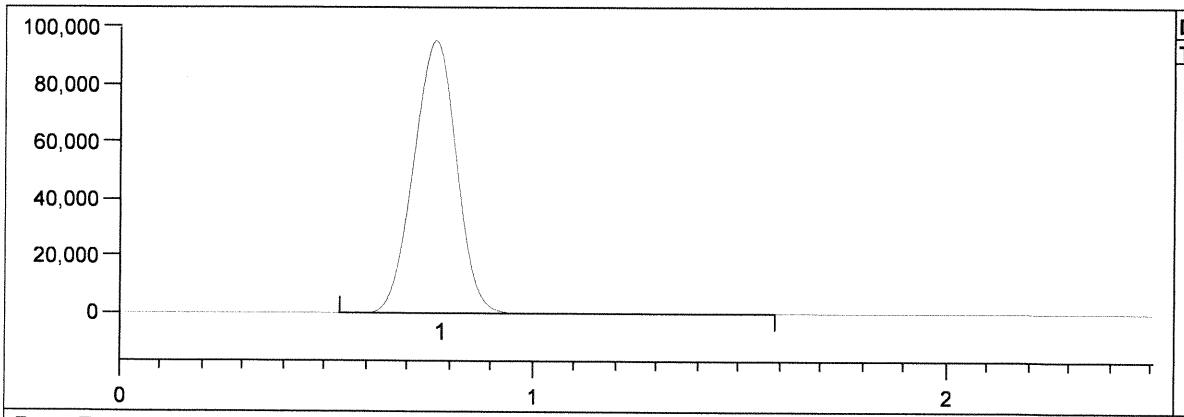


Date: 10/16/24
Time: 5:06 PM

Peak	rt	Area
1	0.76	1,123,398

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
92	X	VER	VER-7		1	1,123,398	136	5.43	109	77-123	accept

Notes



Date: 10/16/24
Time: 5:11 PM

Peak	rt	Area
1	0.76	6,904,269

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
93	Y	S	K2409822-022		1	6,904,269	839	166		< HS	accept

Notes10X DILUTION

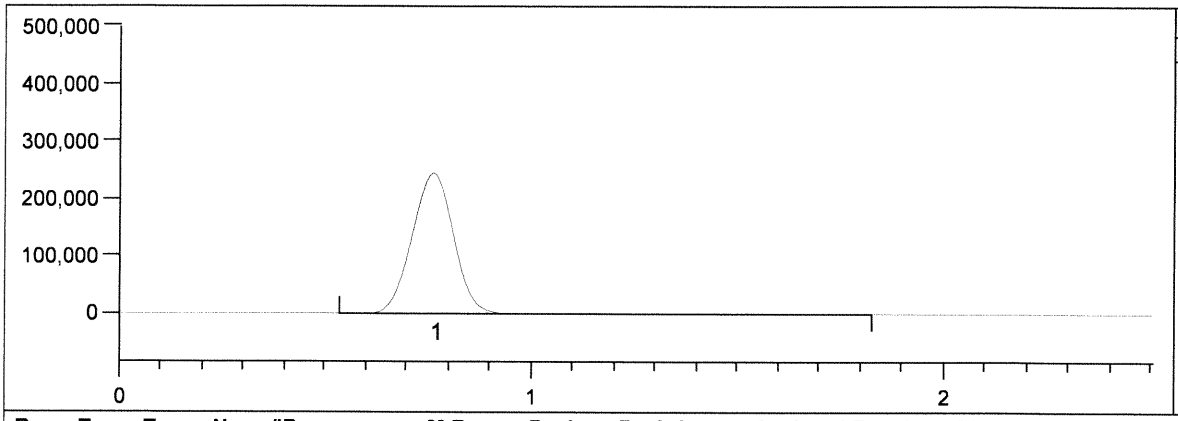
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

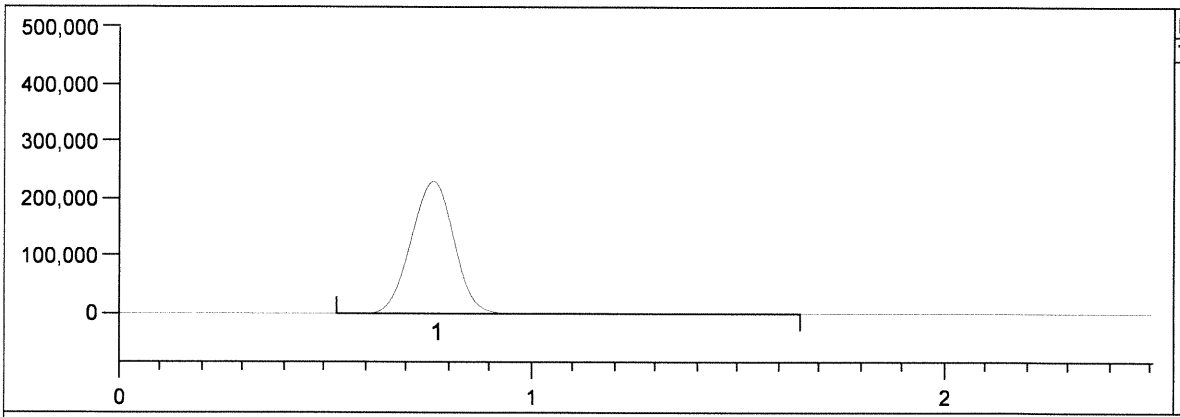
Date Analyzed: 10/16/24
Analyst Name:



Date:	10/16/24
Time:	5:16 PM

Peak	rt	Area
1	0.76	17,271,552

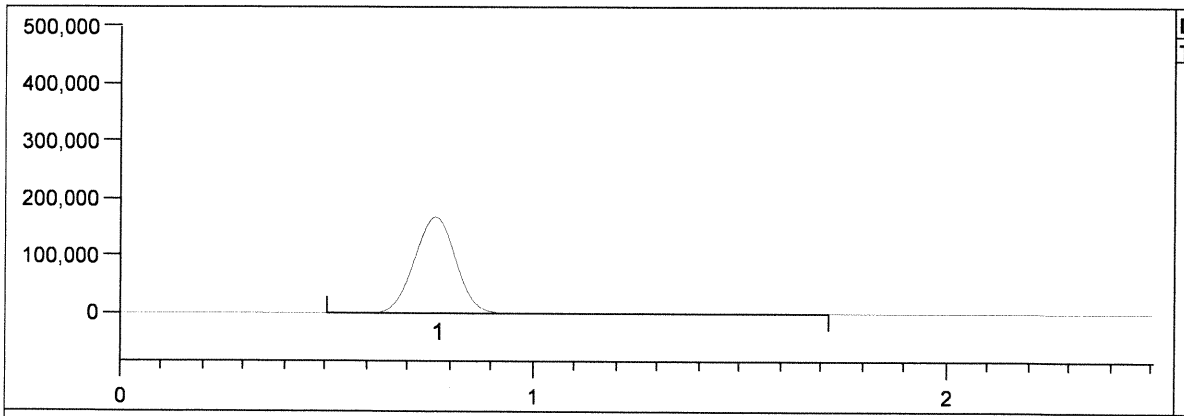
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
94	X	MS	K2409822-022		1	17,271,552	2,100	417	101	70-130	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	5:21 PM

Peak	rt	Area
1	0.76	16,740,140

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
95	Y	MSD	K2409822-022		1	16,740,140	2,040	405	96.2	70-130	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	5:26 PM

Peak	rt	Area
1	0.76	11,829,826

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
96	X	S	K2409822-032		1	11,829,826	1,440	286		< HS	accept
Notes10X DILUTION											

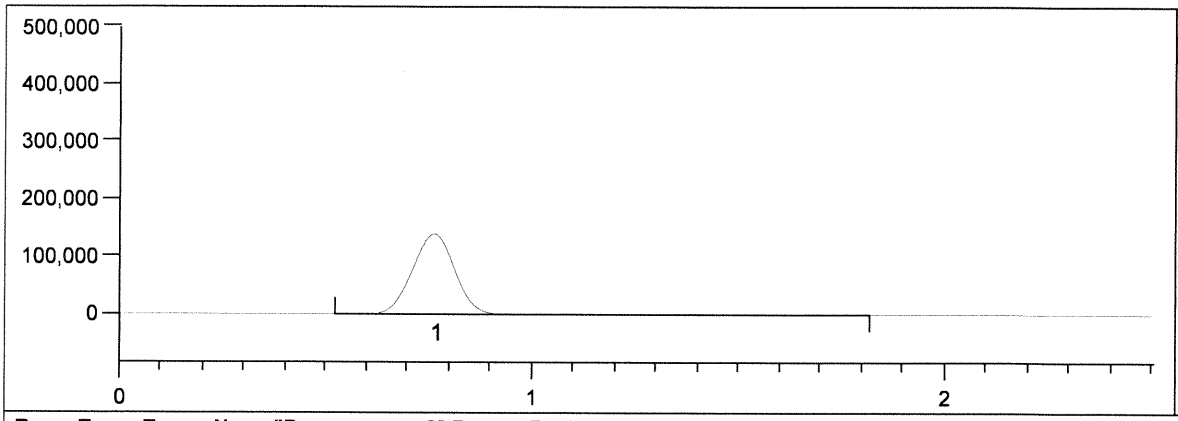
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

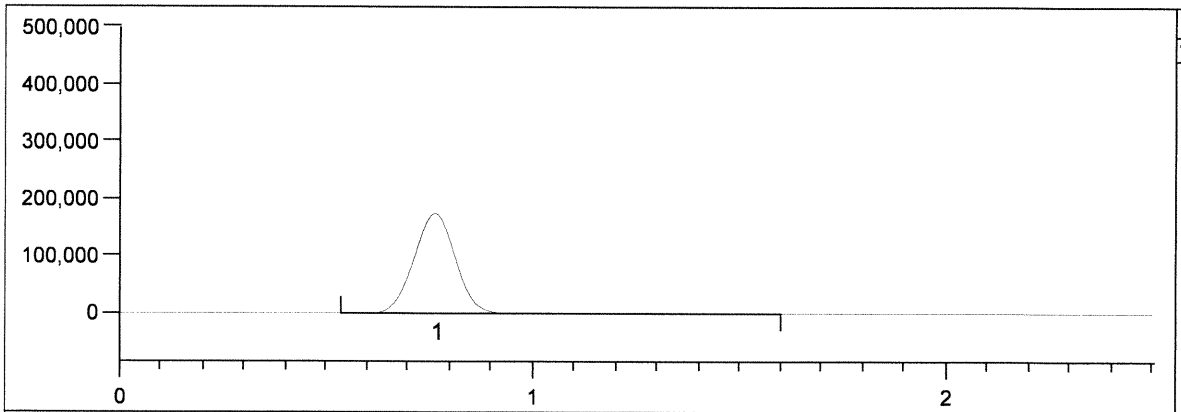
Date Analyzed: 10/16/24
Analyst Name:



Date:	10/16/24
Time:	5:31 PM

Peak	rt	Area
1	0.76	10,144,261

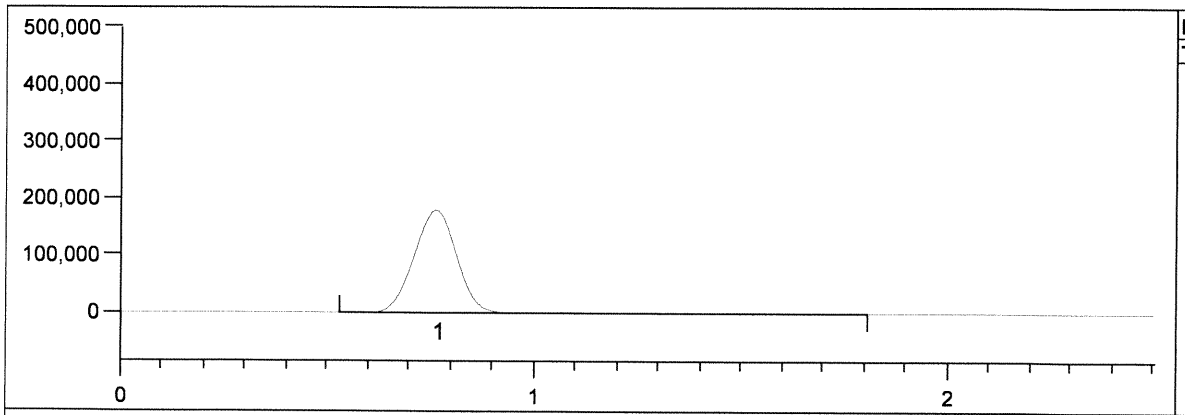
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
97	Y	S	K2409822-033		1	10,144,261	1,230	244		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	5:36 PM

Peak	rt	Area
1	0.76	12,302,804

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
98	X	S	K2409822-034		1	12,302,804	1,500	295		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	5:41 PM

Peak	rt	Area
1	0.76	12,947,639

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
99	Y	S	K2409822-035		1	12,947,639	1,580	312		< HS	accept
Notes10X DILUTION											

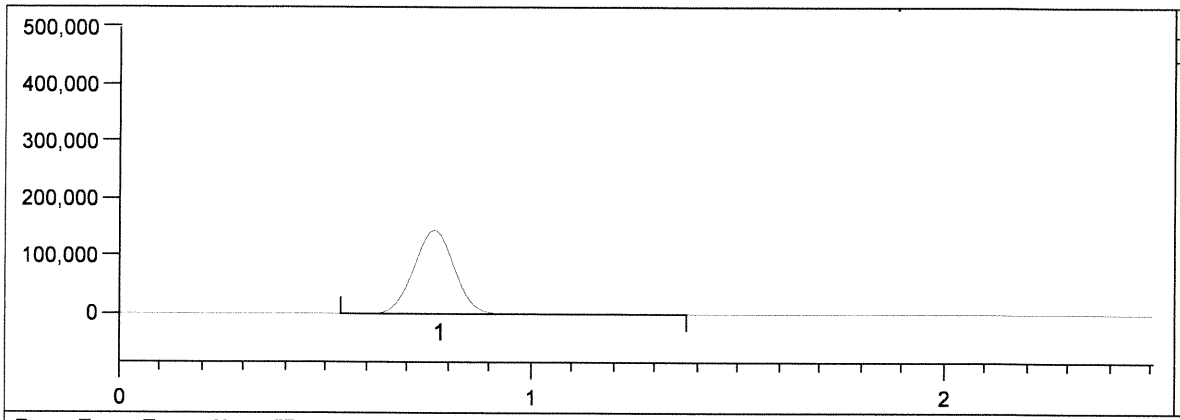
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

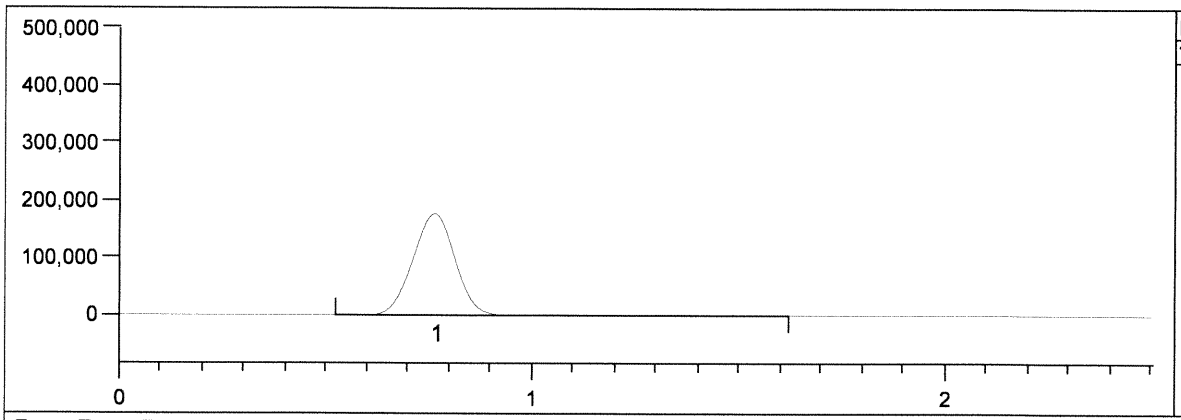
Date Analyzed: 10/16/24
Analyst Name:



Date:	10/16/24
Time:	5:46 PM

Peak	rt	Area
1	0.76	10,186,864

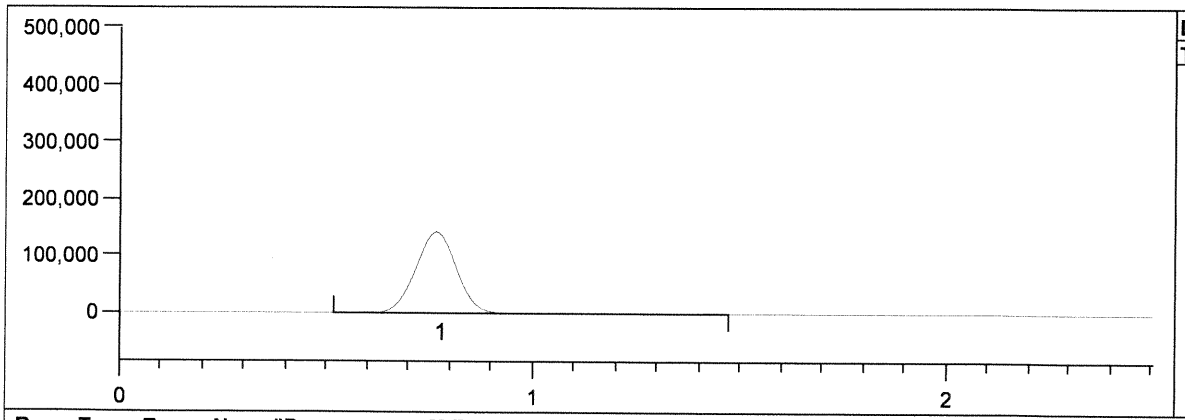
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
100	X	S	K2409822-036		1	10,186,864	1,240	247		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	5:51 PM

Peak	rt	Area
1	0.76	12,923,674

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
101	Y	S	K2409822-037		1	12,923,674	1,570	311		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	5:56 PM

Peak	rt	Area
1	0.76	10,046,170

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
102	X	S	K2409822-038		1	10,046,170	1,220	242		< HS	accept
Notes10X DILUTION											

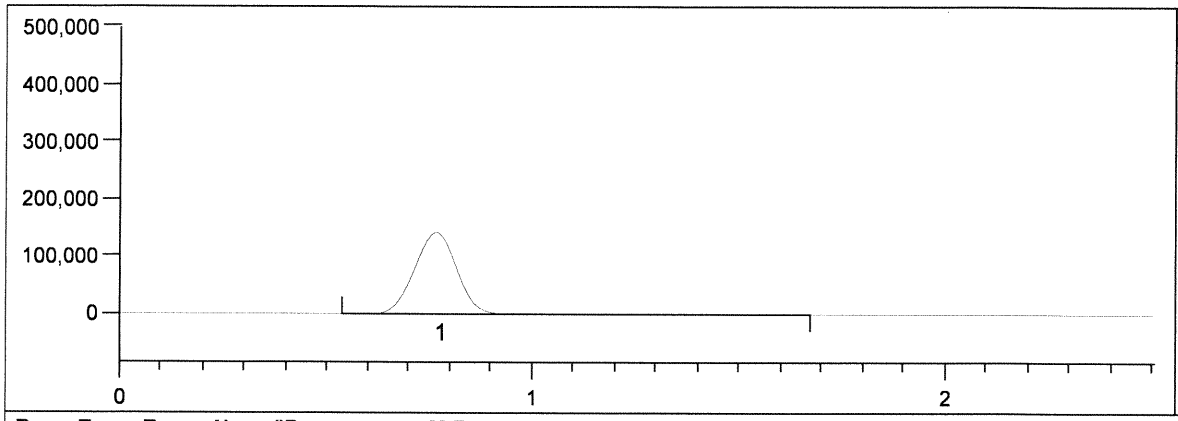
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

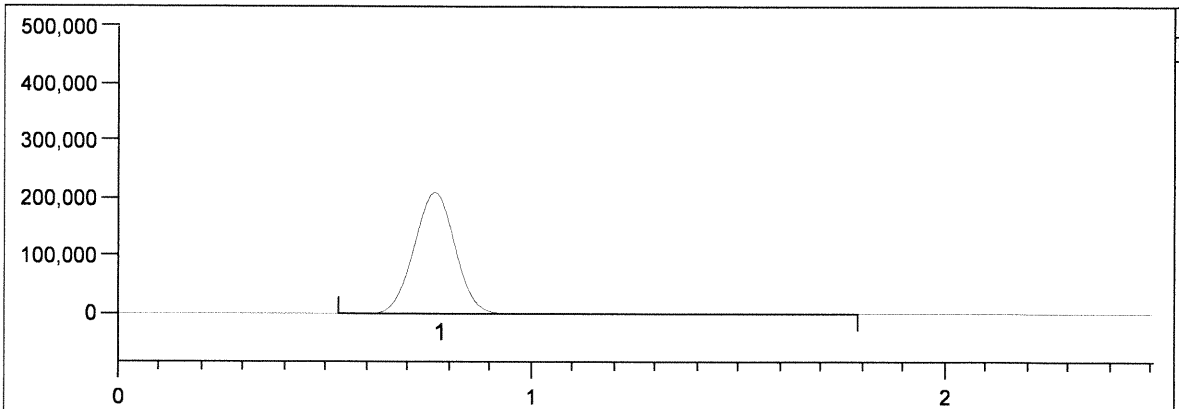
Date Analyzed: 10/16/24
Analyst Name:



Date:	10/16/24
Time:	6:01 PM

Peak	rt	Area
1	0.76	10,343,362

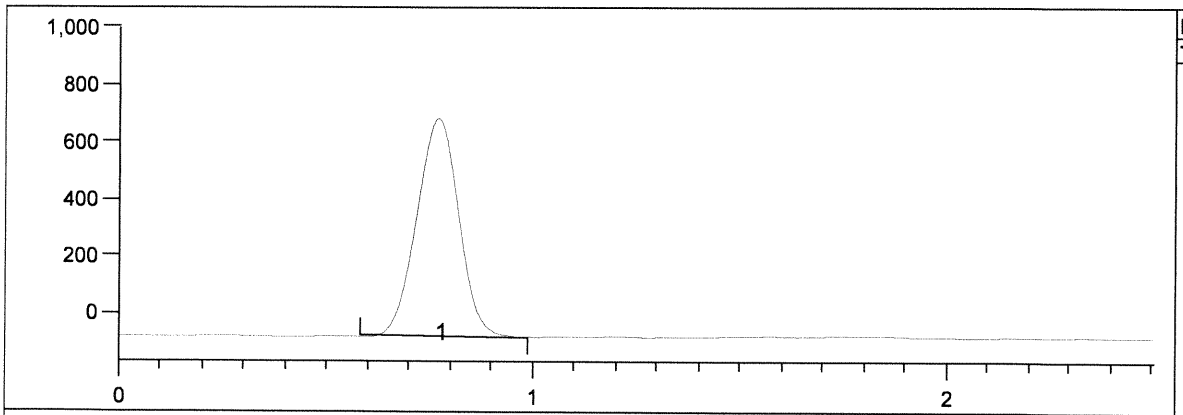
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
103	Y	S	K2409822-039		1	10,343,362	1,260	250.		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	6:06 PM

Peak	rt	Area
1	0.76	14,832,666

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
104	X	S	K2409822-040		1	14,832,666	1,800	356		< HS	accept
Notes10X DILUTION											



Date:	10/16/24
Time:	6:11 PM

Peak	rt	Area
1	0.77	55,096

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
105	Y	MBA	MB-3		1	55,096	5.85	0.117	0.117	<1.0	accept
Notes											

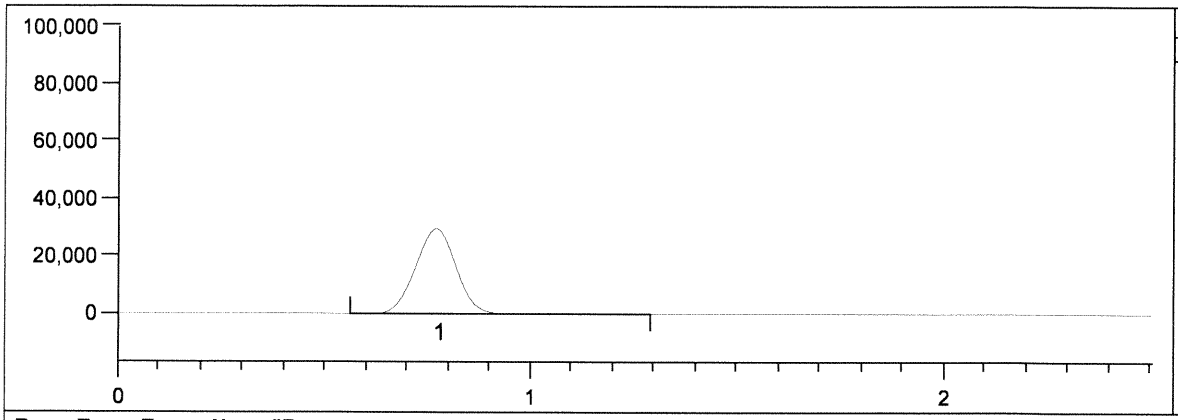
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s): SOILS
Instrument ID: K-AFS-04

Date Analyzed: 10/16/24
Analyst Name:

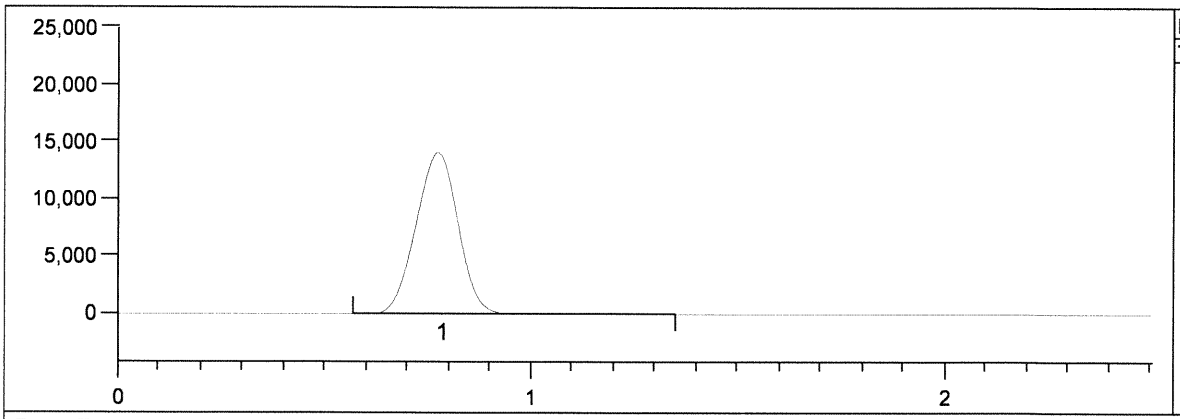


Date:	10/16/24
Time:	6:16 PM

Peak	rt	Area
1	0.77	2,090,216

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
106	X	OPR	OPR-2		1	2,090,216	254	5.07	101	70-130	accept

Notes



Date:	10/16/24
Time:	6:21 PM

Peak	rt	Area
1	0.77	1,028,152

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
107	Y	VER	VER-8		1	1,028,152	124	4.97	99.4	77-123	accept

Notes

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Service Request #:	K2409822 (samples 41-60)		
MS/MSD with #:	K2409822-046, -050		
StarLims Run # :	857940		
VER (100ppt) Standard ID:	AF3-17-G	Expiration Date:	11/8/2024
OPR (40ppb) Standard ID:	AF3-17-H	Expiration Date:	11/8/2024
QCS Standard ID:	AF3-17-E	Expiration Date:	11/1/2024
Parent OPR/VER ID:	AF3-10-H	Expiration Date:	6/30/2025
Parent QCS ID:	AF3-7-F	Expiration Date:	11/1/2024
NH2OH:	AF3-14-K	Expiration Date:	7/1/2025
SnCl:	AF3-11-J	Expiration Date:	3/5/2025
Pipettors ID:	LL 20-200,44382968,LL1000-5000	Calibration Due:	1/8/25

1631 Tissue Data Review Form

	Yes	No	NA
1. 20 samples (or less) in batch	X		
2. MS/MSD every 10 samples	X		
3. Current Calibration factor used	X		
4. Calibration data included	X		
5. Method blank below MRL	X		
6. 3 Bubbler Blanks Ran Avg < 25 pg	X		
7. Bubbler Blanks < 50 pg	X		
8. Verification Standards Passed (75-123%)	X		
9. OPR, QCS in control (70-130%)	X		
10. MS/MSD recovery 70-130%	X		
11. Spike RPD within 30%	X		
12. All samples within the linear range	X		
13. All corresponding charts included	X		
14. Dilution factors calculated	X		
15. Bench sheet signed	X		
16. Reagent Blank below 20 pg	X		

Comments

Primary Reviewed by _____ Date 10/17/24

Secondary Reviewed by _____ Date 10/18/24

Batch Information Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Run Duration:	2.5	Method Blank Type:	Concentration
Heating Duration:	2.5	Integration Mode:	Auto Total Hg
Retention Start Time:	0.4	Integration Type:	Peak Area
Retention Stop Time:	1.3	Result Units:	µg/Kg
Purge Duration:	6.0		
Drying Duration:	6.0		
Calibration File:	This File		

Analyst Comments:

PMT: 513
OFFSET: 3075
NOISE:36
VOA Vial Lot # 070823-3AWA

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Run Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Peak	Peak Area	Analyzed Result (pg)	Final Result (µg/Kg)	QA Results	Criteria	Notes
1	X	CCB	RINSE		1	37,007	0.645		0.645	< 50	accept
2	Y	CCB	RINSE		1	31,398	-0.0443		-0.0443	< 50	accept
3	X	CB	CB-1		1	31,910	3.92		3.92	< 50	accept
4	Y	CB	CB-2		1	31,768	3.90		3.90	< 50	accept
5	X	CB	CB-3		1	31,421	3.86		3.86	< 50	accept
6	Y	CB	CB-4		1	31,935	3.92		3.92	< 50	accept
7	X	STD	12.5 pg		1	137,982	13.0		104	75-125	accept
8	Y	STD	25 pg		1	232,147	24.6		98.5	75-125	accept
9	X	STD	100 pg		1	827,249	97.7		97.7	75-125	accept
10	Y	STD	500 pg		1	4,200,471	512		102	75-125	accept
11	X	STD	2500 pg		1	21,026,997	2,580		103	75-125	accept
12	Y	STD	10000 pg		1	76,979,457	9,450		94.5	75-125	accept
13	X	OPR	OPR-1		1	1,086,774	130.	5.18	104	77-123	accept
14	Y	S	7437169010 1631 10/11/24 1		1	82,021	6.17	0.247		< HS	accept
15	X	S	7437169010 1631 10/11/24 2		1	33,723	0.241	0.00965		< HS	accept
16	Y	S	7437169010 1631 10/11/24 3		1	32,905	0.141	0.00563		< HS	accept
17	X	S	7437169010 1631 10/11/24 4		1	39,723	0.978	0.0391		< HS	accept
18	Y	S	7437169010 1631 10/11/24 5		1	30,815	-0.116	-0.00464		< HS	accept
19	X	S	7437169010 1631 10/11/24 6		1	24,808	-0.854	-0.0342		< HS	accept
20	Y	S	7437169010 1631 10/11/24 7		1	39,502	0.951	0.0381		< HS	accept
21	X	S	7437169010 1631 10/11/24 8		1	32,442	0.0840	0.00336		< HS	accept
22	Y	OPR	OPR-2		1	1,039,057	124	4.95	99.0	77-123	accept
23	X	S	HCL CLEANED BOTTLES 1		1	48,256	2.03	0.0811		< HS	accept
24	Y	S	HCL CLEANED BOTTLES 2		1	41,825	1.24	0.0495		< HS	accept
25	X	S	HCL CLEANED BOTTLES 3		1	41,945	1.25	0.0501		< HS	accept
26	Y	S	HCL CLEANED BOTTLES 4		1	40,583	1.08	0.0434		< HS	accept
27	X	S	HCL CLEANED BOTTLES 5		1	42,439	1.31	0.0525		< HS	accept
28	Y	S	HCL CLEANED BOTTLES 6		1	45,705	1.71	0.0685		< HS	accept
29	X	S	HCL CLEANED BOTTLES 7		1	43,392	1.43	0.0572		< HS	accept
30	Y	OPR	OPR-3		1	1,043,755	124	4.97	99.5	77-123	accept
31	X	S	VOA VIAL 1		1	48,594	2.07	0.0827		< HS	accept
32	Y	S	VOA VIAL 2		1	35,221	0.425	0.0170		< HS	accept
33	X	S	VOA VIAL 3		1	34,944	0.391	0.0157		< HS	accept

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Run Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Peak	Peak Area	Analyzed Result (pg)	Final Result (µg/Kg)	QA Results	Criteria	Notes
34	Y	S	VOA VIAL 4		1	33,828	0.254	0.0102		< HS	accept
35	X	S	VOA VIAL 5		1	33,812	0.252	0.0101		< HS	accept
36	Y	S	VOA VIAL 6		1	31,892	0.0164	0.000656		< HS	accept
37	X	S	VOA VIAL 7		1	32,378	0.0761	0.00304		< HS	accept
38	Y	OPR	OPR-4		1	1,042,440	124	4.97	99.3	77-123	accept
39	X	QCS	QCS-1		1	1,096,910	131	5.23	105	77-123	accept
~~40~~	~~Y~~	~~MBA~~	~~MB-1~~		~~1~~	~~147,084~~	~~14.2~~	~~0.567~~	~~0.567~~	~~< 0.5~~	~~reject~~
41	X	MBA	MB-1		1	143,021	13.7	0.547	0.547	< 0.5	~~reject~~ accept
42	Y	S	K2410836-002		1	2,255,300	273	10.9		< HS	accept
43	X	MS	K2410836-002		1	12,159,407	1,490	59.6	97.3	71-125	accept
44	Y	MSD	K2410836-002		1	11,842,503	1,450	58.0	94.2	71-125	accept
45	X	S	K2410836-001		1	6,484,518	793	31.7		< HS	accept
46	Y	S	K2410807-001		1	195,799	20.2	0.806		< HS	accept
47	X	S	K2410807-002		1	163,968	16.2	0.650		< HS	accept
48	Y	S	K2410807-003		1	67,760	4.42	0.177		< HS	accept
49	X	S	K2410807-004		1	60,584	3.54	0.142		< HS	accept
50	Y	S	K2410842-001		1	615,735	71.7	2.87		< HS	accept
51	X	S	K2410842-002		1	667,147	78.1	3.12		< HS	accept
52	Y	S	K2410842-003		1	88,840	7.01	0.281		< HS	accept
53	X	S	K2410842-004		1	131,968	12.3	9.85		< HS	accept
54	Y	MBA	MB-2		1	68,239	4.48	0.179	0.179	< 0.5	accept
55	X	S	K2410844-002		1	118,022	10.6	0.424		< HS	accept
56	Y	MS	K2410844-002		1	10,043,844	1,230	49.2	97.6	71-125	accept
57	X	MSD	K2410844-002		1	10,334,251	1,270	50.6	100.	71-125	accept
58	Y	S	K2410848-001		1	147,921	14.3	0.571		< HS	accept
59	X	S	K2410848-004		1	4,571,218	558	22.3		< HS	accept
60	Y	S	K2410848-005		1	153,666	15.0	0.599		< HS	accept
61	X	S	K2410848-008		1	4,473,885	546	21.8		< HS	accept
62	Y	S	K2410848-009		1	169,207	16.9	0.675		< HS	accept
63	X	S	K2410848-012		1	2,749,250	334	13.4		< HS	accept
64	Y	S	K2410889-001		1	1,499,898	180.	7.21		< HS	accept
65	X	S	K2410890-001		1	2,596,521	315	12.6		< HS	accept
66	Y	S	K2411021-001		1	219,988	23.1	0.925		< HS	accept

DS 10/17/24

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Run Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Peak	Peak Area	Analyzed Result (pg)	Final Result (µg/Kg)	QA Results	Criteria	Notes
67	X	MBA	MB-3		1	61,822	3.69	0.148	0.148	< 0.5	accept
68	Y	OPR	OPR-5		1	1,011,925	120.	4.82	96.3	77-123	accept
69	X	QCS	QCS-1		1	1,047,160	125	4.99	99.8	77-123	accept
70	Y	MBA	MB-1		1	78,811	5.78	0.231	0.231	< 0.5	accept
71	X	S	K2410897-001		1	208,377	21.7	0.868		< HS	accept
72	Y	MS	K2410897-001		1	10,094,437	1,240	49.4	97.2	71-125	accept
73	X	MSD	K2410897-001		1	10,617,428	1,300	52.0	102	71-125	accept
74	Y	S	K2410897-002		1	185,799	18.9	0.757		< HS	accept
75	X	S	K2410897-003		1	178,164	18.0	0.719		< HS	accept
76	Y	S	K2410897-004		1	101,304	8.54	0.342		< HS	accept
77	X	S	K2410897-005		1	234,913	25.0	0.998		< HS	accept
78	Y	S	K2410897-006		1	204,435	21.2	0.849		< HS	accept
79	X	S	K2410933-003		1	2,145,654	260.	10.4		< HS	accept
80	Y	S	K2410933-004		1	470,699	53.9	2.16		< HS	accept
81	X	S	K2410944-001		1	2,631,688	319	12.8		< HS	accept
82	Y	S	K2410944-002		1	174,116	17.5	0.700		< HS	accept
83	X	MBA	MB-2		1	53,375	2.66	0.106	0.106	< 0.5	accept
84	Y	S	K2410912-001		1	343,574	38.3	1.53		< HS	accept
85	X	MS	K2410912-001		1	10,748,696	1,320	52.7	102	71-125	accept
86	Y	MSD	K2410912-001		1	10,216,047	1,250	50.0	97.0	71-125	accept
87	X	S	K2410913-001		1	10,895,773	1,330	53.4		< HS	accept
88	Y	S	K2410913-003		1	6,257,931	765	30.6		< HS	accept
89	X	S	K2410913-005		1	358,408	40.1	1.61		< HS	accept
90	Y	S	K2410913-007		1	9,331,422	1,140	45.7		< HS	accept
91	X	S	K2410913-009		1	5,761,632	704	28.2		< HS	accept
92	Y	S	K2410913-011		1	349,075	39.0	1.56		< HS	accept
93	X	S	K2410913-013		1	7,224,471	884	35.3		< HS	accept
94	Y	S	K2410913-015		1	5,888,476	720.	28.8		< HS	accept
95	X	S	K2410913-017		1	377,105	42.4	1.70		< HS	accept
96	Y	MBA	MB-3		1	58,925	3.34	0.133	0.133	< 0.5	accept
97	X	OPR	OPR/VER-6		1	1,048,870	125	5.00	100.	77-123	accept
98	Y	OPR	OPR-1		1	1,838,586	222	4.44	88.8	77-123	accept
99	X	MBA	MB-1		1	28,079	-0.452	-0.00904	-0.00904	< 0.5	accept

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Run Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Peak	Peak Area	Analyzed Result (pg)	Final Result (µg/Kg)	QA Results	Criteria	Notes
100	Y	MBA	MB-2		1	30,167	-0.196	-0.00391	-0.00391	< 0.5	accept
101	X	QCS	TORT-1		1	24,502,574	3,010	298	102	77-123	accept
102	Y	S	K2409822-046		1	6,807,596	832	164		< HS	accept
103	X	MS	K2409822-046		1	17,247,843	2,120	418	103	71-125	accept
104	Y	MSD	K2409822-046		1	16,129,911	1,980	392	91.6	71-125	accept
105	X	S	K2409822-041		1	9,381,124	1,150	229		< HS	accept
106	Y	S	K2409822-042		1	9,949,567	1,220	243		< HS	accept
107	X	S	K2409822-043		1	11,253,057	1,380	275		< HS	accept
108	Y	S	K2409822-044		1	6,652,134	813	162		< HS	accept
109	X	S	K2409822-045		1	9,890,982	1,210	239		< HS	accept
110	Y	S	K2409822-047		1	9,502,210	1,160	231		< HS	accept
111	X	S	K2409822-048		1	7,119,410	871	174		< HS	accept
112	Y	S	K2409822-049		1	8,842,931	1,080	213		< HS	accept
113	X	S	K2409822-051		1	9,426,851	1,150	230.		< HS	accept
114	Y	OPR	VER-7		1	1,028,260	122	4.90	97.9	77-123	accept
115	X	S	K2409822-050		1	12,909,313	1,580	313		< HS	accept
116	Y	MS	K2409822-050		1	20,968,193	2,570	508	79.2	71-125	accept
117	X	MSD	K2409822-050		1	22,489,411	2,760	544	94.0	71-125	accept
118	Y	S	K2409822-052		1	7,333,531	897	179		< HS	accept
119	X	S	K2409822-053		1	6,006,462	734	145		< HS	accept
120	Y	S	K2409822-054		1	11,330,194	1,390	277		< HS	accept
121	X	S	K2409822-055		1	13,360,596	1,640	323		< HS	accept
122	Y	S	K2409822-056		1	8,261,803	1,010	202		< HS	accept
123	X	S	K2409822-057		1	7,286,552	891	177		< HS	accept
124	Y	S	K2409822-058		1	8,293,100	1,010	201		< HS	accept
125	X	S	K2409822-059		1	9,476,038	1,160	230.		< HS	accept
126	Y	S	K2409822-060		1	7,156,155	875	175		< HS	accept
127	X	MBA	MB-3		1	31,934	0.0216	0.000431	0.000431	< 0.5	accept
128	Y	OPR	OPR-2		1	1,911,651	231	4.62	92.4	77-123	accept
129	X	OPR	VER-8		1	1,029,707	123	4.90	98.1	77-123	accept

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Run Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Analyst Comments:
PMT: 513 OFFSET: 3075 NOISE:36 VOA Vial Lot # 070823-3AWA

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QA Summary Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Bias and Precision

Type	Name/ID	Final Result	Units	Spike Level	Source Result	% REC	% REC Limit	RPD	RPD Limit	Notes
MS	K2410836-002	59.6	µg/Kg	50.0	10.9	97.3	71-125			accept
	K2410844-002	49.2	µg/Kg	50.0	0.424	97.6	71-125			accept
	K2410897-001	49.4	µg/Kg	50.0	0.868	97.2	71-125			accept
	K2410912-001	52.7	µg/Kg	50.0	1.53	102	71-125			accept
	K2409822-046	418	µg/Kg	247	164	103	71-125			accept
	K2409822-050	508	µg/Kg	247	313	79.2	71-125			accept
MSD	K2410836-002	58.0	µg/Kg	50.0	10.9	94.2	71-125	2.65	< 24	accept
	K2410844-002	50.6	µg/Kg	50.0	0.424	100.	71-125	2.86	< 24	accept
	K2410897-001	52.0	µg/Kg	50.0	0.868	102	71-125	5.07	< 24	accept
	K2410912-001	50.0	µg/Kg	50.0	1.53	97.0	71-125	5.10	< 24	accept
	K2409822-046	392	µg/Kg	248	164	91.6	71-125	6.46	< 24	accept
	K2409822-050	544	µg/Kg	246	313	94.0	71-125			accept
OPR	OPR-1	5.18	µg/Kg	5.0		104	77-123			accept
	OPR-2	4.95	µg/Kg	5.0		99.0	77-123			accept
	OPR-3	4.97	µg/Kg	5.0		99.5	77-123			accept
	OPR-4	4.97	µg/Kg	5.0		99.3	77-123			accept
	OPR-5	4.82	µg/Kg	5.0		96.3	77-123			accept
	OPR/VER-6	5.00	µg/Kg	5.0		100.	77-123			accept
	OPR-1	4.44	µg/Kg	5.0		88.8	77-123			accept
	VER-7	4.90	µg/Kg	5.0		97.9	77-123			accept
	OPR-2	4.62	µg/Kg	5.0		92.4	77-123			accept
	VER-8	4.90	µg/Kg	5.0		98.1	77-123			accept

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QA Summary Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Bias and Precision										
Type	**Name/ID**	**Final Result**	**Units**	**Spike Level**	**Source Result**	**% REC**	**% REC Limit**	**RPD**	**RPD Limit**	**Notes**
QCS	QCS-1	5.23	µg/Kg	5.0		105	77-123			accept
	QCS-1	4.99	µg/Kg	5.0		99.8	77-123			accept
	TORT-1	298	µg/Kg	292		102	77-123			accept

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QA Summary Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Calibration									
QA Sample Type	**Name/ID**	**Analyzed Result**	**Units**	**Spike Level**	**% REC**	**% REC Limit**	**RSD**	**RSD Limit**	**Notes**
Calibration	12.5 pg	13.0	pg	12.5	104	75-125			accept
	25 pg	24.6	pg	25	98.5	75-125			accept
	100 pg	97.7	pg	100	97.7	75-125			accept
	500 pg	512	pg	500	102	75-125			accept
	2500 pg	2,580	pg	2500	103	75-125			accept
	10000 pg	9,450	pg	10000	94.5	75-125			accept
Calibration Factor		0.000123	pg/PA				3.85	< 15	accept
Calibration Date		10/17/24							

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1631 Extended Calibration Point Verification

Instruemt:	ASF-04				
Date:	10/11/24				
Run Number:	857940				
	Raw Peak Area	Blank Corrected Peak Area			
CB-1	31,910				
CB-2	31,768				
CB-3	31,421				
CB-4	31,935				
STD 12.5	137,982	106,224	0.0001177		
STD 25	232,147	200,389	0.0001248		
STD 100	827,249	795,491	0.0001257		
STD 500	4,200,471	4,168,713	0.0001199		
STD 2500	21,026,997	20,995,239	0.0001191	0.0001214	0.5 - 100 ng/L Ave. Cal. Factor
STD 10000	76,979,457	76,947,699	0.0001300	-7.0	% Difference (Limit ± 15%)
			Result:	**PASS**	
	Cal. Factor	0.0001229			

QA Summary Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Blank Summary

QA Sample Type	Name/ID	Analyzed Result	Units	Criteria	StDev	StDev Limit	Notes
CB	CB-1	3.92	pg	< 50			accept
	CB-2	3.90	pg	< 50			accept
	CB-3	3.86	pg	< 50			accept
	CB-4	3.92	pg	< 50			accept
Average		3.90	pg	< 25	0.0291	< 10	accept
MBA	~~MB-1~~	~~0.567~~	~~µg/Kg~~	~~< 0.5~~			~~reject~~
	MB-1	0.547	µg/Kg	< 0.5			~~reject~~ accept
	MB-2	0.179	µg/Kg	< 0.5			accept
	MB-3	0.148	µg/Kg	< 0.5			accept
	MB-1	0.231	µg/Kg	< 0.5			accept
	MB-2	0.106	µg/Kg	< 0.5			accept
	MB-3	0.133	µg/Kg	< 0.5			accept
	MB-1	-0.00904	µg/Kg	< 0.5			accept
	MB-2	-0.00391	µg/Kg	< 0.5			accept
	MB-3	0.000431	µg/Kg	< 0.5			accept
Average		0.0981	µg/Kg		0.0921		

DS 10/17/24

QA Comments:

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Sample Results Summary Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Run	Name/ID	Final Result (µg/Kg)	Notes
14	7437169010 1631 10/11/24 1	0.247	accept
15	7437169010 1631 10/11/24 2	0.00965	accept
16	7437169010 1631 10/11/24 3	0.00563	accept
17	7437169010 1631 10/11/24 4	0.0391	accept
18	7437169010 1631 10/11/24 5	-0.00464	accept
19	7437169010 1631 10/11/24 6	-0.0342	accept
20	7437169010 1631 10/11/24 7	0.0381	accept
21	7437169010 1631 10/11/24 8	0.00336	accept
23	HCL CLEANED BOTTLES 1	0.0811	accept
24	HCL CLEANED BOTTLES 2	0.0495	accept
25	HCL CLEANED BOTTLES 3	0.0501	accept
26	HCL CLEANED BOTTLES 4	0.0434	accept
27	HCL CLEANED BOTTLES 5	0.0525	accept
28	HCL CLEANED BOTTLES 6	0.0685	accept
29	HCL CLEANED BOTTLES 7	0.0572	accept
105	K2409822-041	229	accept
106	K2409822-042	243	accept
107	K2409822-043	275	accept
108	K2409822-044	162	accept
109	K2409822-045	239	accept
102	K2409822-046	164	accept
110	K2409822-047	231	accept
111	K2409822-048	174	accept
112	K2409822-049	213	accept
115	K2409822-050	313	accept
113	K2409822-051	230.	accept
118	K2409822-052	179	accept
119	K2409822-053	145	accept
120	K2409822-054	277	accept

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Sample Results Summary Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Run	Name/ID	Final Result (µg/Kg)	Notes
121	K2409822-055	323	accept
122	K2409822-056	202	accept
123	K2409822-057	177	accept
124	K2409822-058	201	accept
125	K2409822-059	230.	accept
126	K2409822-060	175	accept
46	K2410807-001	0.806	accept
47	K2410807-002	0.650	accept
48	K2410807-003	0.177	accept
49	K2410807-004	0.142	accept
45	K2410836-001	31.7	accept
42	K2410836-002	10.9	accept
50	K2410842-001	2.87	accept
51	K2410842-002	3.12	accept
52	K2410842-003	0.281	accept
53	K2410842-004	9.85	accept
55	K2410844-002	0.424	accept
58	K2410848-001	0.571	accept
59	K2410848-004	22.3	accept
60	K2410848-005	0.599	accept
61	K2410848-008	21.8	accept
62	K2410848-009	0.675	accept
63	K2410848-012	13.4	accept
64	K2410889-001	7.21	accept
65	K2410890-001	12.6	accept
71	K2410897-001	0.868	accept
74	K2410897-002	0.757	accept
75	K2410897-003	0.719	accept
76	K2410897-004	0.342	accept

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Sample Results Summary Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Run	Name/ID	Final Result (µg/Kg)	Notes
77	K2410897-005	0.998	accept
78	K2410897-006	0.849	accept
84	K2410912-001	1.53	accept
87	K2410913-001	53.4	accept
88	K2410913-003	30.6	accept
89	K2410913-005	1.61	accept
90	K2410913-007	45.7	accept
91	K2410913-009	28.2	accept
92	K2410913-011	1.56	accept
93	K2410913-013	35.3	accept
94	K2410913-015	28.8	accept
95	K2410913-017	1.70	accept
79	K2410933-003	10.4	accept
80	K2410933-004	2.16	accept
81	K2410944-001	12.8	accept
82	K2410944-002	0.700	accept
66	K2411021-001	0.925	accept
31	VOA VIAL 1	0.0827	accept
32	VOA VIAL 2	0.0170	accept
33	VOA VIAL 3	0.0157	accept
34	VOA VIAL 4	0.0102	accept
35	VOA VIAL 5	0.0101	accept
36	VOA VIAL 6	0.000656	accept
37	VOA VIAL 7	0.00304	accept

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Run Information Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Sample Vol/Wt	Dilution Vol (ml)	Analyzed Vol (ml)	Expected Value	Notes
1	X	CCB	RINSE						
2	Y	CCB	RINSE						
3	X	CB	CB-1						
4	Y	CB	CB-2						
5	X	CB	CB-3						
6	Y	CB	CB-4						
7	X	STD	12.5 pg					12.5	0.125mL AF3-17-G
8	Y	STD	25 pg					25	0.25mL AF3-17-G
9	X	STD	100 pg					100	1.0mL AF3-17-G
10	Y	STD	500 pg					500	0.05mL AF3-17-F
11	X	STD	2500 pg					2500	0.25mL AF3-17-F
12	Y	STD	10000 pg					10000	1.0mL AF3-17-F
13	X	OPR	OPR-1		25	25	25	5.0	
14	Y	S	7437169010 1631 10/11/24 1		125	125	25		
15	X	S	7437169010 1631 10/11/24 2		125	125	25		
16	Y	S	7437169010 1631 10/11/24 3		125	125	25		
17	X	S	7437169010 1631 10/11/24 4		125	125	25		
18	Y	S	7437169010 1631 10/11/24 5		125	125	25		
19	X	S	7437169010 1631 10/11/24 6		125	125	25		
20	Y	S	7437169010 1631 10/11/24 7		125	125	25		
21	X	S	7437169010 1631 10/11/24 8		125	125	25		
22	Y	OPR	OPR-2		25	25	25	5.0	
23	X	S	HCL CLEANED BOTTLES 1		125	125	25		
24	Y	S	HCL CLEANED BOTTLES 2		125	125	25		
25	X	S	HCL CLEANED BOTTLES 3		125	125	25		
26	Y	S	HCL CLEANED BOTTLES 4		125	125	25		
27	X	S	HCL CLEANED BOTTLES 5		125	125	25		
28	Y	S	HCL CLEANED BOTTLES 6		125	125	25		
29	X	S	HCL CLEANED BOTTLES 7		125	125	25		
30	Y	OPR	OPR-3		25	25	25	5.0	
31	X	S	VOA VIAL 1		40	40	25		
32	Y	S	VOA VIAL 2		40	40	25		
33	X	S	VOA VIAL 3		40	40	25		

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Run Information Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Sample Vol/Wt	Dilution Vol (ml)	Analyzed Vol (ml)	Expected Value	Notes
34	Y	S	VOA VIAL 4		40	40	25		
35	X	S	VOA VIAL 5		40	40	25		
36	Y	S	VOA VIAL 6		40	40	25		
37	X	S	VOA VIAL 7		40	40	25		
38	Y	OPR	OPR-4		25	25	25	5.0	
39	X	QCS	QCS-1		125	125	25	5.0	
~~40~~	~~Y~~	~~MBA~~	~~MB-1~~		~~125~~	~~125~~	~~25~~		
41	X	MBA	MB-1		125	125	25		
42	Y	S	K2410836-002		125	125	25		
43	X	MS	K2410836-002		125	125	25	50.0	
44	Y	MSD	K2410836-002		125	125	25	50.0	
45	X	S	K2410836-001		125	125	25		
46	Y	S	K2410807-001		125	125	25		
47	X	S	K2410807-002		125	125	25		
48	Y	S	K2410807-003		125	125	25		
49	X	S	K2410807-004		125	125	25		
50	Y	S	K2410842-001		125	125	25		
51	X	S	K2410842-002		125	125	25		
52	Y	S	K2410842-003		125	125	25		
53	X	S	K2410842-004		6.25	125	25		20X DILUTION
54	Y	MBA	MB-2		125	125	25		
55	X	S	K2410844-002		125	125	25		
56	Y	MS	K2410844-002		125	125	25	50.0	
57	X	MSD	K2410844-002		125	125	25	50.0	
58	Y	S	K2410848-001		125	125	25		
59	X	S	K2410848-004		125	125	25		
60	Y	S	K2410848-005		125	125	25		
61	X	S	K2410848-008		125	125	25		
62	Y	S	K2410848-009		125	125	25		
63	X	S	K2410848-012		125	125	25		
64	Y	S	K2410889-001		125	125	25		
65	X	S	K2410890-001		125	125	25		
66	Y	S	K2411021-001		125	125	25		

DS
10/17/24

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Run Information Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Sample Vol/Wt	Dilution Vol (ml)	Analyzed Vol (ml)	Expected Value	Notes
67	X	MBA	MB-3		125	125	25		
68	Y	OPR	OPR-5		25	25	25	5.0	
69	X	QCS	QCS-1		125	125	25	5.0	
70	Y	MBA	MB-1		125	125	25		
71	X	S	K2410897-001		125	125	25		
72	Y	MS	K2410897-001		125	125	25	50.0	
73	X	MSD	K2410897-001		125	125	25	50.0	
74	Y	S	K2410897-002		125	125	25		
75	X	S	K2410897-003		125	125	25		
76	Y	S	K2410897-004		125	125	25		
77	X	S	K2410897-005		125	125	25		
78	Y	S	K2410897-006		125	125	25		
79	X	S	K2410933-003		125	125	25		
80	Y	S	K2410933-004		125	125	25		
81	X	S	K2410944-001		125	125	25		
82	Y	S	K2410944-002		125	125	25		
83	X	MBA	MB-2		125	125	25		
84	Y	S	K2410912-001		125	125	25		
85	X	MS	K2410912-001		125	125	25	50.0	
86	Y	MSD	K2410912-001		125	125	25	50.0	
87	X	S	K2410913-001		125	125	25		
88	Y	S	K2410913-003		125	125	25		
89	X	S	K2410913-005		125	125	25		
90	Y	S	K2410913-007		125	125	25		
91	X	S	K2410913-009		125	125	25		
92	Y	S	K2410913-011		125	125	25		
93	X	S	K2410913-013		125	125	25		
94	Y	S	K2410913-015		125	125	25		
95	X	S	K2410913-017		125	125	25		
96	Y	MBA	MB-3		125	125	25		
97	X	OPR	OPR/VER-6		25	25	25	5.0	
98	Y	OPR	OPR-1		400	40	5.0	5.0	
99	X	MBA	MB-1		400	40	5.0		

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Run Information Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

Run	Trap	Type	Name/ID	Method Blank	Sample Vol/Wt	Dilution Vol (ml)	Analyzed Vol (ml)	Expected Value	Notes
100	Y	MBA	MB-2		400	40	5.0		
101	X	QCS	TORT-1		403	40	1.0	292	
102	Y	S	K2409822-046		405	40	0.5		10X DILUTION
103	X	MS	K2409822-046		405	40	0.5	247	10X DILUTION
104	Y	MSD	K2409822-046		404	40	0.5	248	10X DILUTION
105	X	S	K2409822-041		402	40	0.5		10X DILUTION
106	Y	S	K2409822-042		401	40	0.5		10X DILUTION
107	X	S	K2409822-043		401	40	0.5		10X DILUTION
108	Y	S	K2409822-044		401	40	0.5		10X DILUTION
109	X	S	K2409822-045		405	40	0.5		10X DILUTION
110	Y	S	K2409822-047		403	40	0.5		10X DILUTION
111	X	S	K2409822-048		401	40	0.5		10X DILUTION
112	Y	S	K2409822-049		406	40	0.5		10X DILUTION
113	X	S	K2409822-051		401	40	0.5		10X DILUTION
114	Y	OPR	VER-7		25	25	25	5.0	
115	X	S	K2409822-050		405	40	0.5		10X DILUTION
116	Y	MS	K2409822-050		405	40	0.5	247	10X DILUTION
117	X	MSD	K2409822-050		406	40	0.5	246	10X DILUTION
118	Y	S	K2409822-052		401	40	0.5		10X DILUTION
119	X	S	K2409822-053		404	40	0.5		10X DILUTION
120	Y	S	K2409822-054		401	40	0.5		10X DILUTION
121	X	S	K2409822-055		405	40	0.5		10X DILUTION
122	Y	S	K2409822-056		401	40	0.5		10X DILUTION
123	X	S	K2409822-057		403	40	0.5		10X DILUTION
124	Y	S	K2409822-058		403	40	0.5		10X DILUTION
125	X	S	K2409822-059		404	40	0.5		10X DILUTION
126	Y	S	K2409822-060		401	40	0.5		10X DILUTION
127	X	MBA	MB-3		400	40	5.0		
128	Y	OPR	OPR-2		400	40	5.0	5.0	
129	X	OPR	VER-8		25	25	25	5.0	

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StarLims Number:					446608
Method : 1631EApp.			Analysis for : CVAFS		

Sample	Matrices	Dry	Wet	Initial Weight (g)	Final Volume (ml)	Matrix
VER-1	Water		x	25ml	25ml	0.5% BrCl
VER-2	Water		x	25ml	25ml	0.5% BrCl
Method Blank		x		0.400	40	0.02N BrCl
Method Blank		x		0.400	40	0.02N BrCl
Method Blank		x		0.400	40	0.02N BrCl
OPR-1		x		0.400	40	0.02N BrCl
TORT-3		x		.414	40	0.02N BrCl
K2409822-041		x		0.402	40	0.02N BrCl
K2409822-042		x		0.401	40	0.02N BrCl
K2409822-043		x		0.401	40	0.02N BrCl
K2409822-044		x		0.401	40	0.02N BrCl
K2409822-045		x		0.405	40	0.02N BrCl
K2409822-046		x		0.405	40	0.02N BrCl
K2409822-046S		x		0.405	40	0.02N BrCl
K2409822-046SD		x		0.404	40	0.02N BrCl
K2409822-047		x		0.403	40	0.02N BrCl
K2409822-048		x		0.401	40	0.02N BrCl
K2409822-049		x		0.406	40	0.02N BrCl
K2409822-050		x		0.409	40	0.02N BrCl
K2409822-050S		x		0.405	40	0.02N BrCl
K2409822-050SD		x		0.406	40	0.02N BrCl
K2409822-051		x		0.401	40	0.02N BrCl
K2409822-052		x		0.401	40	0.02N BrCl
K2409822-053		x		0.404	40	0.02N BrCl
K2409822-054		x		0.401	40	0.02N BrCl
K2409822-055		x		0.405	40	0.02N BrCl
K2409822-056		x		0.401	40	0.02N BrCl
K2409822-057		x		0.403	40	0.02N BrCl
K2409822-058		x		0.403	40	0.02N BrCl
K2409822-059		x		0.404	40	0.02N BrCl
K2409822-060		x		0.401	40	0.02N BrCl
OPR-2		x		0.400	40	0.02N BrCl
VER-3	Water		x	25ml	25ml	0.5% BrCl

VOA Vial Lot # 070823-3AWA **BrCl =** AF3-15-D

AF3-17-H *(40ppb)* **OPR:** 0.05mL **Digestion Acid Mixture:** AF3-15-J

1st MS / DMS: 0.1ml 1ppm QCS Parent (AF3-7-F) **Balance ID:** 37 10/15/24 MW

2nd MS / DMS: 0.1ml 1ppm QCS Parent (AF3-7-F)

Comments: TORT-3 Solids: 97.4%

HotBlock: K-BlockDigester: 19 IR Thermometer ID: IR03 Temp: 105°C Temp Check Location: 7

Time Digestion Started: 9:15am **Dilution Completed:** 1:46pm

Analyst AA **Date** 10/16/24

1631Dig.XLS
6/17/2004

Tissue Dry Wt. MRL and MDL Calculations:

Standard MRL =	1.0
Standard MDL =	0.2
Standard Dilution =	1
Standard Sample Mass =	0.40

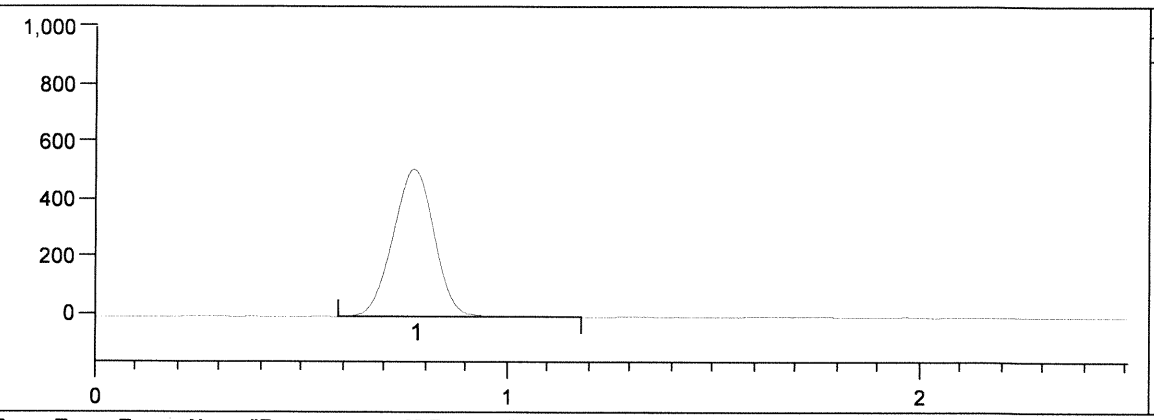
Sample I.D.	Dry Weight	Dilution	Weight & Dilution Adjuste MRL	MDL
K2409822-041	0.4020	10	10.0	1.99
K2409822-042	0.4010	10	10.0	2.00
K2409822-043	0.4010	10	10.0	2.00
K2409822-044	0.4010	10	10.0	2.00
K2409822-045	0.4050	10	9.9	1.98
K2409822-046	0.4050	10	9.9	1.98
K2409822-046	0.4050	10	9.9	1.98
K2409822-046	0.4040	10	9.9	1.98
K2409822-047	0.4030	10	9.9	1.99
K2409822-048	0.4010	10	10.0	2.00
K2409822-049	0.4060	10	9.9	1.97
K2409822-050	0.4090	10	9.8	1.96
K2409822-050	0.4050	10	9.9	1.98
K2409822-050	0.4060	10	9.9	1.97
K2409822-051	0.4010	10	10.0	2.00
K2409822-052	0.4010	10	10.0	2.00
K2409822-053	0.4040	10	9.9	1.98
K2409822-054	0.4010	10	10.0	2.00
K2409822-055	0.4050	10	9.9	1.98
K2409822-056	0.4010	10	10.0	2.00
K2409822-057	0.4030	10	9.9	1.99
K2409822-058	0.4030	10	9.9	1.99
K2409822-059	0.4040	10	9.9	1.98
K2409822-060	0.4010	10	10.0	2.00
Method Blank	0.4000	1	1.0	0.20

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

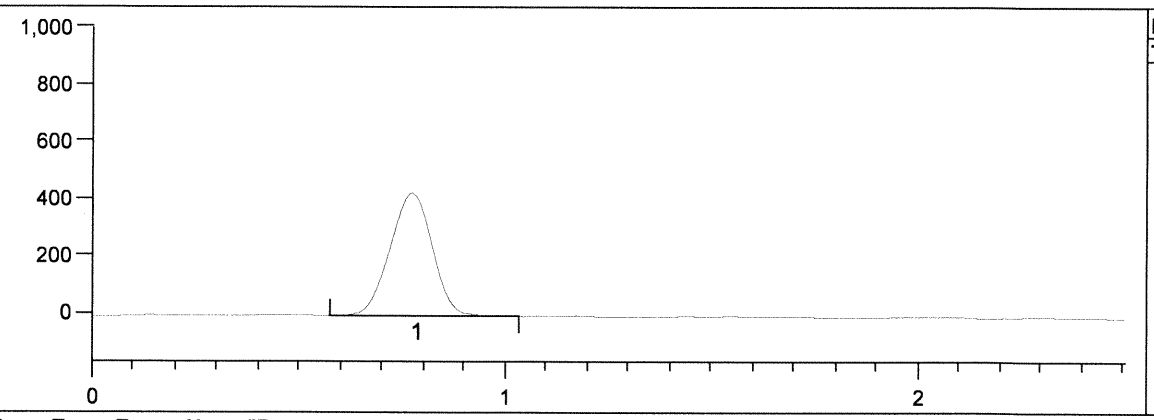


Date:	10/17/24
Time:	7:02 AM

Peak	rt	Area
1	0.77	37,007

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
1	X	CCB	RINSE		1	37,007	0.645		0.645	< 50	accept

Notes

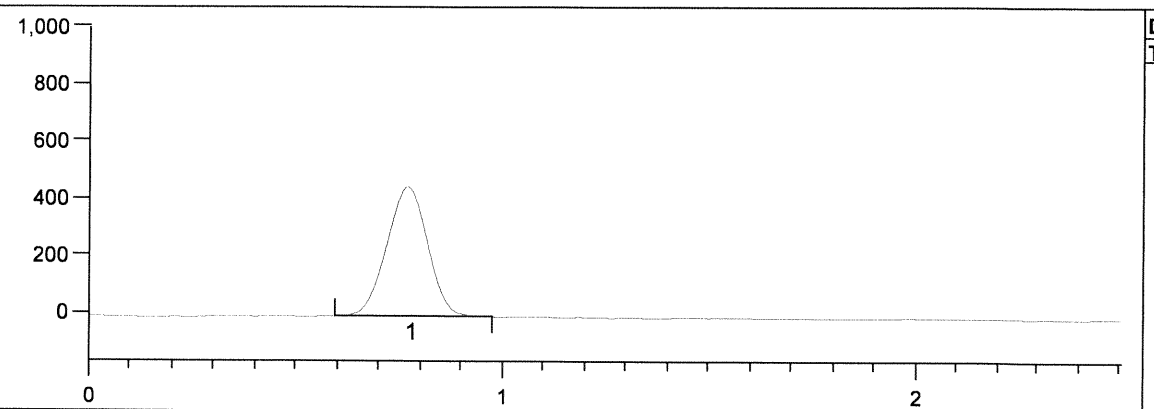


Date:	10/17/24
Time:	7:07 AM

Peak	rt	Area
1	0.77	31,398

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
2	Y	CCB	RINSE		1	31,398	-0.0443		-0.0443	< 50	accept

Notes



Date:	10/17/24
Time:	7:12 AM

Peak	rt	Area
1	0.76	31,910

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
3	X	CB	CB-1		1	31,910	3.92		3.92	< 50	accept

Notes

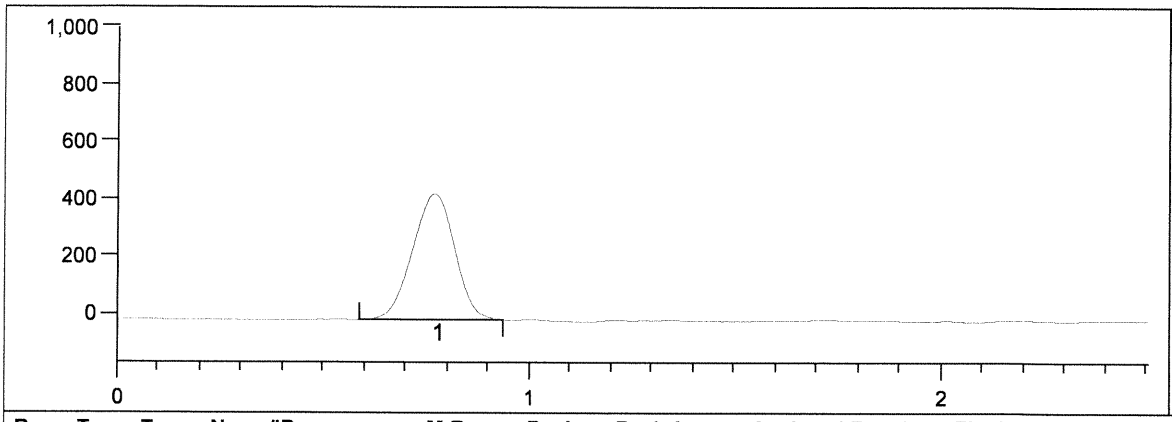
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

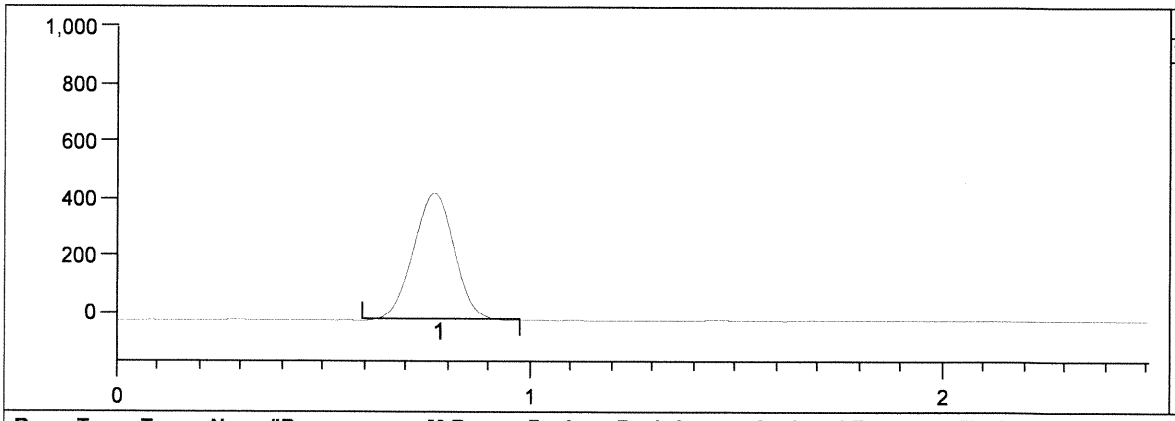


Date:	10/17/24
Time:	7:17 AM

Peak	rt	Area
1	0.77	31,768

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
4	Y	CB	CB-2		1	31,768	3.90		3.90	< 50	accept

Notes

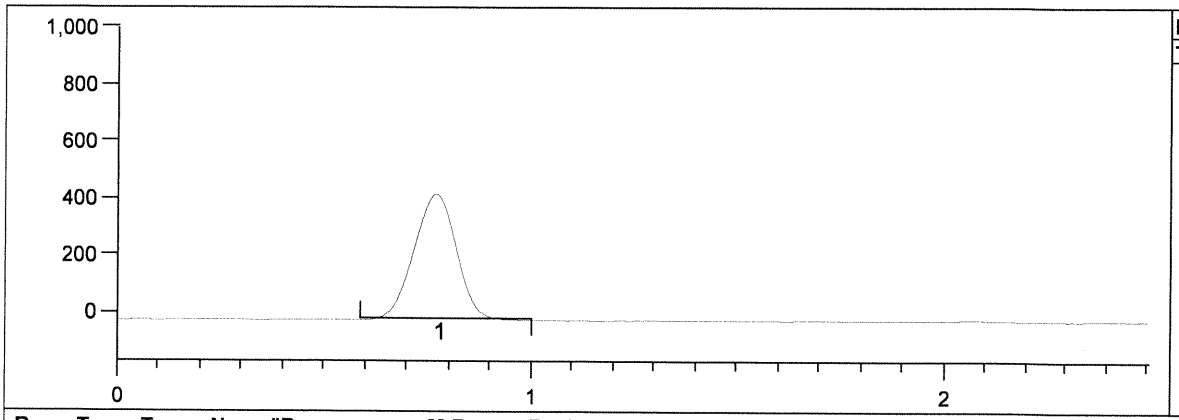


Date:	10/17/24
Time:	7:22 AM

Peak	rt	Area
1	0.76	31,421

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
5	X	CB	CB-3		1	31,421	3.86		3.86	< 50	accept

Notes



Date:	10/17/24
Time:	7:27 AM

Peak	rt	Area
1	0.76	31,935

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
6	Y	CB	CB-4		1	31,935	3.92		3.92	< 50	accept

Notes

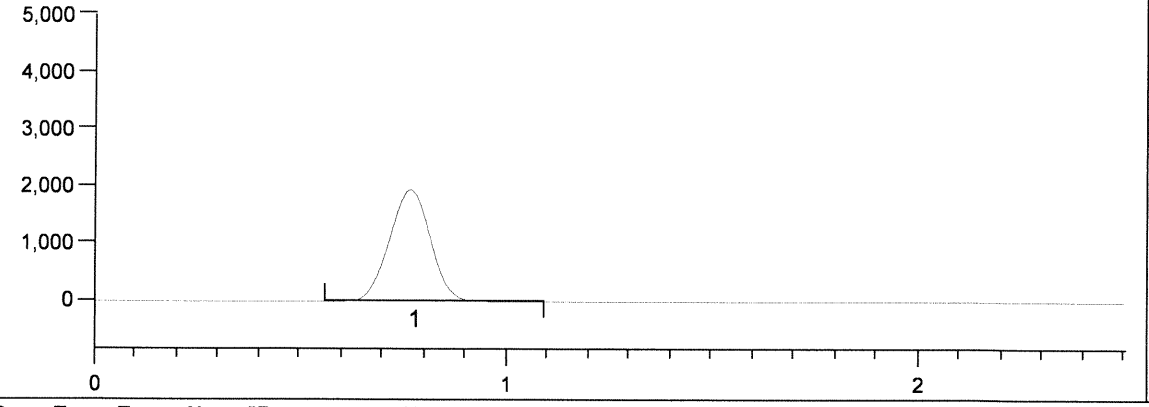
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

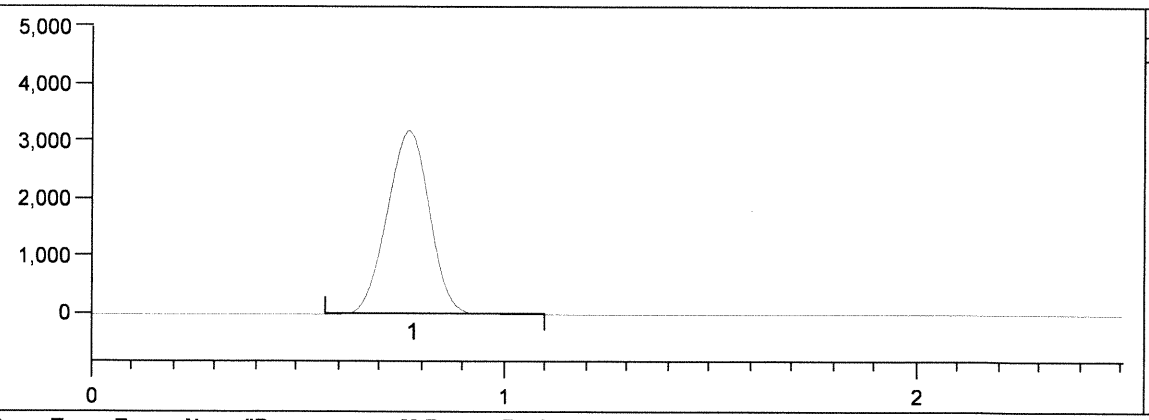


Date:	10/17/24
Time:	7:32 AM

Peak	rt	Area
1	0.76	137,982

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
7	X	STD	12.5 pg		1	137,982	13.0		104	75-125	accept

Notes0.125mL AF3-17-G

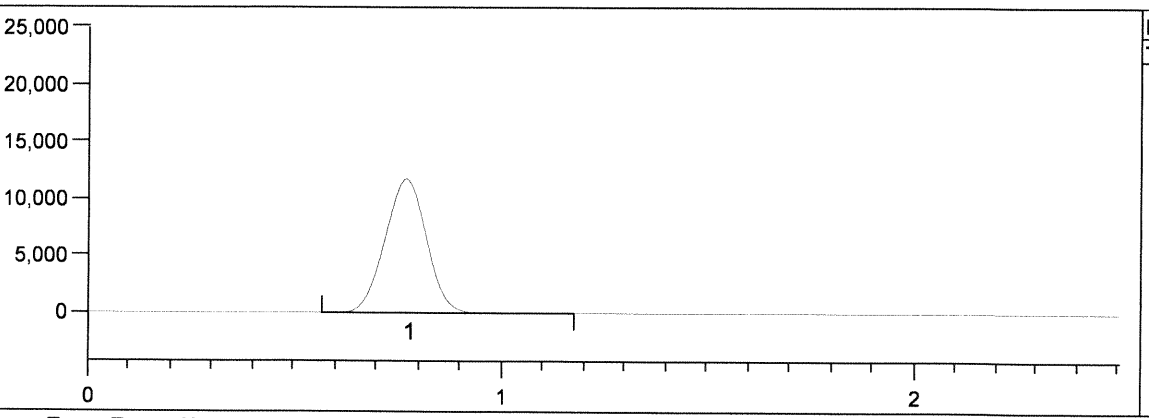


Date:	10/17/24
Time:	7:37 AM

Peak	rt	Area
1	0.77	232,147

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
8	Y	STD	25 pg		1	232,147	24.6		98.5	75-125	accept

Notes0.25mL AF3-17-G



Date:	10/17/24
Time:	7:42 AM

Peak	rt	Area
1	0.77	827,249

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
9	X	STD	100 pg		1	827,249	97.7		97.7	75-125	accept

Notes1.0mL AF3-17-G

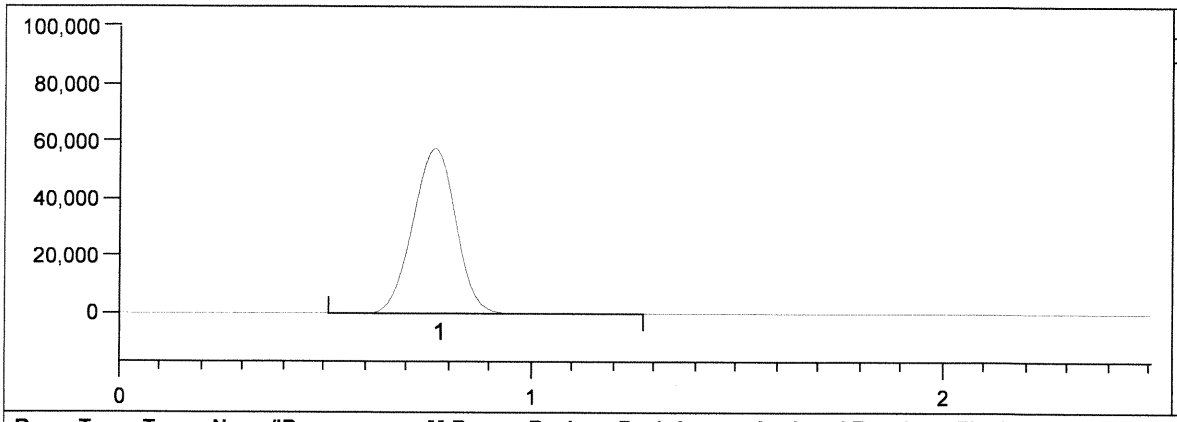
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

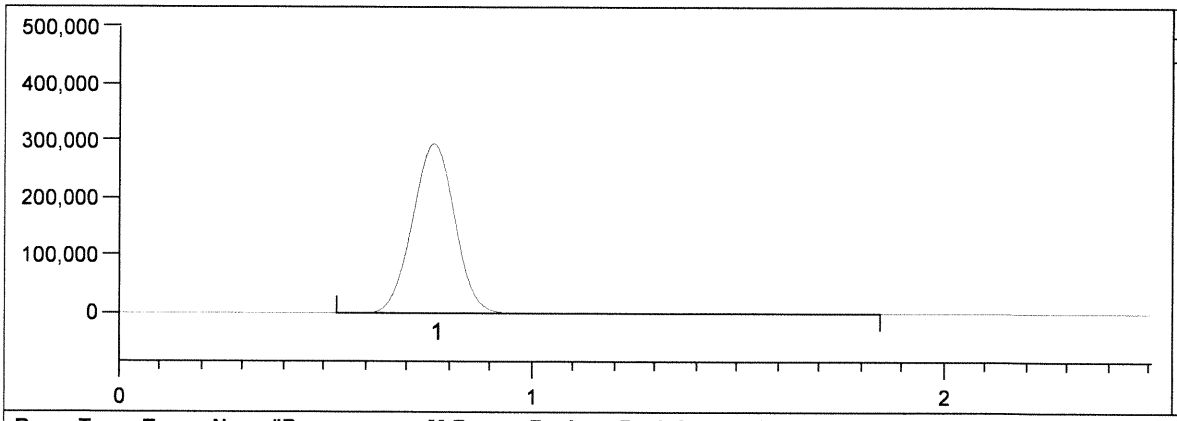
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	7:47 AM

Peak	rt	Area
1	0.76	4,200,471

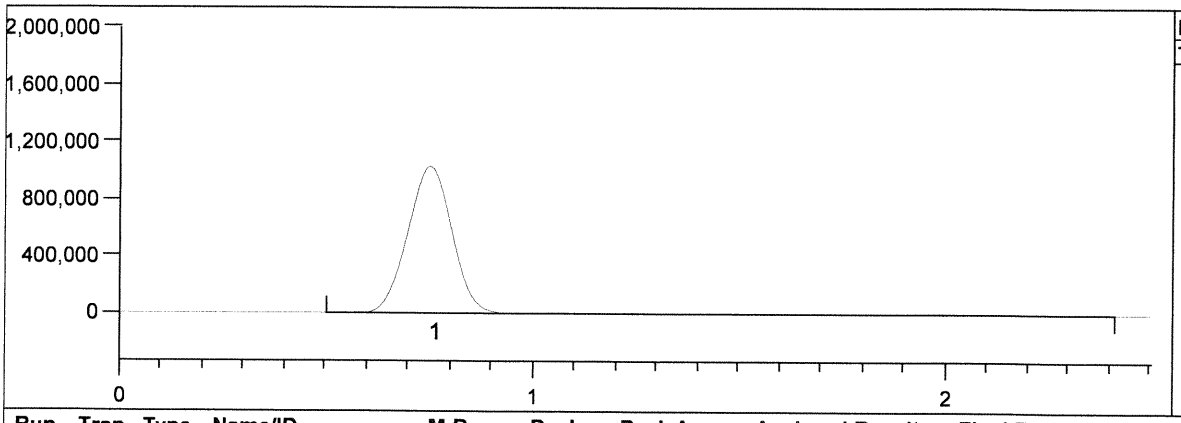
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
10	Y	STD	500 pg		1	4,200,471	512		102	75-125	accept
Notes0.05mL AF3-17-F											



Date:	10/17/24
Time:	7:52 AM

Peak	rt	Area
1	0.76	21,026,997

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
11	X	STD	2500 pg		1	21,026,997	2,580		103	75-125	accept
Notes0.25mL AF3-17-F											



Date:	10/17/24
Time:	7:57 AM

Peak	rt	Area
1	0.75	76,979,457

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
12	Y	STD	10000 pg		1	76,979,457	9,450		94.5	75-125	accept
Notes1.0mL AF3-17-F											

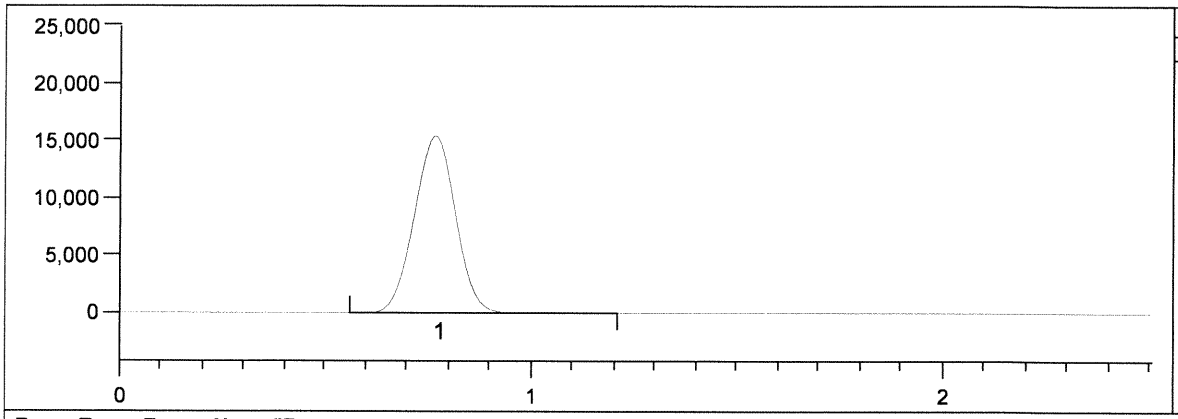
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

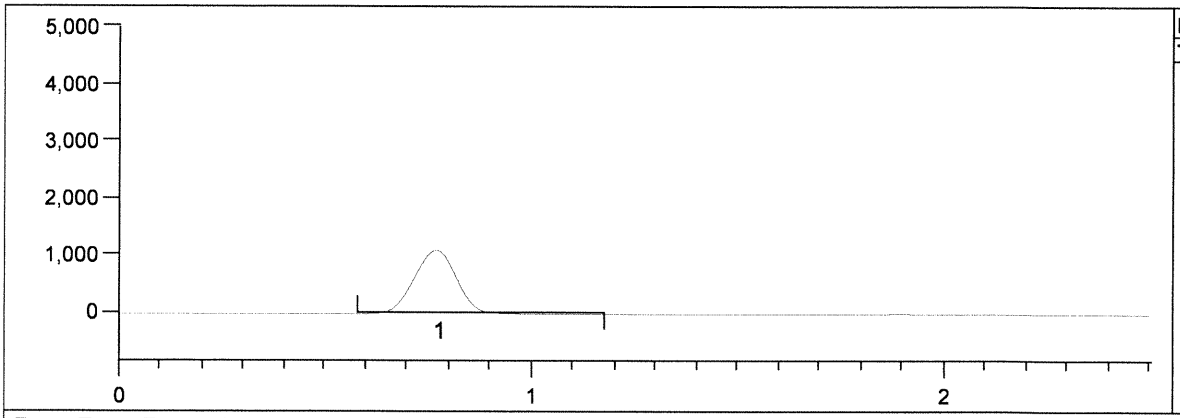
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	8:02 AM

Peak	rt	Area
1	0.76	1,086,774

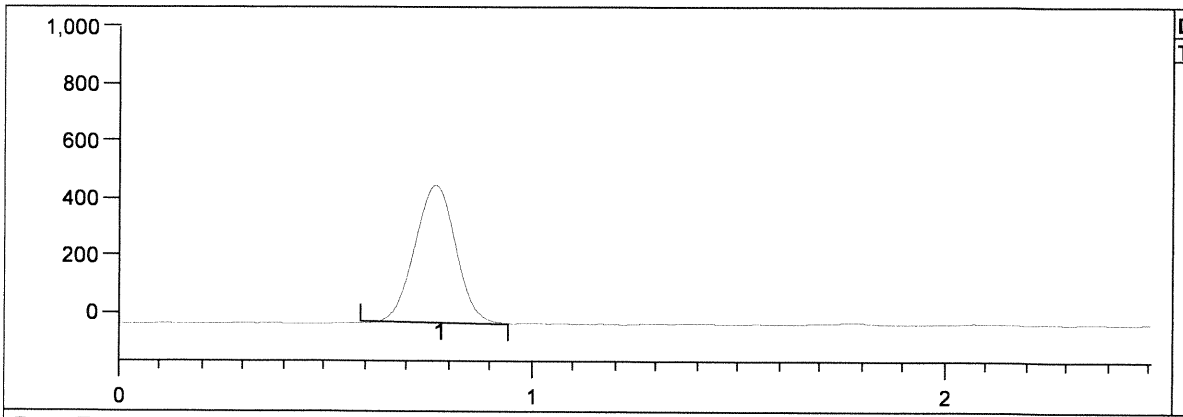
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
13	X	OPR	OPR-1		1	1,086,774	130.	5.18	104	77-123	accept
Notes											



Date:	10/17/24
Time:	8:38 AM

Peak	rt	Area
1	0.77	82,021

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
14	Y	S	7437169010 1631 10/11/24 1		1	82,021	6.17	0.247		< HS	accept
Notes											



Date:	10/17/24
Time:	8:43 AM

Peak	rt	Area
1	0.76	33,723

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
15	X	S	7437169010 1631 10/11/24 2		1	33,723	0.241	0.00965		< HS	accept
Notes											

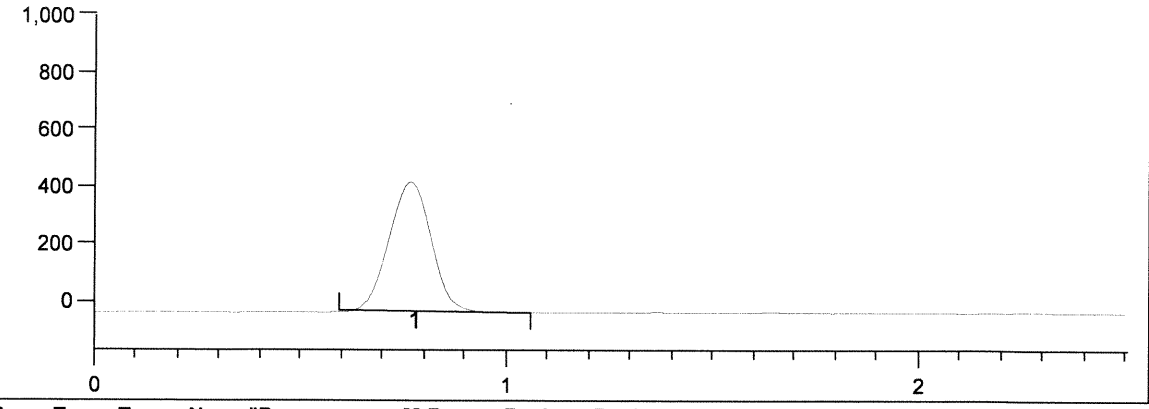
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

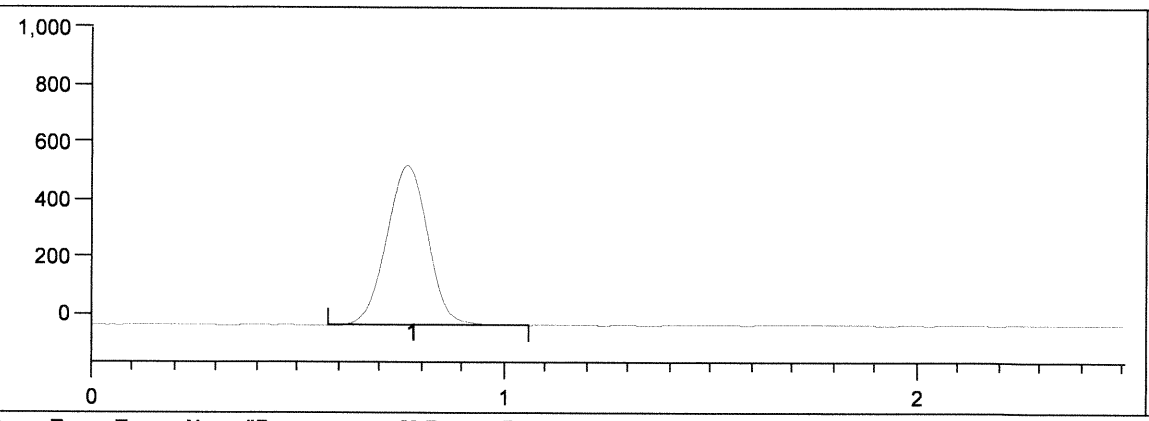
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	8:48 AM

Peak	rt	Area
1	0.76	32,905

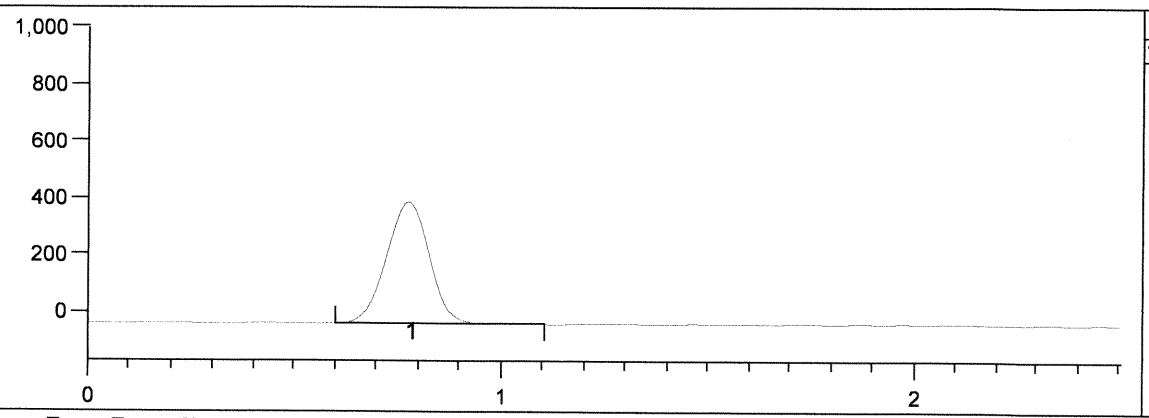
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
16	Y	S	7437169010 1631 10/11/24 3		1	32,905	0.141	0.00563		< HS	accept
Notes											



Date:	10/17/24
Time:	8:53 AM

Peak	rt	Area
1	0.76	39,723

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
17	X	S	7437169010 1631 10/11/24 4		1	39,723	0.978	0.0391		< HS	accept
Notes											



Date:	10/17/24
Time:	8:58 AM

Peak	rt	Area
1	0.77	30,815

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
18	Y	S	7437169010 1631 10/11/24 5		1	30,815	-0.116	-0.00464		< HS	accept
Notes											

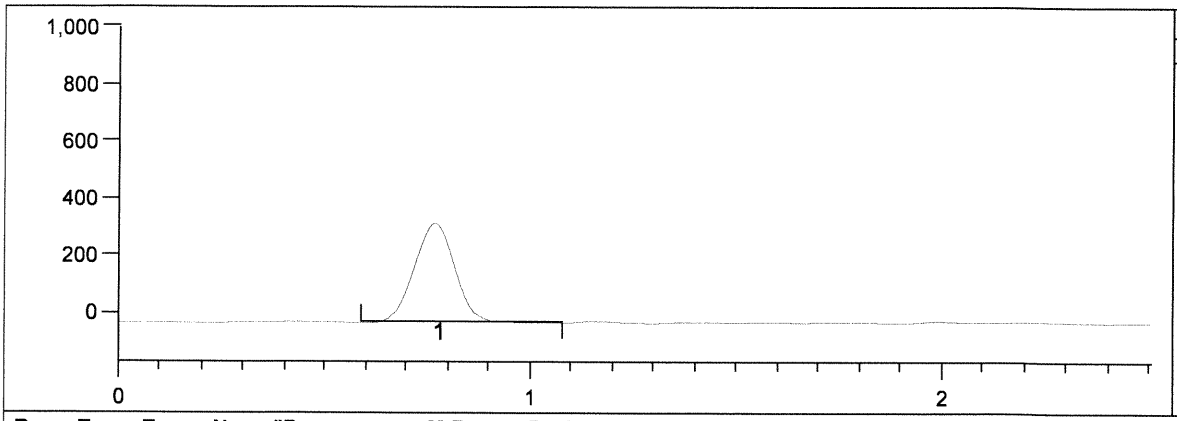
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

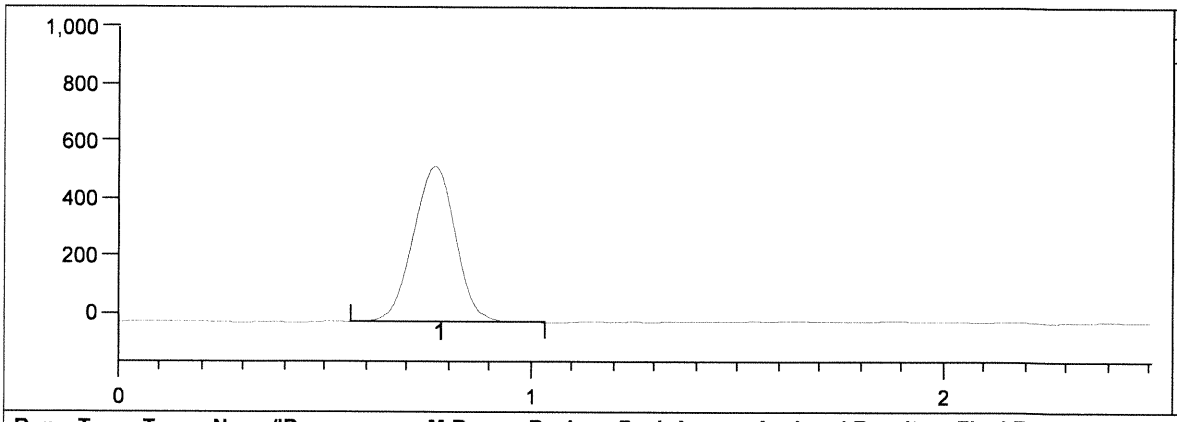
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	9:03 AM

Peak	rt	Area
1	0.76	24,808

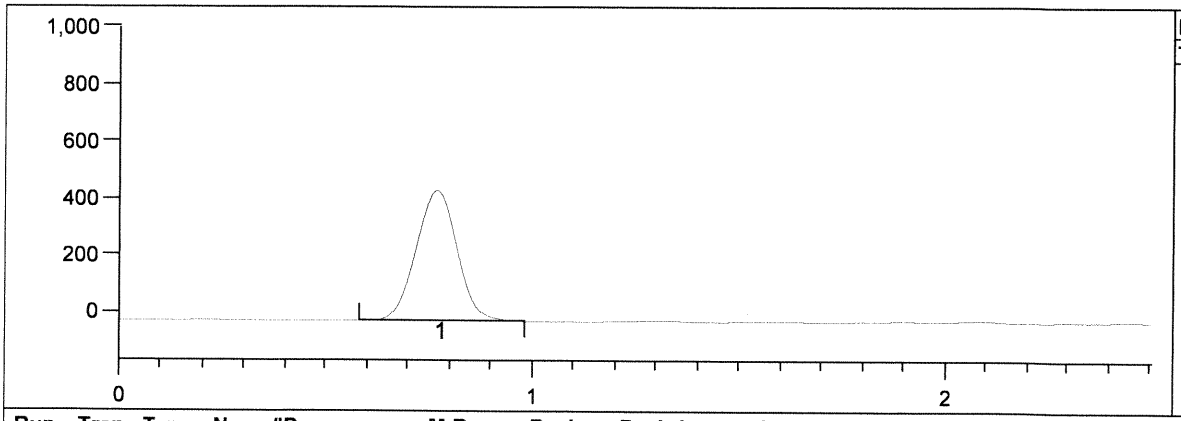
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
19	X	S	7437169010 1631 10/11/24 6		1	24,808	-0.854	-0.0342		< HS	accept
Notes											



Date:	10/17/24
Time:	9:08 AM

Peak	rt	Area
1	0.76	39,502

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
20	Y	S	7437169010 1631 10/11/24 7		1	39,502	0.951	0.0381		< HS	accept
Notes											



Date:	10/17/24
Time:	9:13 AM

Peak	rt	Area
1	0.76	32,442

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
21	X	S	7437169010 1631 10/11/24 8		1	32,442	0.0840	0.00336		< HS	accept
Notes											

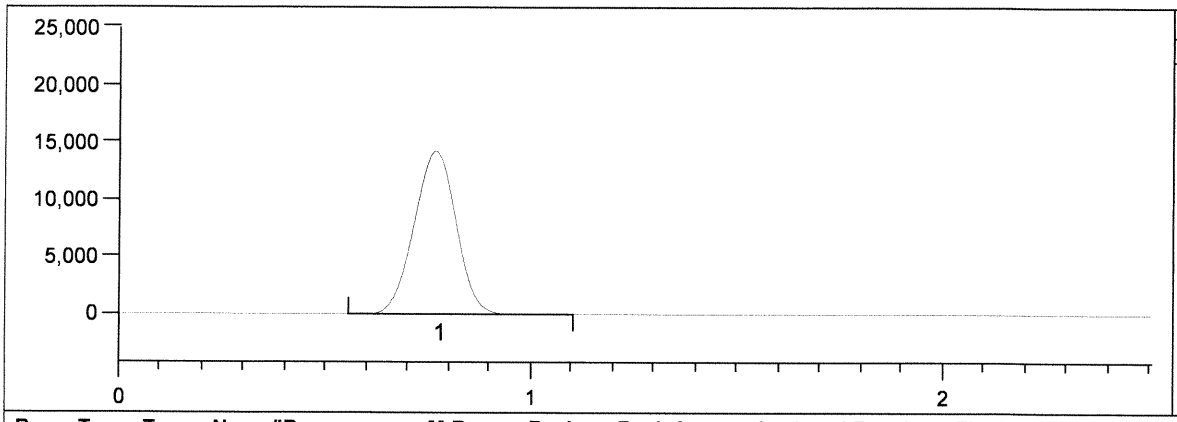
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

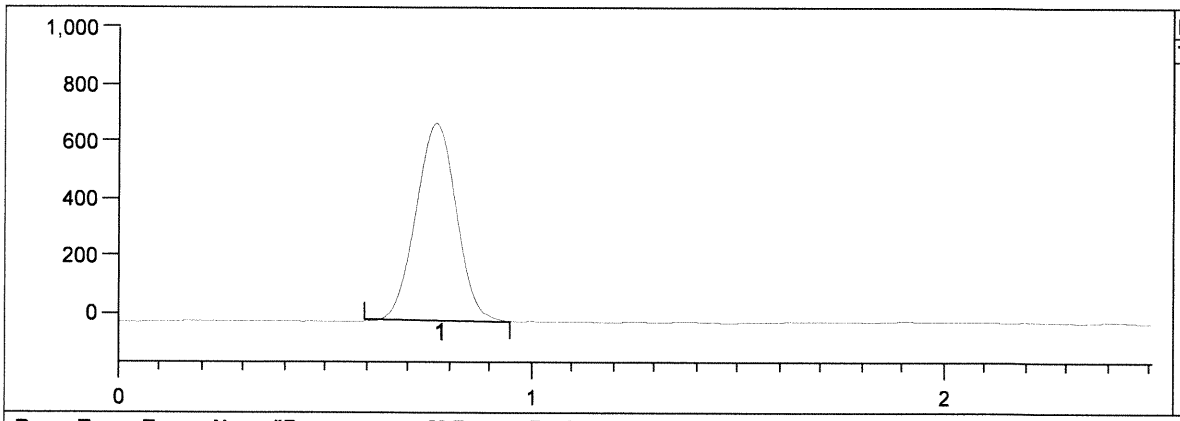


Date: 10/17/24
Time: 9:18 AM

Peak	rt	Area
1	0.76	1,039,057

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
22	Y	OPR	OPR-2		1	1,039,057	124	4.95	99.0	77-123	accept

Notes

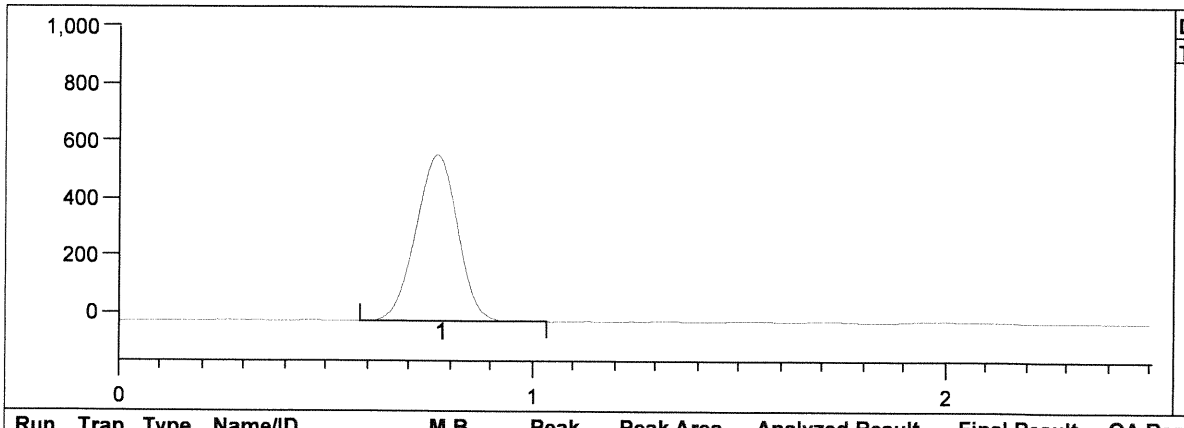


Date: 10/17/24
Time: 9:23 AM

Peak	rt	Area
1	0.76	48,256

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
23	X	S	HCL CLEANED BOTTLES 1		1	48,256	2.03	0.0811		< HS	accept

Notes



Date: 10/17/24
Time: 9:28 AM

Peak	rt	Area
1	0.76	41,825

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
24	Y	S	HCL CLEANED BOTTLES 2		1	41,825	1.24	0.0495		< HS	accept

Notes

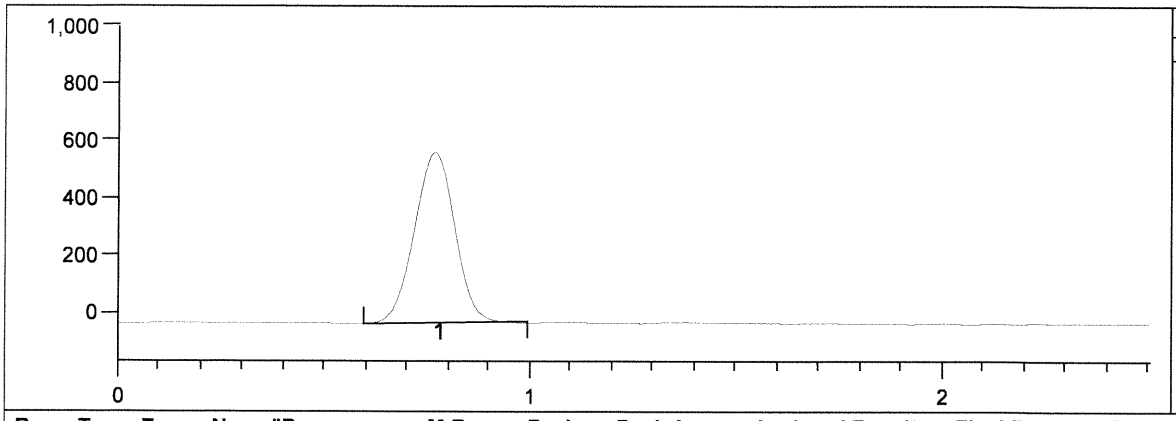
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

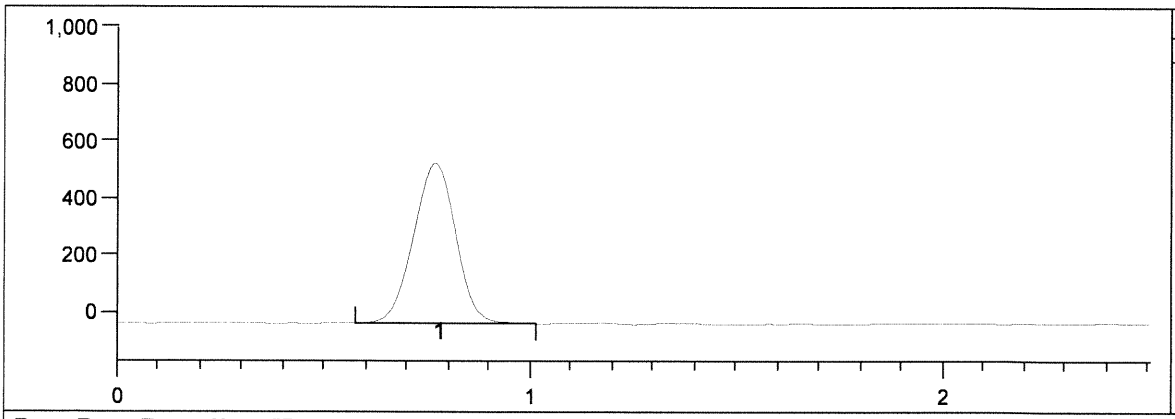
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	9:33 AM

Peak	rt	Area
1	0.76	41,945

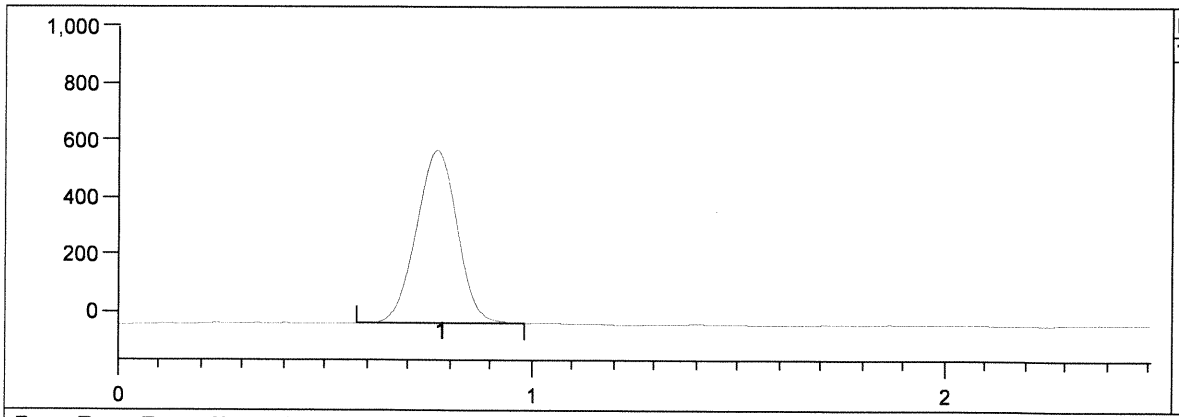
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
25	X	S	HCL CLEANED BOTTLES 3		1	41,945	1.25	0.0501		< HS	accept
Notes											



Date:	10/17/24
Time:	9:38 AM

Peak	rt	Area
1	0.76	40,583

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
26	Y	S	HCL CLEANED BOTTLES 4		1	40,583	1.08	0.0434		< HS	accept
Notes											



Date:	10/17/24
Time:	9:43 AM

Peak	rt	Area
1	0.76	42,439

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
27	X	S	HCL CLEANED BOTTLES 5		1	42,439	1.31	0.0525		< HS	accept
Notes											

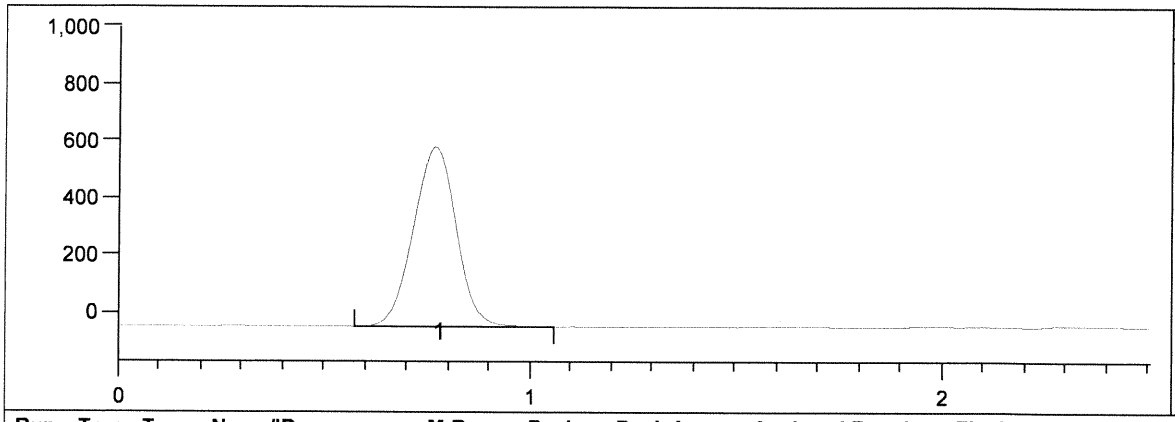
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

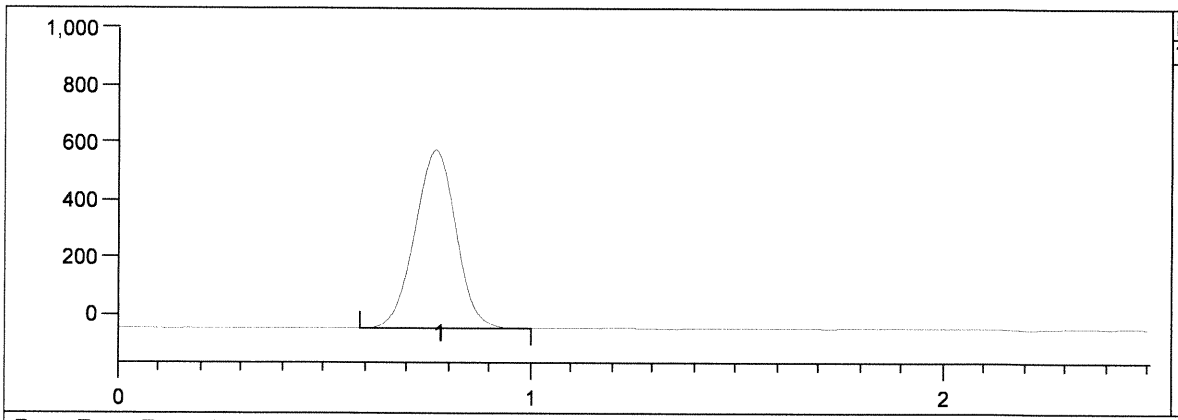
Date Analyzed: 10/17/24
Analyst Name:



Date: 10/17/24
Time: 9:48 AM

Peak	rt	Area
1	0.76	45,705

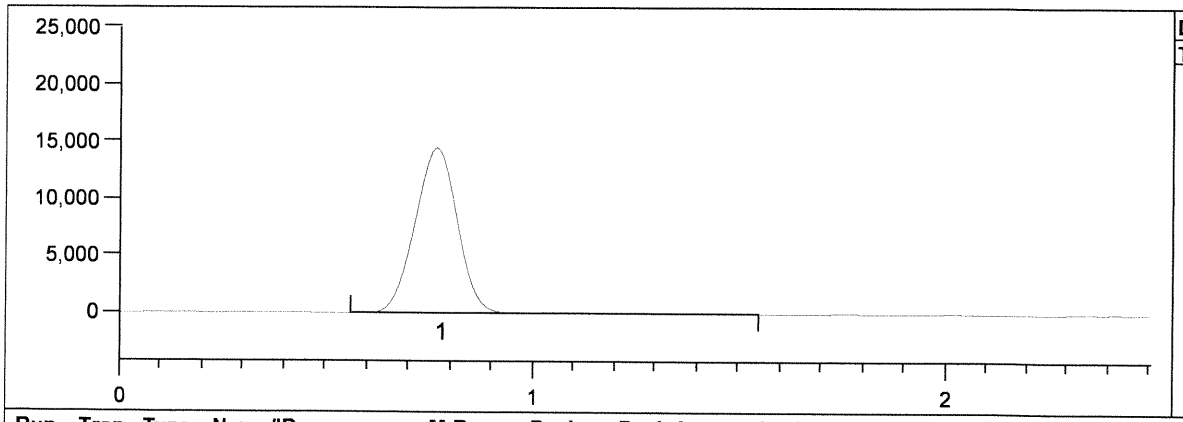
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
28	Y	S	HCL CLEANED BOTTLES 6		1	45,705	1.71	0.0685		< HS	accept
Notes											



Date: 10/17/24
Time: 9:53 AM

Peak	rt	Area
1	0.76	43,392

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
29	X	S	HCL CLEANED BOTTLES 7		1	43,392	1.43	0.0572		< HS	accept
Notes											



Date: 10/17/24
Time: 9:58 AM

Peak	rt	Area
1	0.76	1,043,755

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
30	Y	OPR	OPR-3		1	1,043,755	124	4.97	99.5	77-123	accept
Notes											

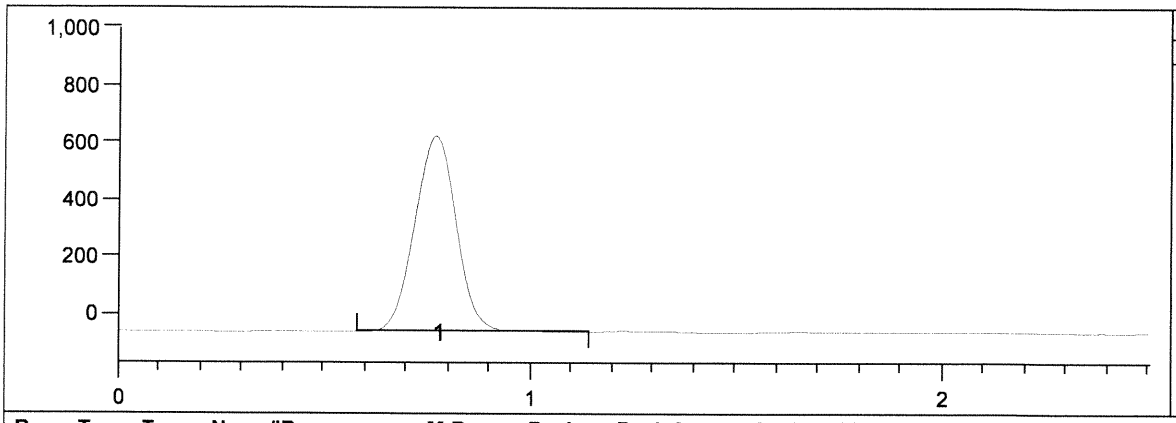
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

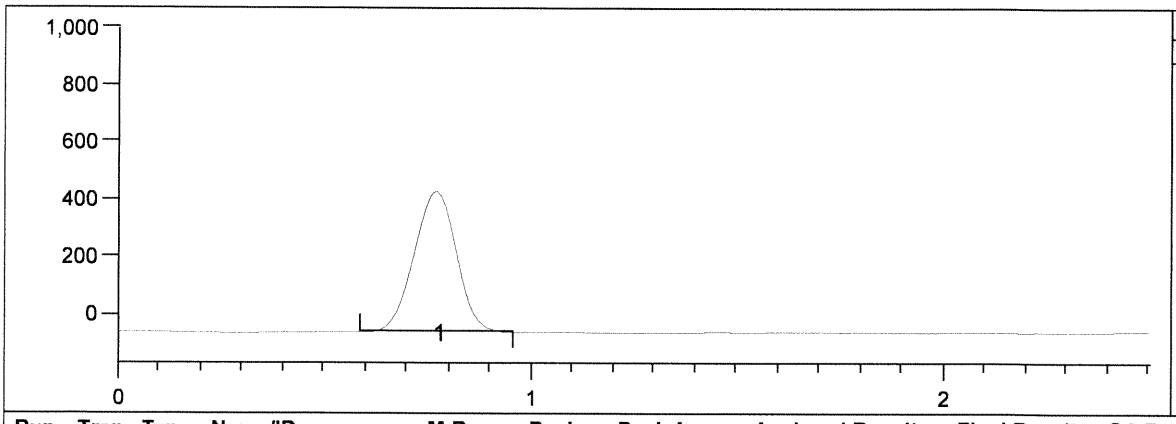
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	10:03 AM

Peak	rt	Area
1	0.77	48,594

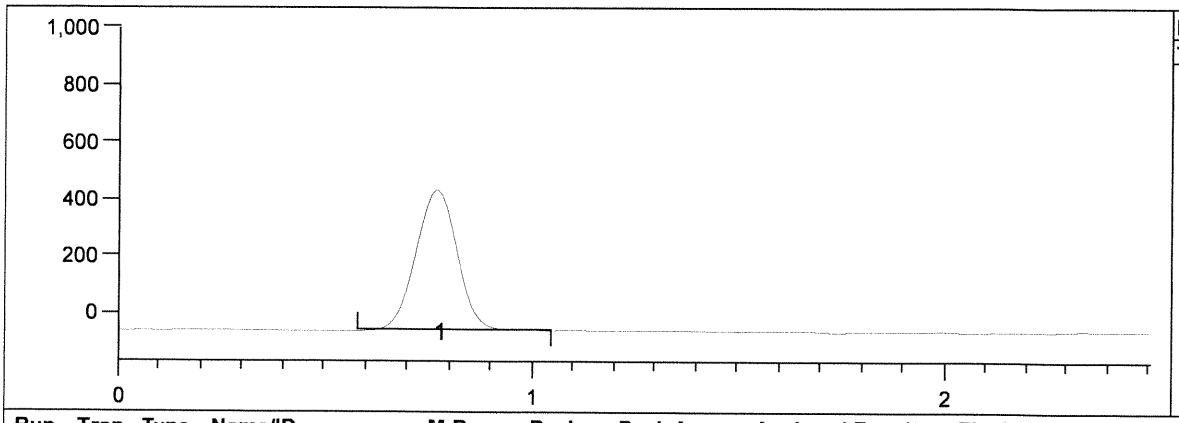
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
31	X	S	VOA VIAL 1		1	48,594	2.07	0.0827		< HS	accept
Notes											



Date:	10/17/24
Time:	10:08 AM

Peak	rt	Area
1	0.77	35,221

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
32	Y	S	VOA VIAL 2		1	35,221	0.425	0.0170		< HS	accept
Notes											



Date:	10/17/24
Time:	10:13 AM

Peak	rt	Area
1	0.77	34,944

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
33	X	S	VOA VIAL 3		1	34,944	0.391	0.0157		< HS	accept
Notes											

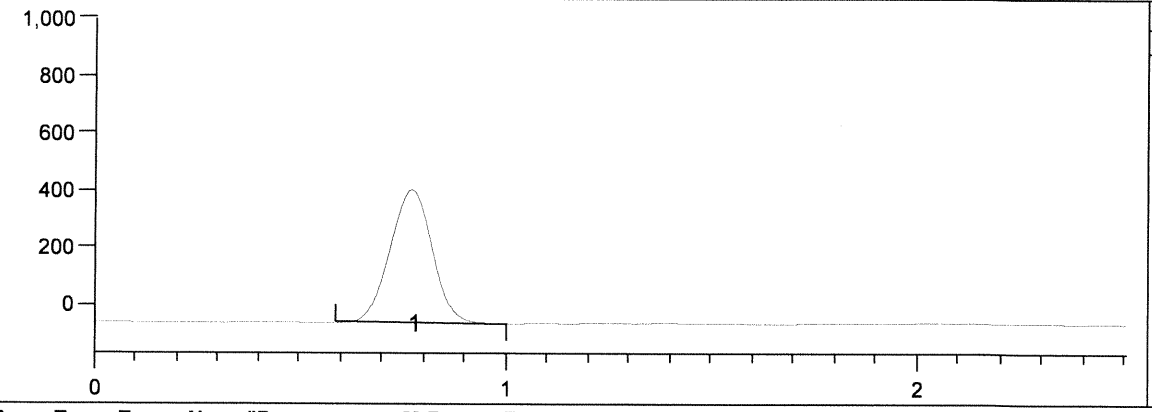
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

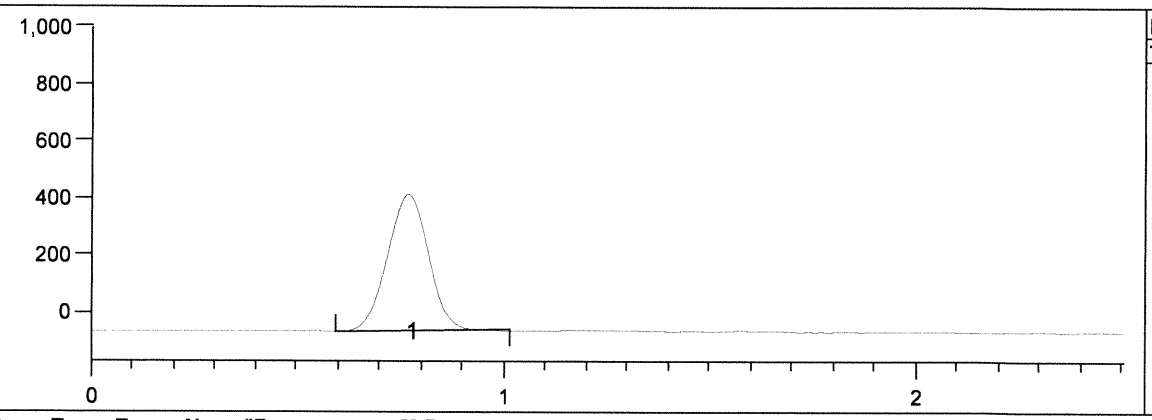


Date: 10/17/24
Time: 10:18 AM

Peak	rt	Area
1	0.77	33,828

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
34	Y	S	VOA VIAL 4		1	33,828	0.254	0.0102		< HS	accept

Notes

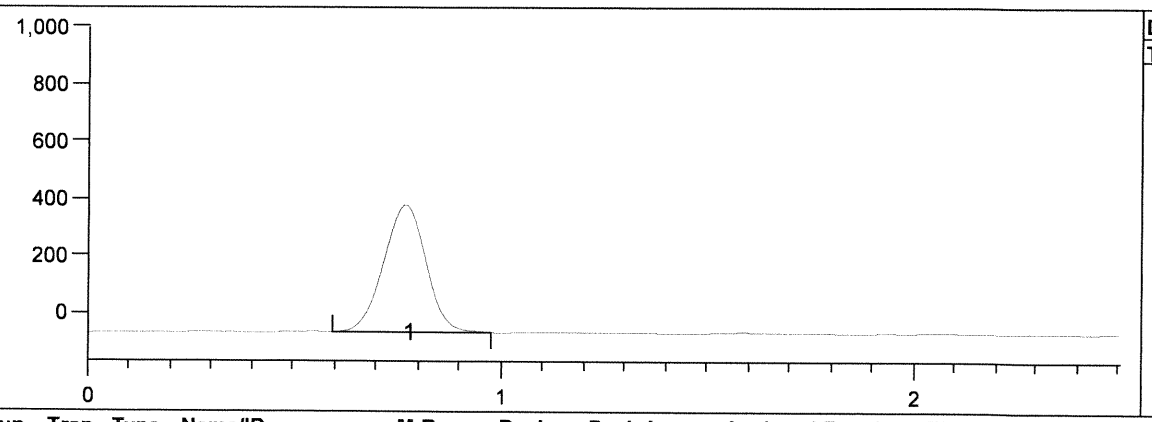


Date: 10/17/24
Time: 10:23 AM

Peak	rt	Area
1	0.76	33,812

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
35	X	S	VOA VIAL 5		1	33,812	0.252	0.0101		< HS	accept

Notes



Date: 10/17/24
Time: 10:28 AM

Peak	rt	Area
1	0.76	31,892

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
36	Y	S	VOA VIAL 6		1	31,892	0.0164	0.000656		< HS	accept

Notes

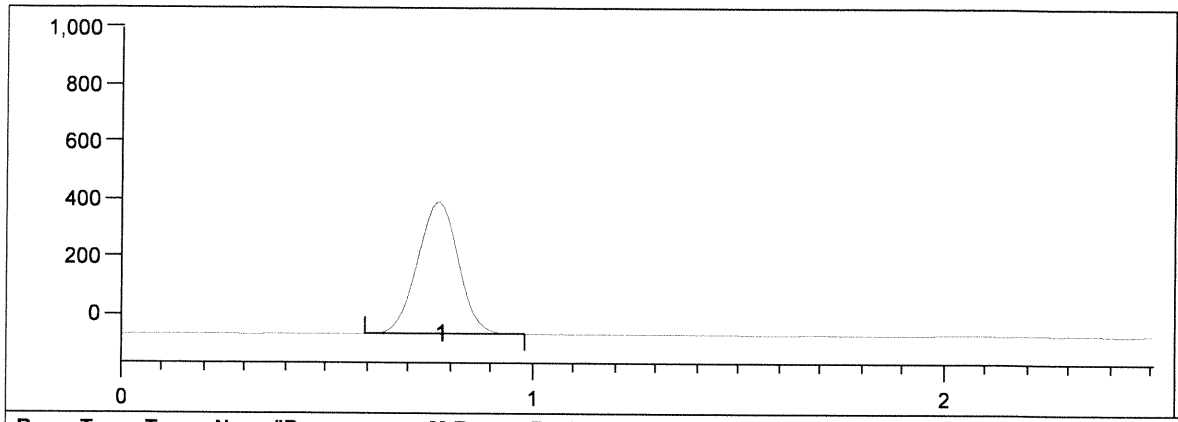
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

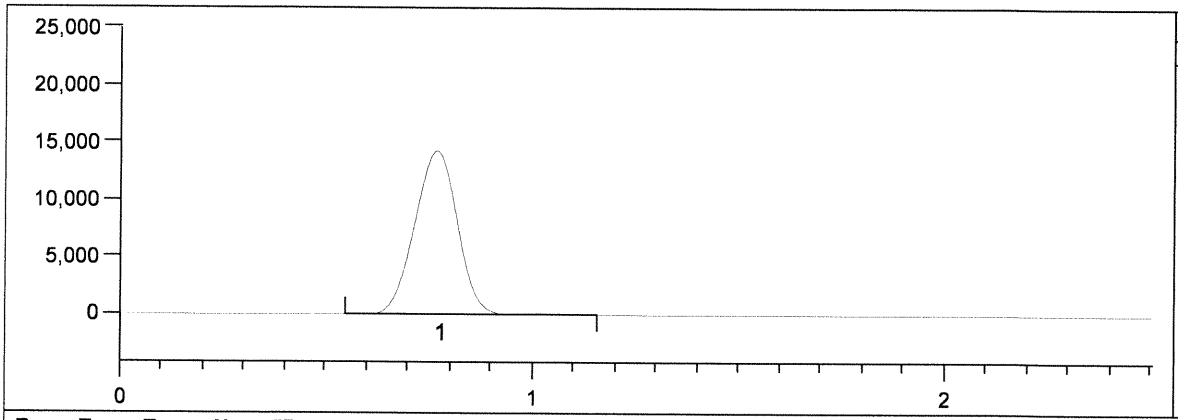
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	10:33 AM

Peak	rt	Area
1	0.77	32,378

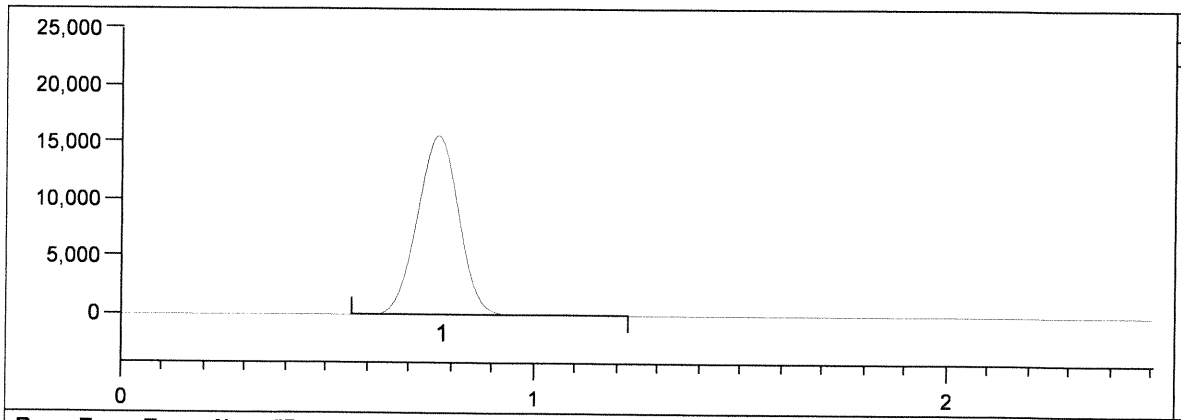
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
37	X	S	VOA VIAL 7		1	32,378	0.0761	0.00304		< HS	accept
Notes											



Date:	10/17/24
Time:	10:38 AM

Peak	rt	Area
1	0.76	1,042,440

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
38	Y	OPR	OPR-4		1	1,042,440	124	4.97	99.3	77-123	accept
Notes											



Date:	10/17/24
Time:	10:43 AM

Peak	rt	Area
1	0.76	1,096,910

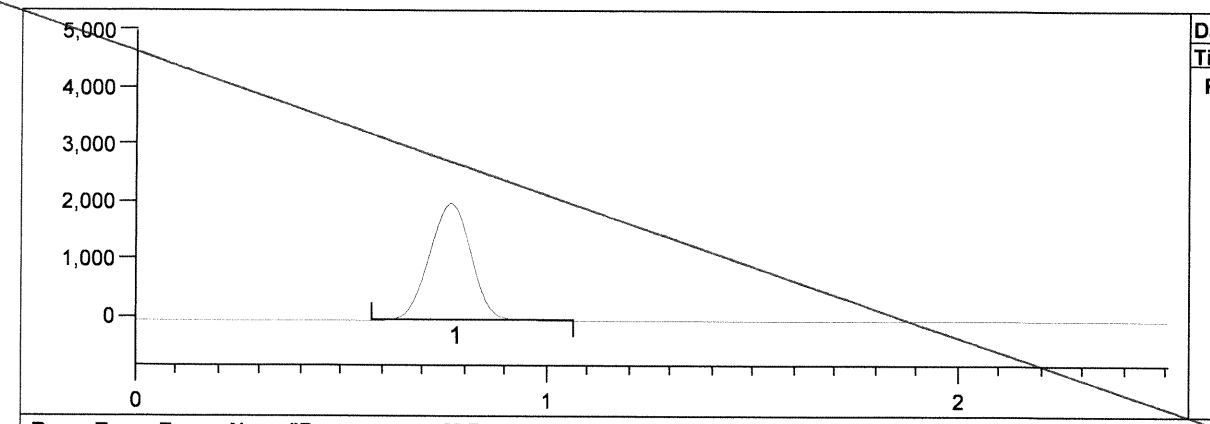
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
39	X	QCS	QCS-1		1	1,096,910	131	5.23	105	77-123	accept
Notes											

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:



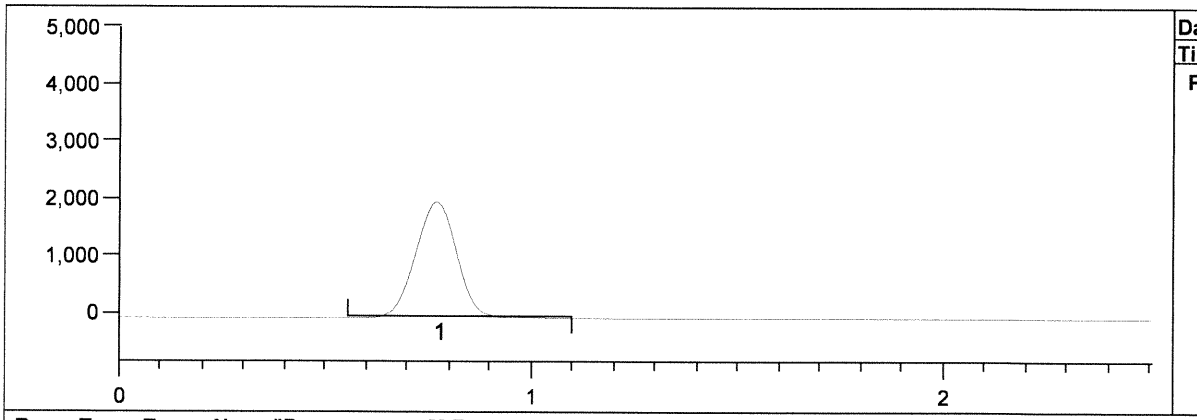
Date:	10/17/24
Time:	10:48 AM

Peak	rt	Area
1	0.76	147,084

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
40	Y	MBA	MB-1		1	147,084	14.2	0.567	0.567	< 0.5	reject

Notes

DS 10/17/24



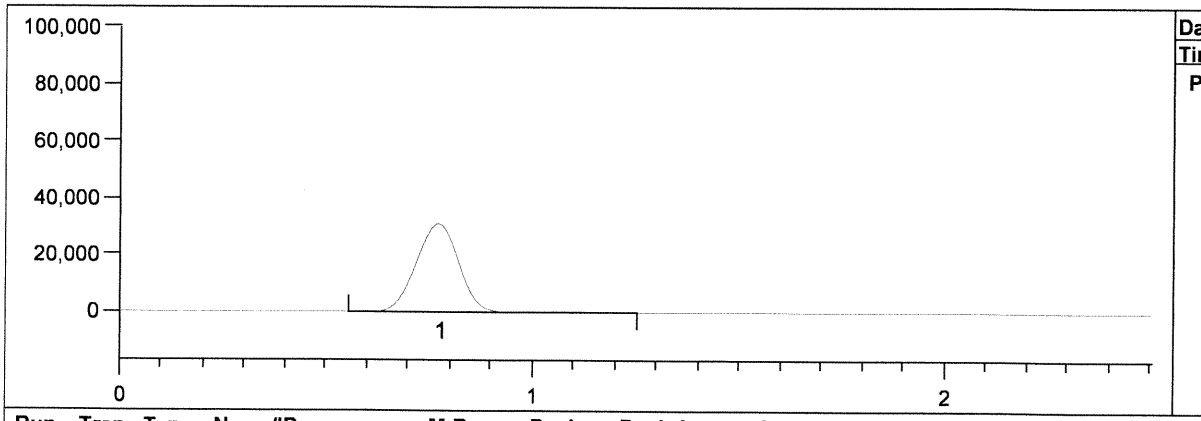
Date:	10/17/24
Time:	11:21 AM

Peak	rt	Area
1	0.77	143,021

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
41	X	MBA	MB-1		1	143,021	13.7	0.547	0.547	< 0.5	~~reject~~ accept

Notes

DS 10/17/24



Date:	10/17/24
Time:	11:39 AM

Peak	rt	Area
1	0.77	2,255,300

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
42	Y	S	K2410836-002		1	2,255,300	273	10.9		< HS	accept

Notes

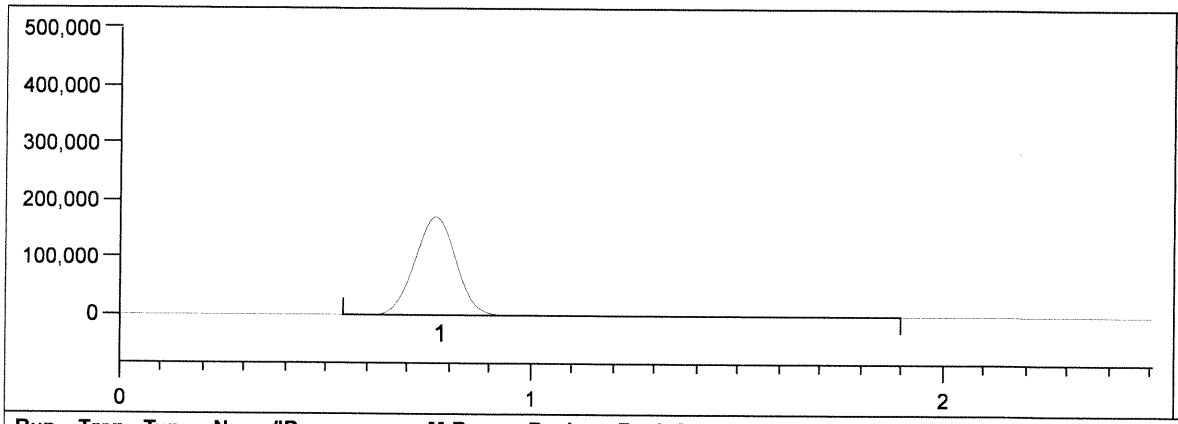
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

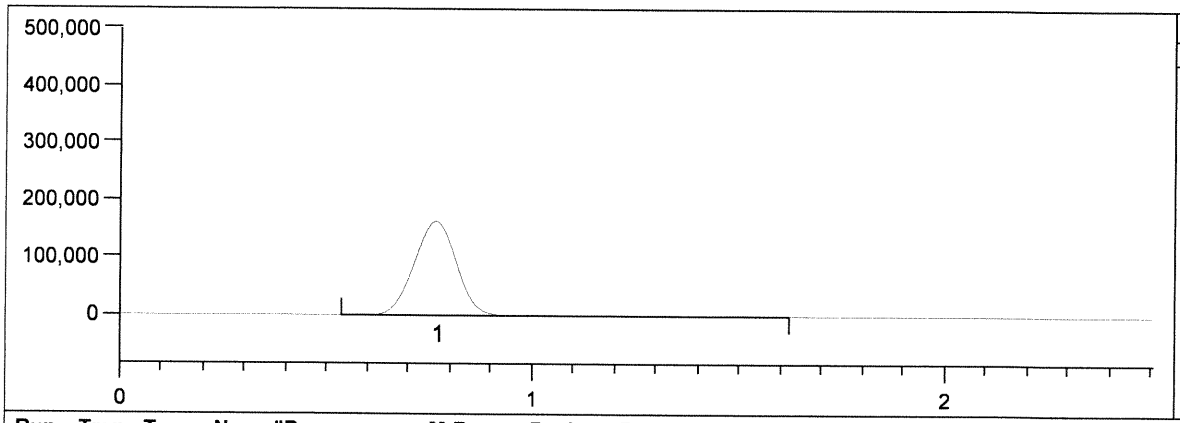
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	11:44 AM

Peak	rt	Area
1	0.76	12,159,407

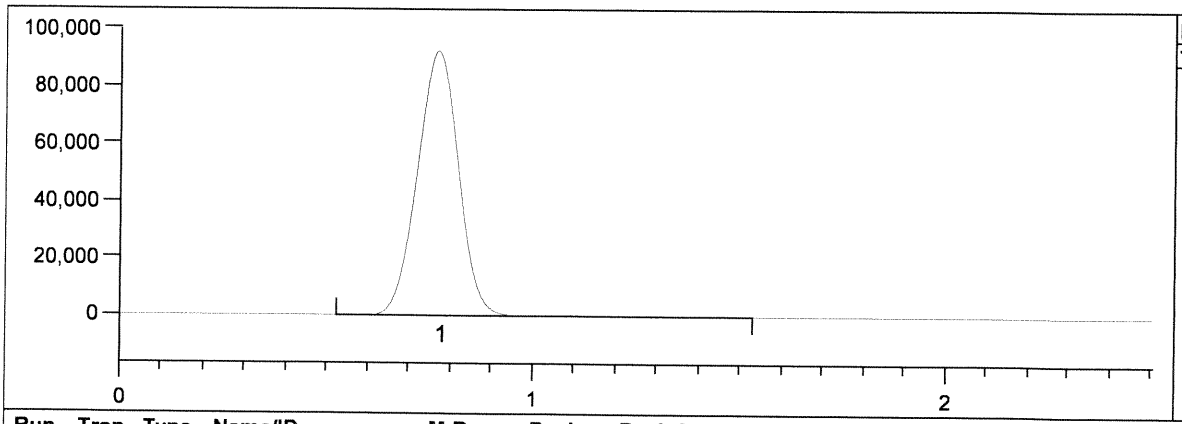
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
43	X	MS	K2410836-002		1	12,159,407	1,490	59.6	97.3	71-125	accept
Notes											



Date:	10/17/24
Time:	11:49 AM

Peak	rt	Area
1	0.76	11,842,503

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
44	Y	MSD	K2410836-002		1	11,842,503	1,450	58.0	94.2	71-125	accept
Notes											



Date:	10/17/24
Time:	11:54 AM

Peak	rt	Area
1	0.77	6,484,518

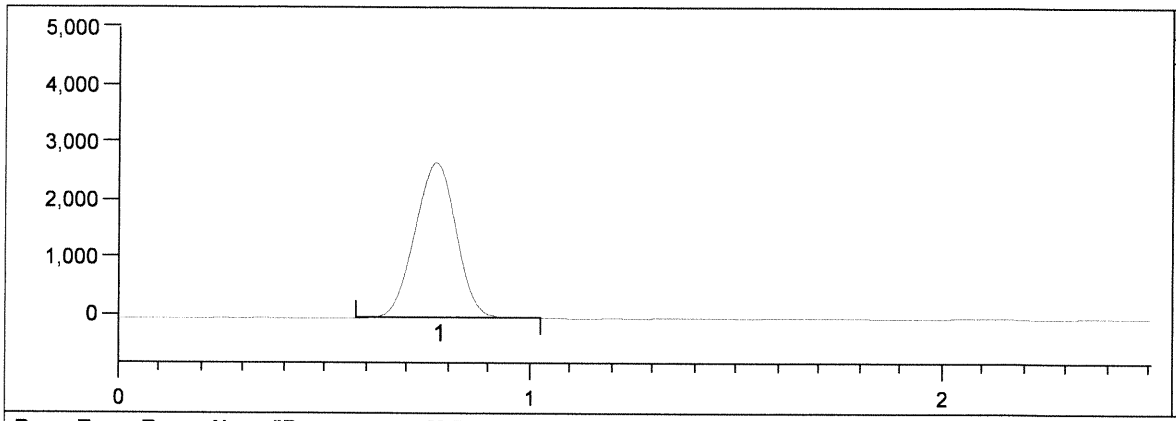
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
45	X	S	K2410836-001		1	6,484,518	793	31.7		< HS	accept
Notes											

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

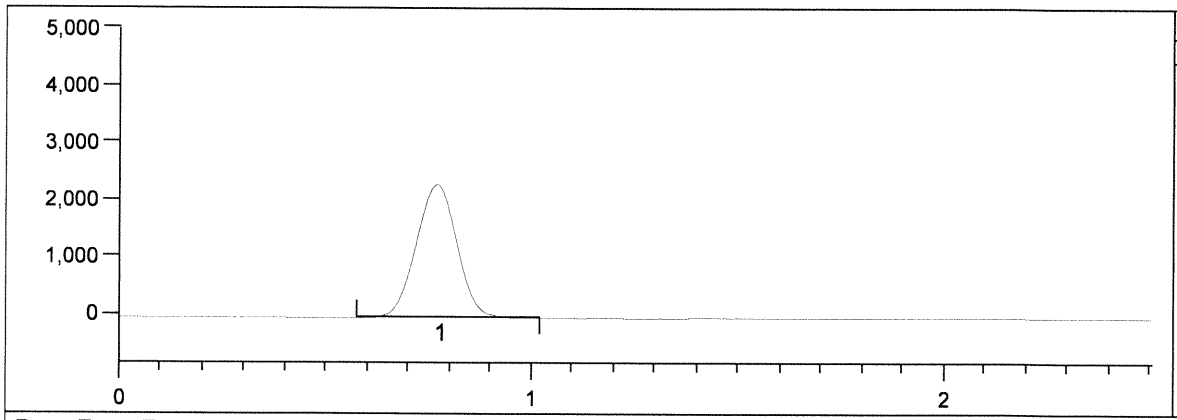


Date:	10/17/24
Time:	11:59 AM

Peak	rt	Area
1	0.77	195,799

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
46	Y	S	K2410807-001		1	195,799	20.2	0.806		< HS	accept

Notes

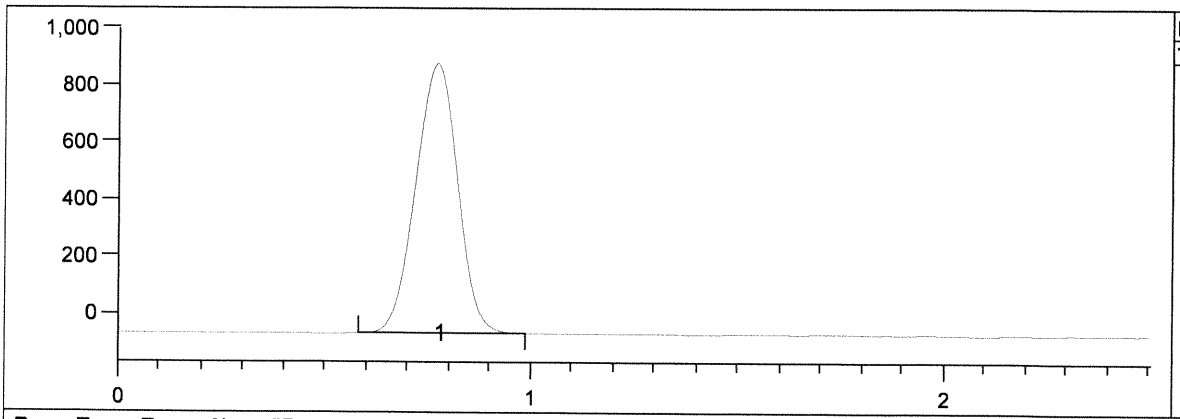


Date:	10/17/24
Time:	12:04 PM

Peak	rt	Area
1	0.77	163,968

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
47	X	S	K2410807-002		1	163,968	16.2	0.650		< HS	accept

Notes



Date:	10/17/24
Time:	12:09 PM

Peak	rt	Area
1	0.77	67,760

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
48	Y	S	K2410807-003		1	67,760	4.42	0.177		< HS	accept

Notes

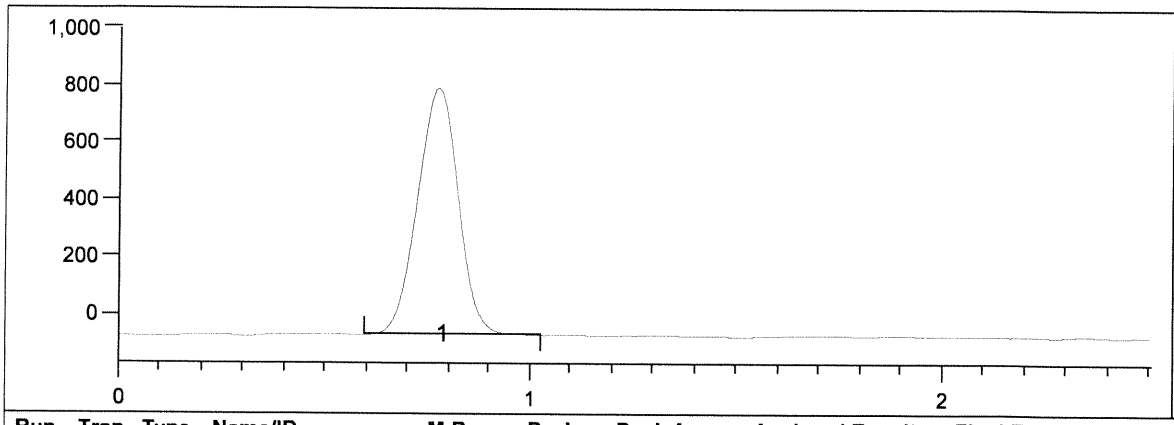
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

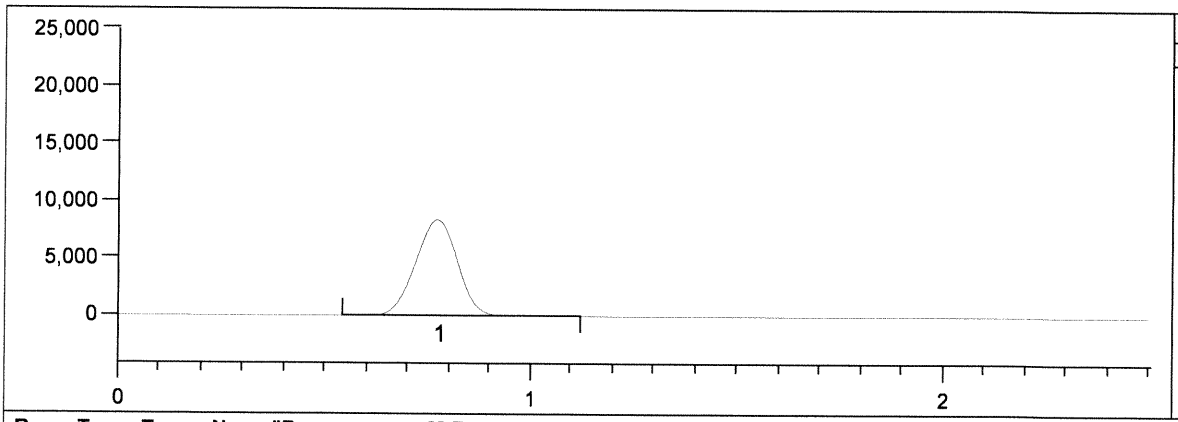


Date: 10/17/24
Time: 12:14 PM

Peak	rt	Area
1	0.77	60,584

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
49	X	S	K2410807-004		1	60,584	3.54	0.142		< HS	accept

Notes

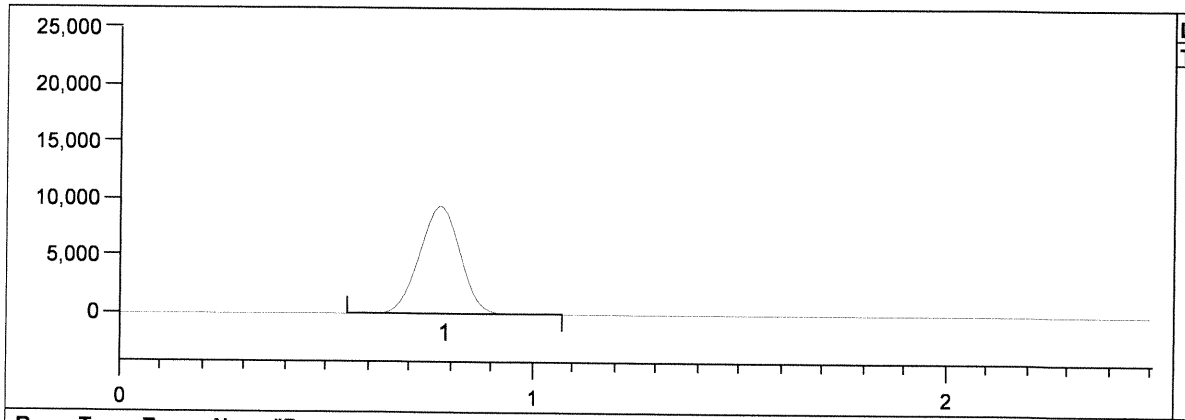


Date: 10/17/24
Time: 12:19 PM

Peak	rt	Area
1	0.77	615,735

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
50	Y	S	K2410842-001		1	615,735	71.7	2.87		< HS	accept

Notes



Date: 10/17/24
Time: 12:24 PM

Peak	rt	Area
1	0.77	667,147

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
51	X	S	K2410842-002		1	667,147	78.1	3.12		< HS	accept

Notes

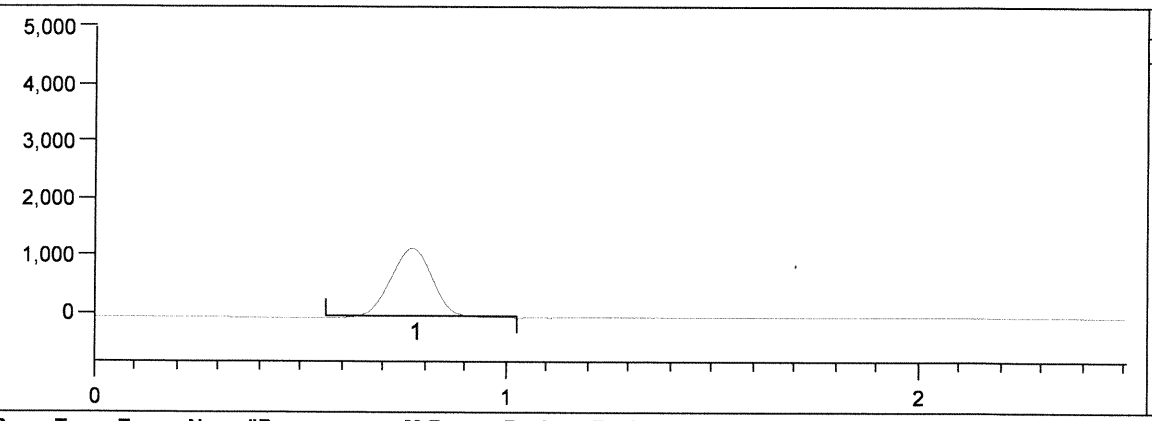
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

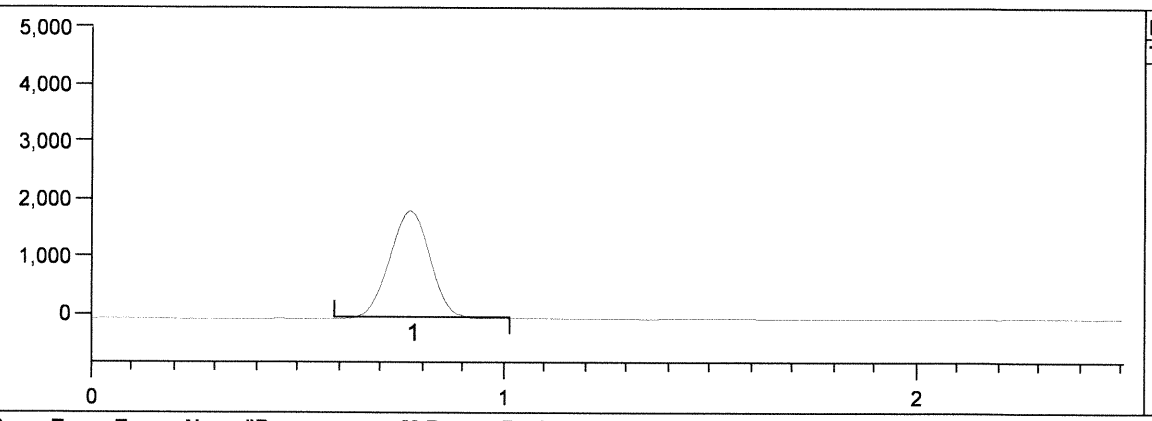


Date:	10/17/24
Time:	12:29 PM

Peak	rt	Area
1	0.77	88,840

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
52	Y	S	K2410842-003		1	88,840	7.01	0.281		< HS	accept

Notes

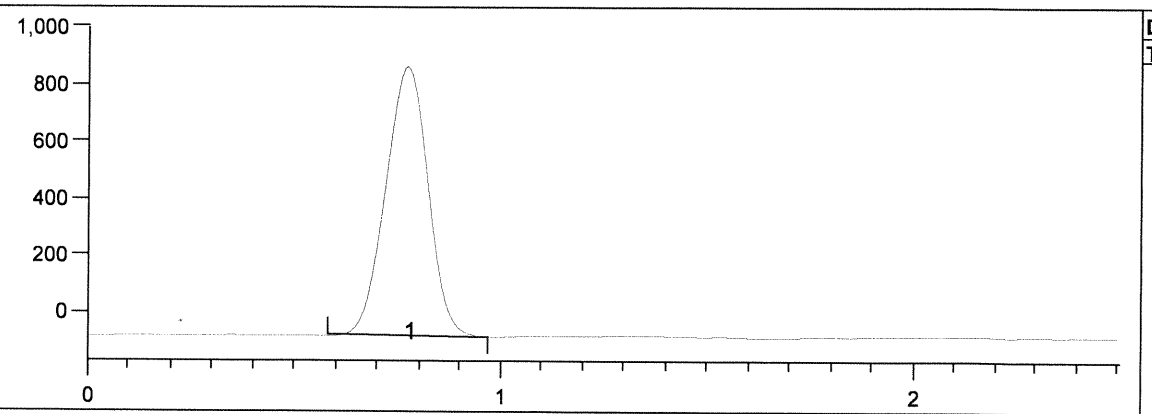


Date:	10/17/24
Time:	12:34 PM

Peak	rt	Area
1	0.77	131,968

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
53	X	S	K2410842-004		1	131,968	12.3	9.85		< HS	accept

Notes20X DILUTION



Date:	10/17/24
Time:	12:39 PM

Peak	rt	Area
1	0.77	68,239

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
54	Y	MBA	MB-2		1	68,239	4.48	0.179	0.179	< 0.5	accept

Notes

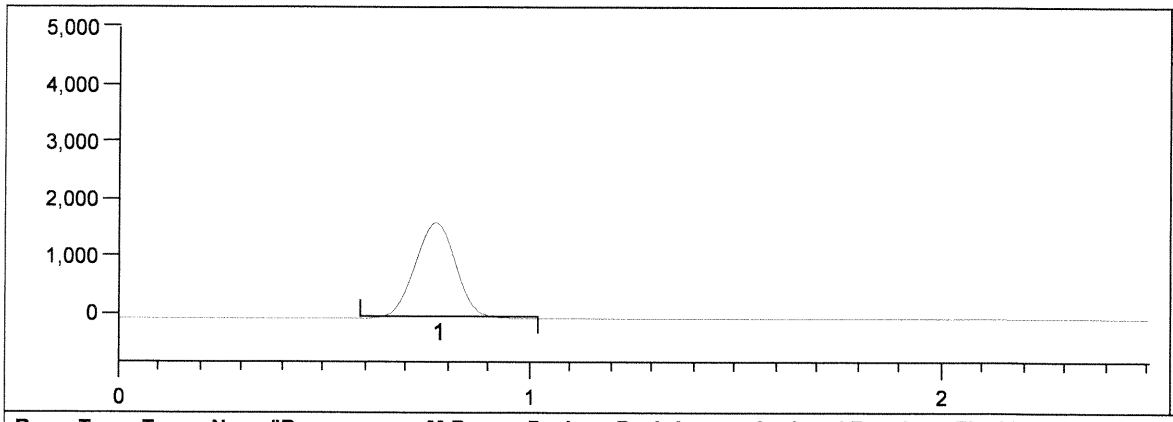
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

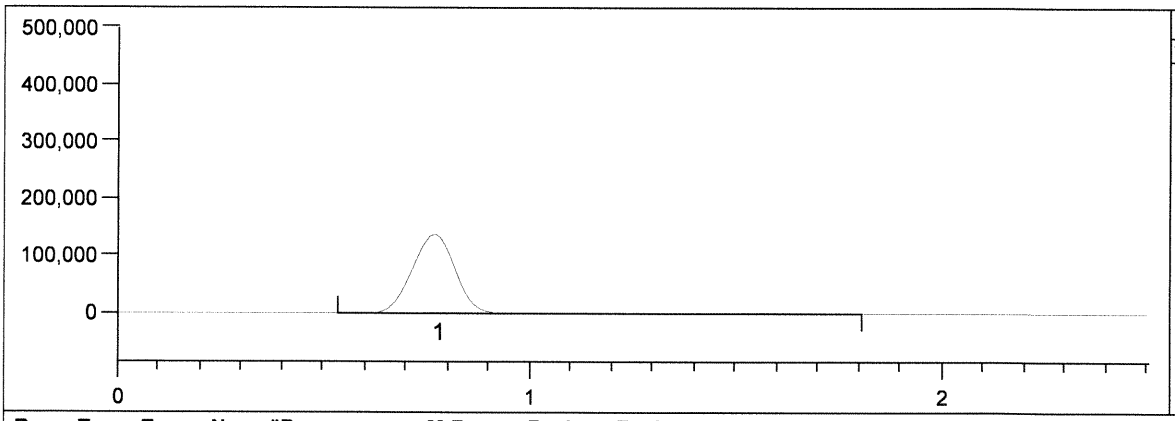


Date: 10/17/24
Time: 12:44 PM

Peak	rt	Area
1	0.77	118,022

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
55	X	S	K2410844-002		1	118,022	10.6	0.424		< HS	accept

Notes

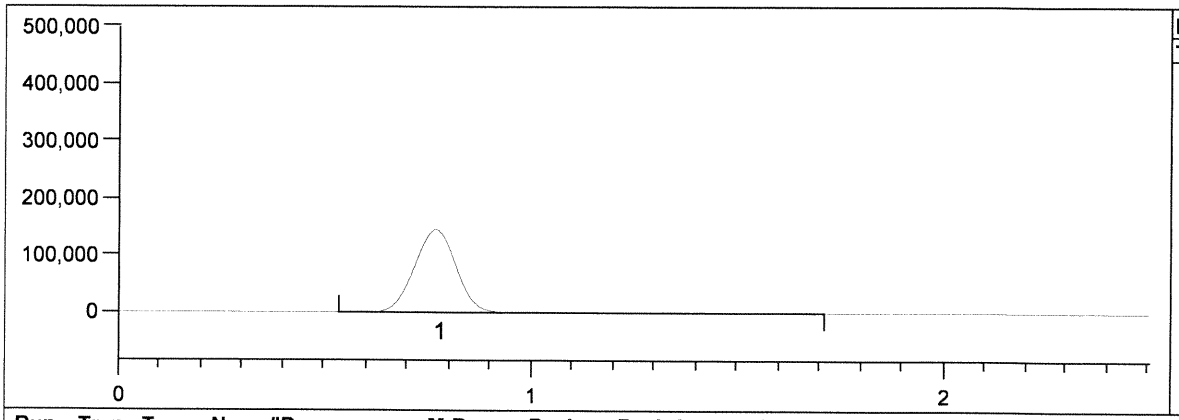


Date: 10/17/24
Time: 12:49 PM

Peak	rt	Area
1	0.76	10,043,844

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
56	Y	MS	K2410844-002		1	10,043,844	1,230	49.2	97.6	71-125	accept

Notes



Date: 10/17/24
Time: 12:54 PM

Peak	rt	Area
1	0.76	10,334,251

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
57	X	MSD	K2410844-002		1	10,334,251	1,270	50.6	100.	71-125	accept

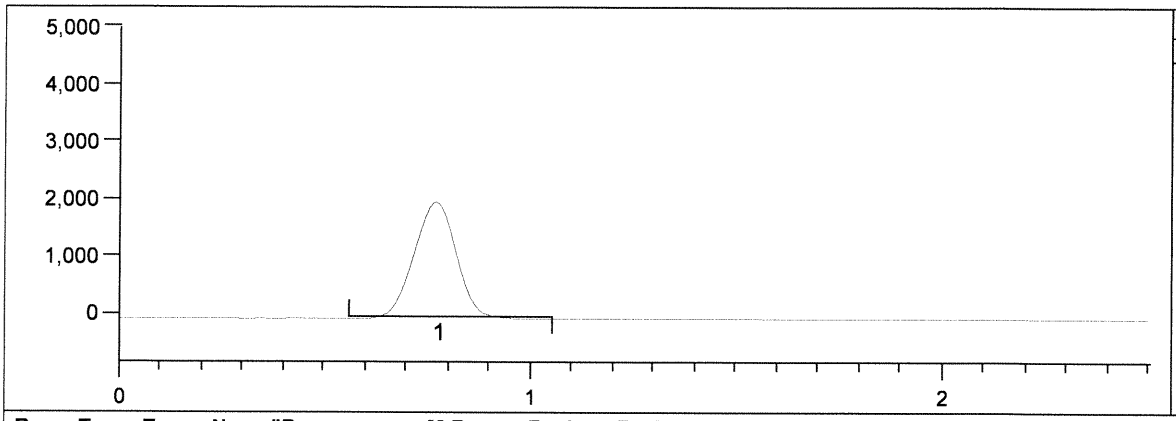
Notes

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

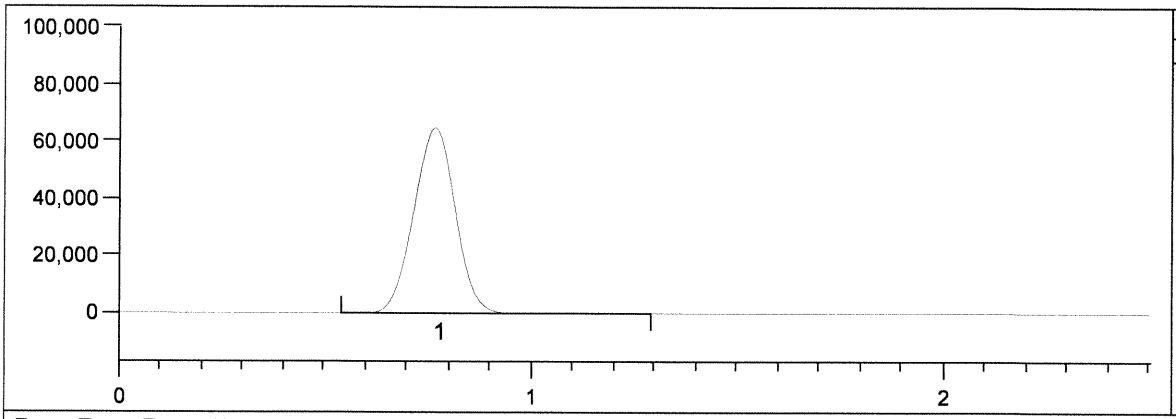


Date:	10/17/24
Time:	12:59 PM

Peak	rt	Area
1	0.77	147,921

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
58	Y	S	K2410848-001		1	147,921	14.3	0.571		< HS	accept

Notes

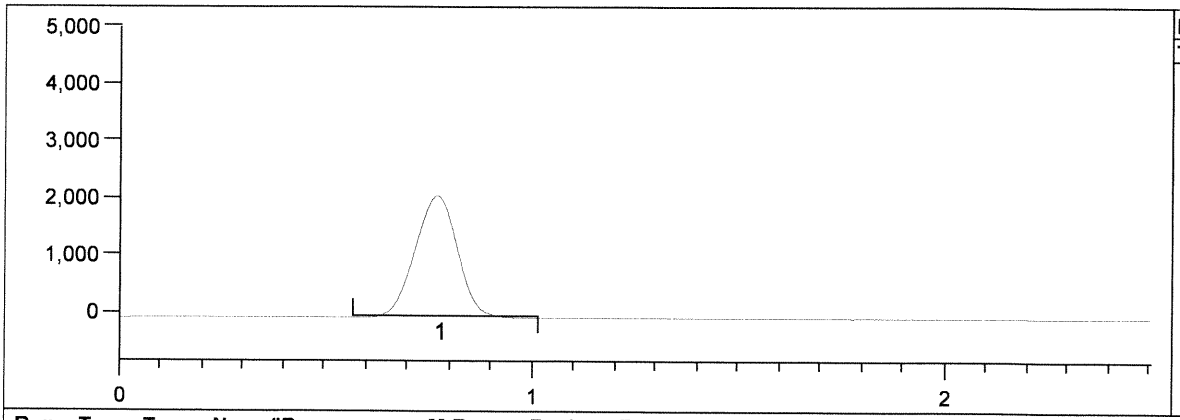


Date:	10/17/24
Time:	1:04 PM

Peak	rt	Area
1	0.76	4,571,218

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
59	X	S	K2410848-004		1	4,571,218	558	22.3		< HS	accept

Notes



Date:	10/17/24
Time:	1:09 PM

Peak	rt	Area
1	0.77	153,666

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
60	Y	S	K2410848-005		1	153,666	15.0	0.599		< HS	accept

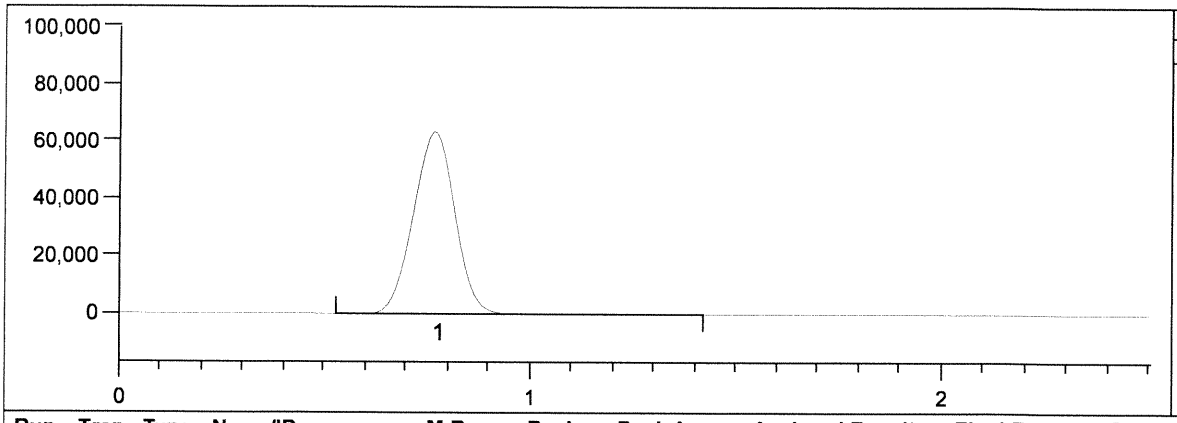
Notes

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

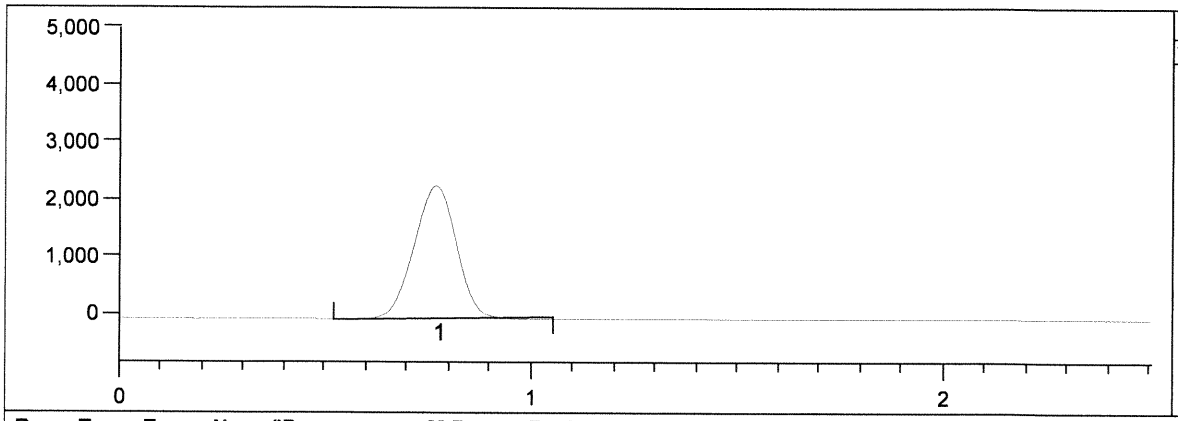
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	1:14 PM

Peak	rt	Area
1	0.76	4,473,885

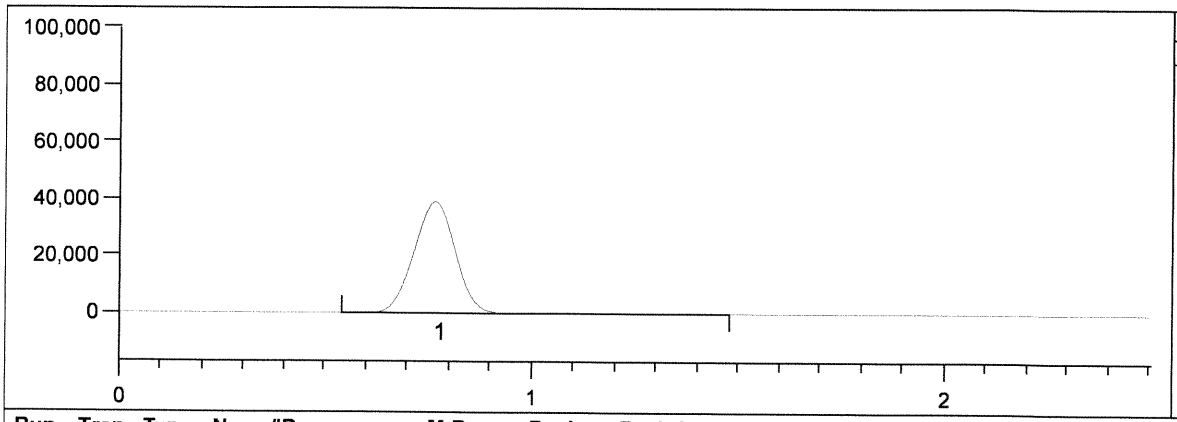
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
61	X	S	K2410848-008		1	4,473,885	546	21.8		< HS	accept
Notes											



Date:	10/17/24
Time:	1:19 PM

Peak	rt	Area
1	0.77	169,207

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
62	Y	S	K2410848-009		1	169,207	16.9	0.675		< HS	accept
Notes											



Date:	10/17/24
Time:	1:24 PM

Peak	rt	Area
1	0.76	2,749,250

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
63	X	S	K2410848-012		1	2,749,250	334	13.4		< HS	accept
Notes											

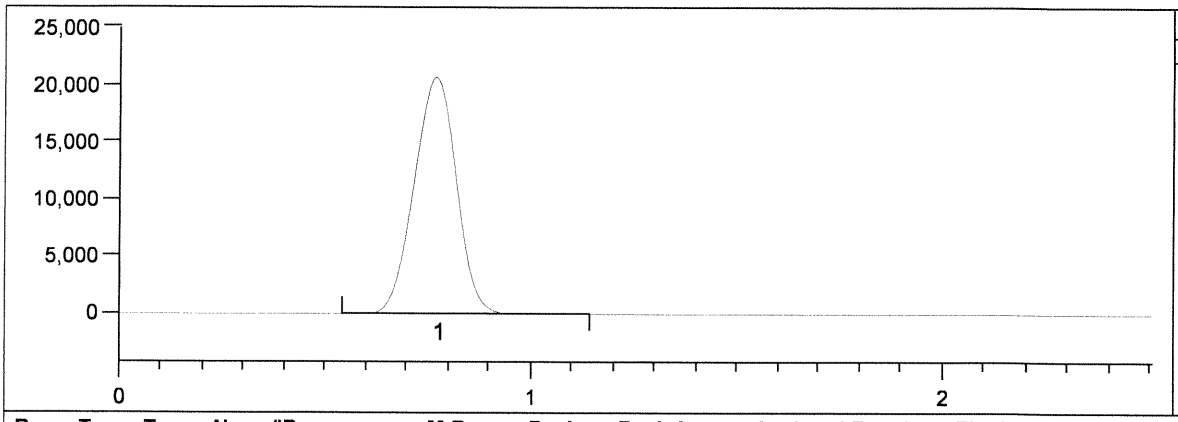
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

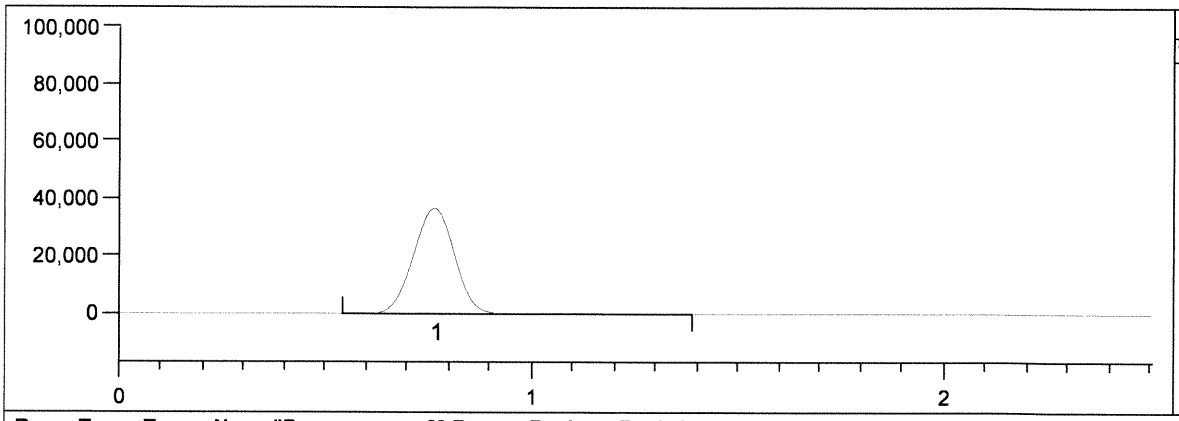


Date:	10/17/24
Time:	1:29 PM

Peak	rt	Area
1	0.77	1,499,898

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
64	Y	S	K2410889-001		1	1,499,898	180.	7.21		< HS	accept

Notes

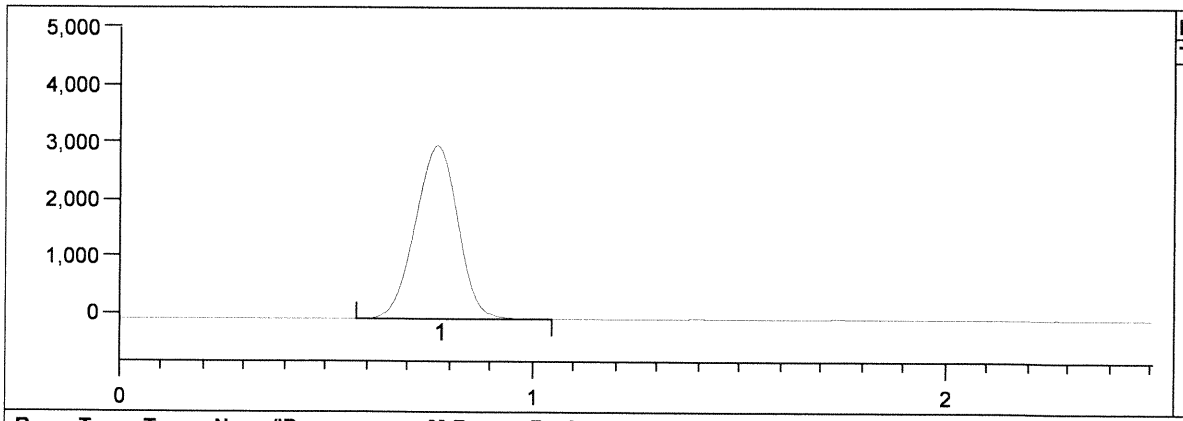


Date:	10/17/24
Time:	1:34 PM

Peak	rt	Area
1	0.76	2,596,521

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
65	X	S	K2410890-001		1	2,596,521	315	12.6		< HS	accept

Notes



Date:	10/17/24
Time:	1:39 PM

Peak	rt	Area
1	0.77	219,988

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
66	Y	S	K2411021-001		1	219,988	23.1	0.925		< HS	accept

Notes

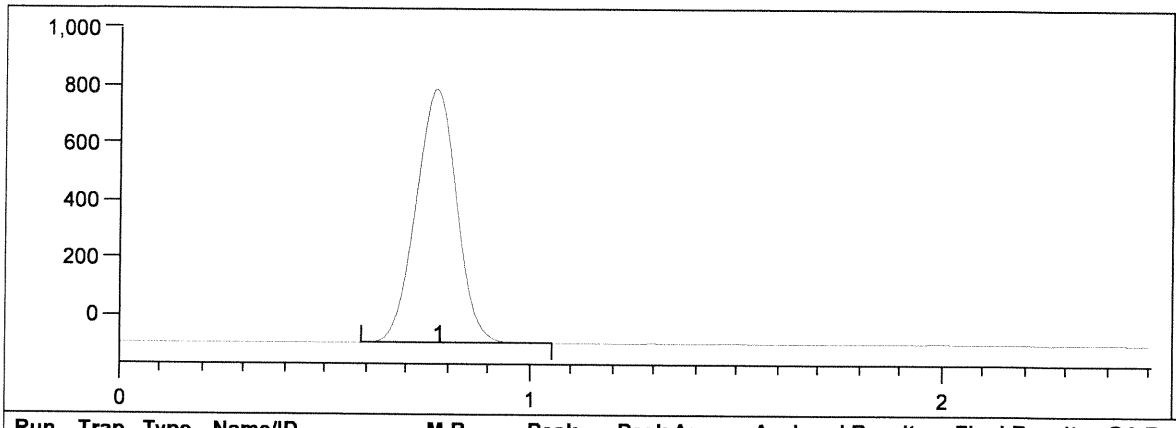
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

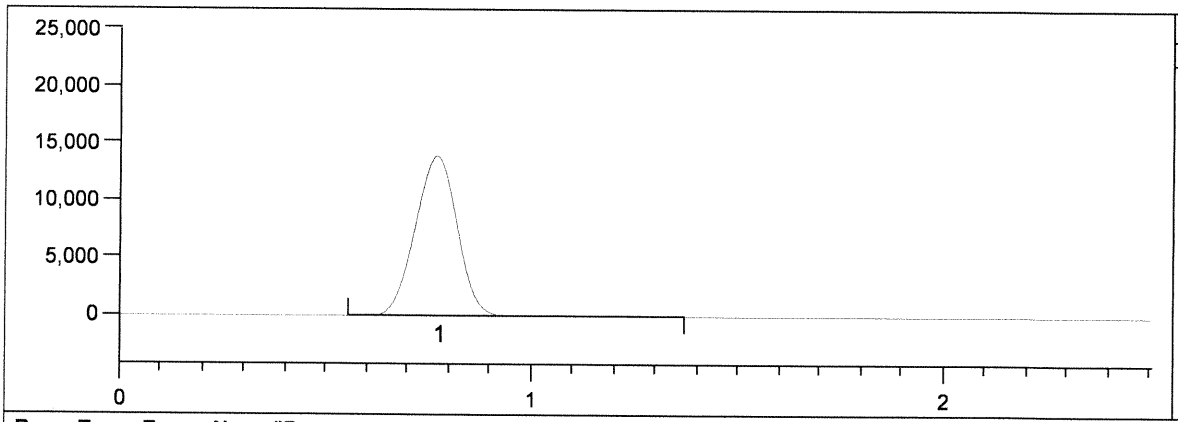


Date: 10/17/24
Time: 1:44 PM

Peak	rt	Area
1	0.77	61,822

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
67	X	MBA	MB-3		1	61,822	3.69	0.148	0.148	< 0.5	accept

Notes

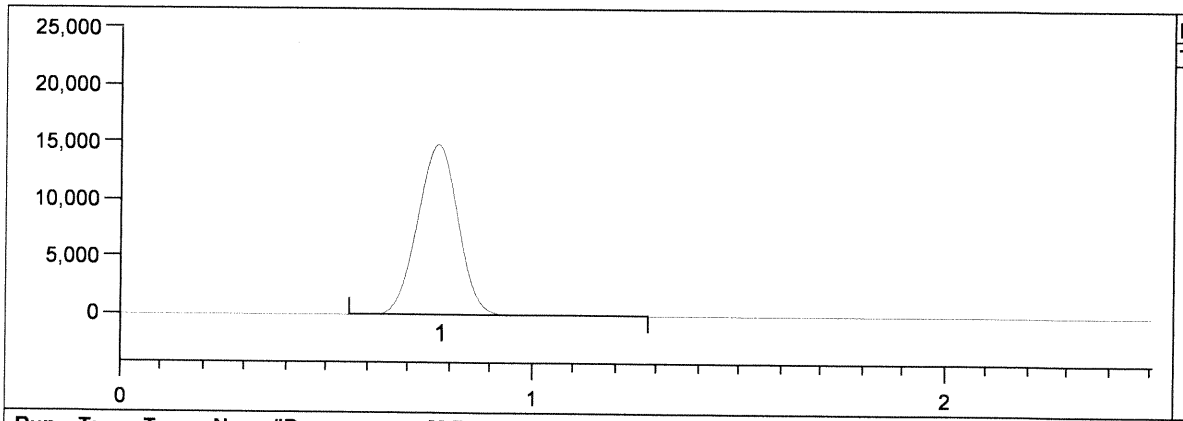


Date: 10/17/24
Time: 1:49 PM

Peak	rt	Area
1	0.77	1,011,925

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
68	Y	OPR	OPR-5		1	1,011,925	120.	4.82	96.3	77-123	accept

Notes



Date: 10/17/24
Time: 1:54 PM

Peak	rt	Area
1	0.77	1,047,160

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
69	X	QCS	QCS-1		1	1,047,160	125	4.99	99.8	77-123	accept

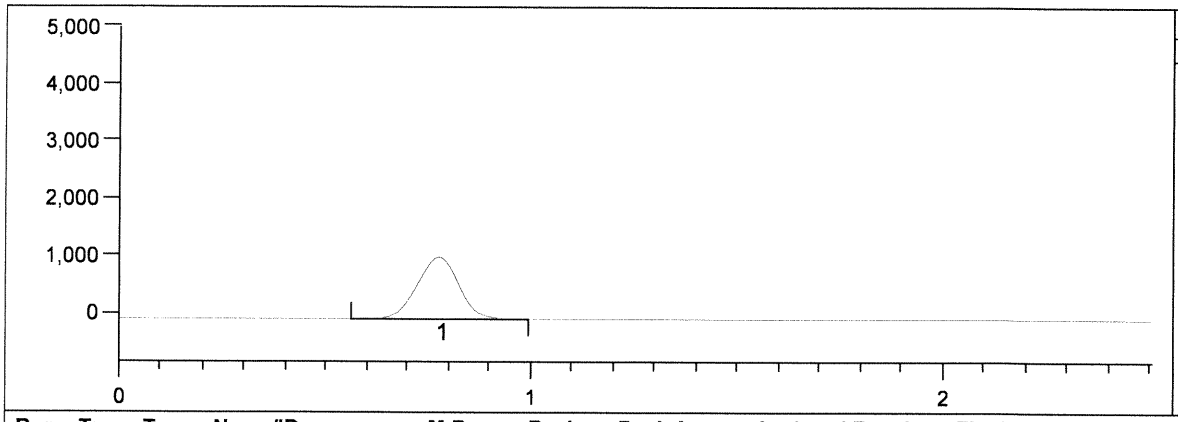
Notes

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

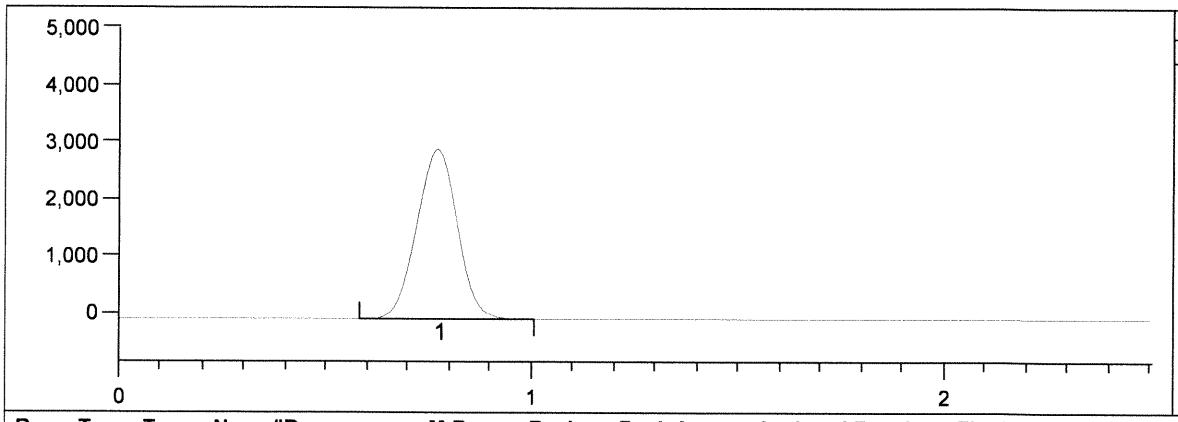


Date: 10/17/24
Time: 1:59 PM

Peak	rt	Area
1	0.77	78,811

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
70	Y	MBA	MB-1		1	78,811	5.78	0.231	0.231	< 0.5	accept

Notes

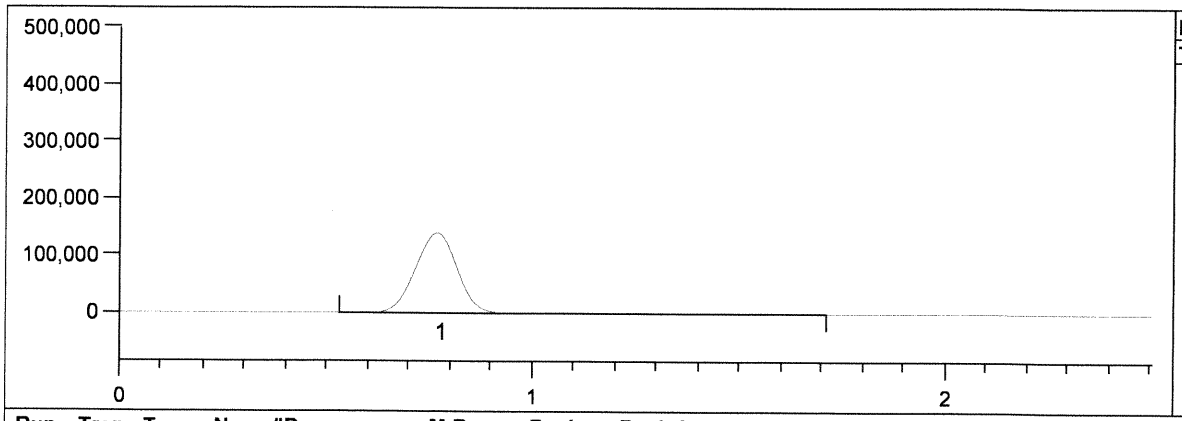


Date: 10/17/24
Time: 2:04 PM

Peak	rt	Area
1	0.77	208,377

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
71	X	S	K2410897-001		1	208,377	21.7	0.868		< HS	accept

Notes



Date: 10/17/24
Time: 2:09 PM

Peak	rt	Area
1	0.76	10,094,437

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
72	Y	MS	K2410897-001		1	10,094,437	1,240	49.4	97.2	71-125	accept

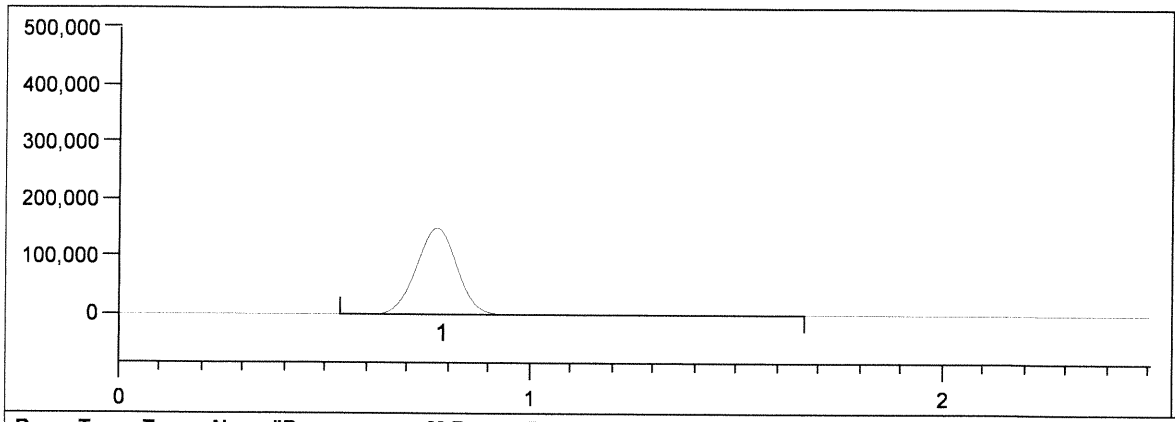
Notes

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

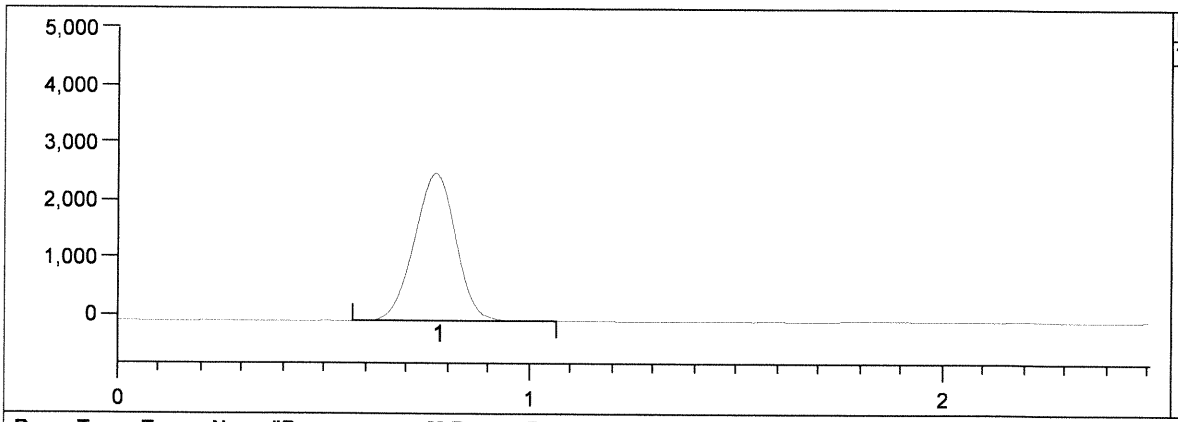
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	2:14 PM

Peak	rt	Area
1	0.77	10,617,428

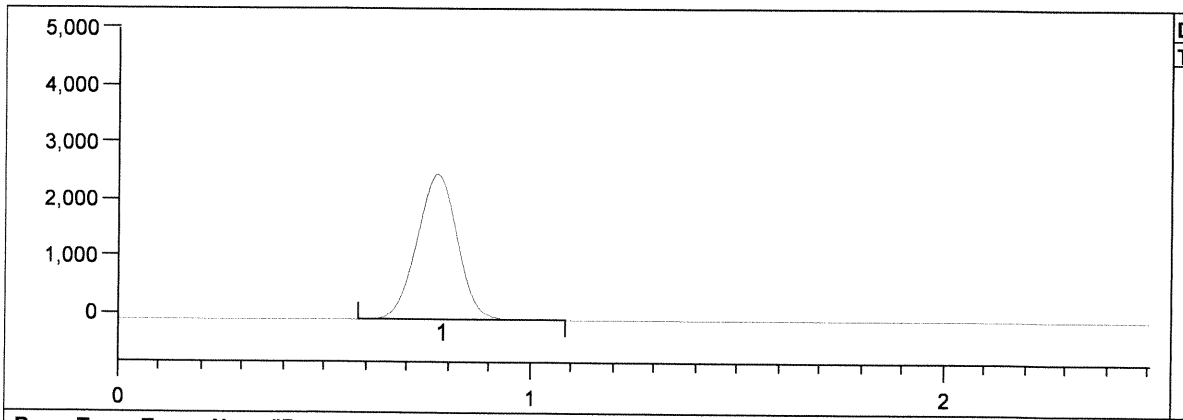
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
73	X	MSD	K2410897-001		1	10,617,428	1,300	52.0	102	71-125	accept
Notes											



Date:	10/17/24
Time:	2:19 PM

Peak	rt	Area
1	0.77	185,799

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
74	Y	S	K2410897-002		1	185,799	18.9	0.757		< HS	accept
Notes											



Date:	10/17/24
Time:	2:24 PM

Peak	rt	Area
1	0.77	178,164

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
75	X	S	K2410897-003		1	178,164	18.0	0.719		< HS	accept
Notes											

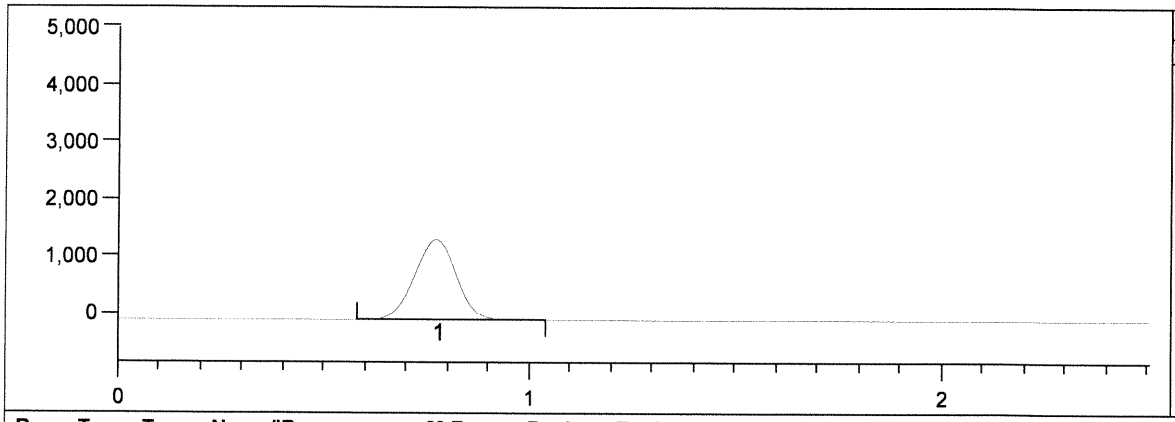
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

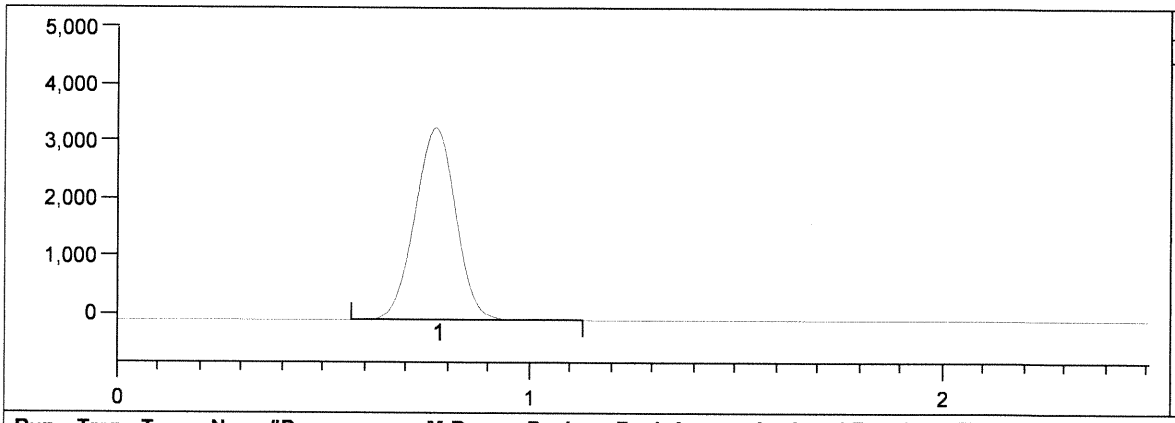


Date:	10/17/24
Time:	2:29 PM

Peak	rt	Area
1	0.77	101,304

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
76	Y	S	K2410897-004		1	101,304	8.54	0.342		< HS	accept

Notes

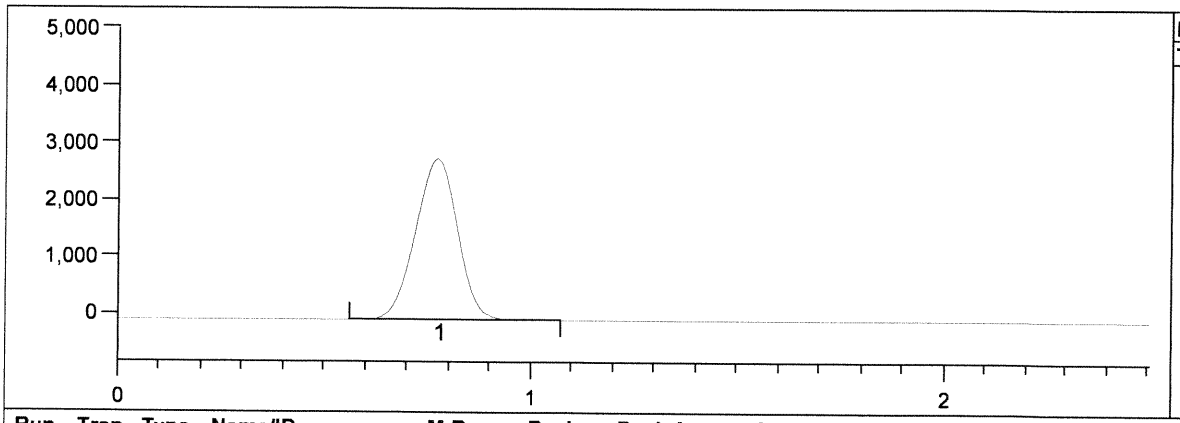


Date:	10/17/24
Time:	2:34 PM

Peak	rt	Area
1	0.77	234,913

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
77	X	S	K2410897-005		1	234,913	25.0	0.998		< HS	accept

Notes



Date:	10/17/24
Time:	2:39 PM

Peak	rt	Area
1	0.77	204,435

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
78	Y	S	K2410897-006		1	204,435	21.2	0.849		< HS	accept

Notes

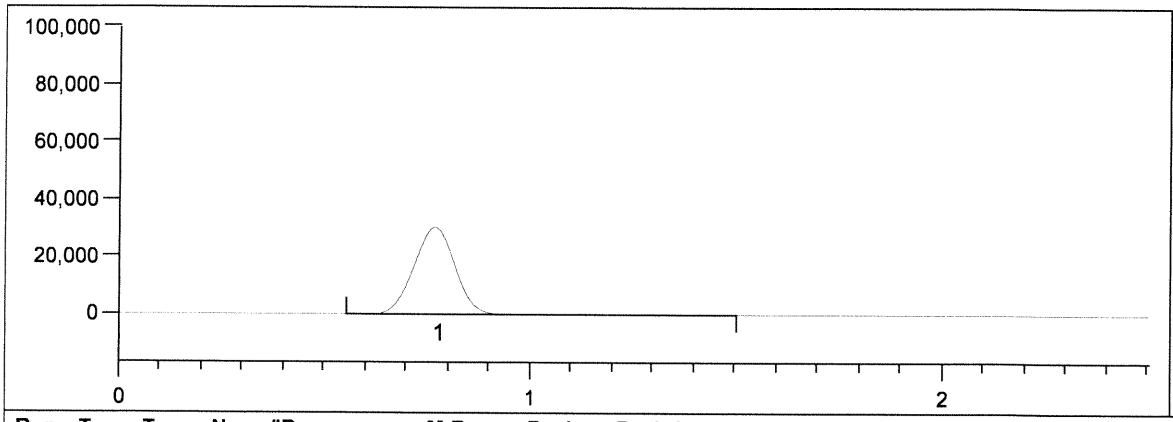
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

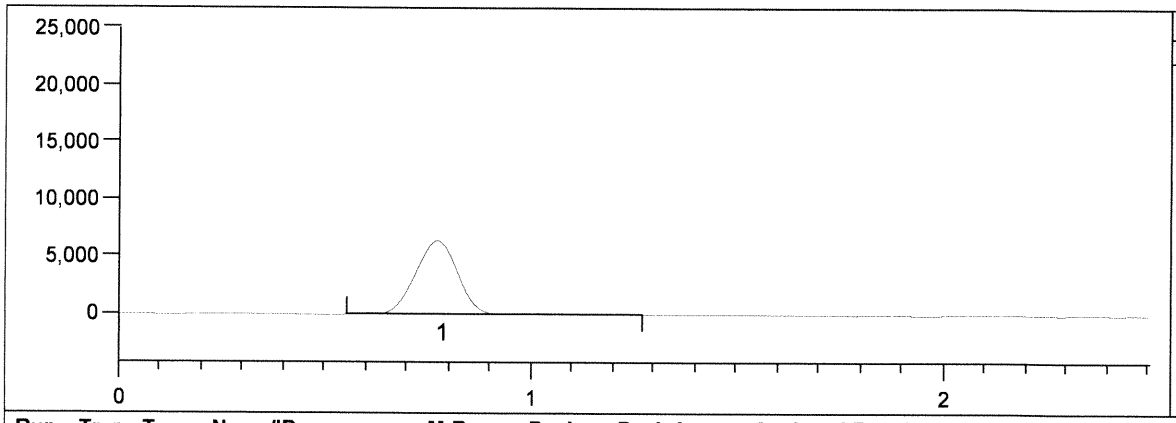
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	2:44 PM

Peak	rt	Area
1	0.76	2,145,654

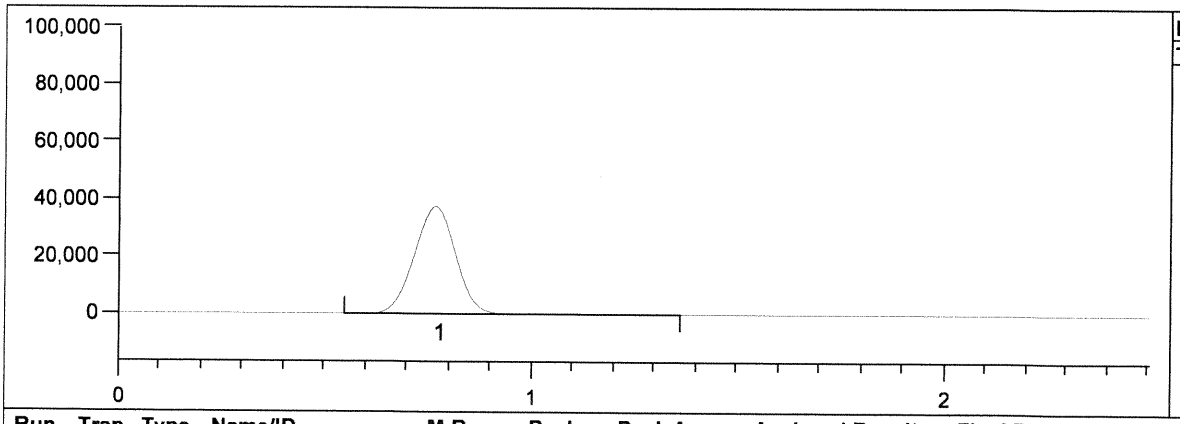
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
79	X	S	K2410933-003		1	2,145,654	260.	10.4		< HS	accept
Notes											



Date:	10/17/24
Time:	2:49 PM

Peak	rt	Area
1	0.77	470,699

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
80	Y	S	K2410933-004		1	470,699	53.9	2.16		< HS	accept
Notes											



Date:	10/17/24
Time:	2:54 PM

Peak	rt	Area
1	0.76	2,631,688

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
81	X	S	K2410944-001		1	2,631,688	319	12.8		< HS	accept
Notes											

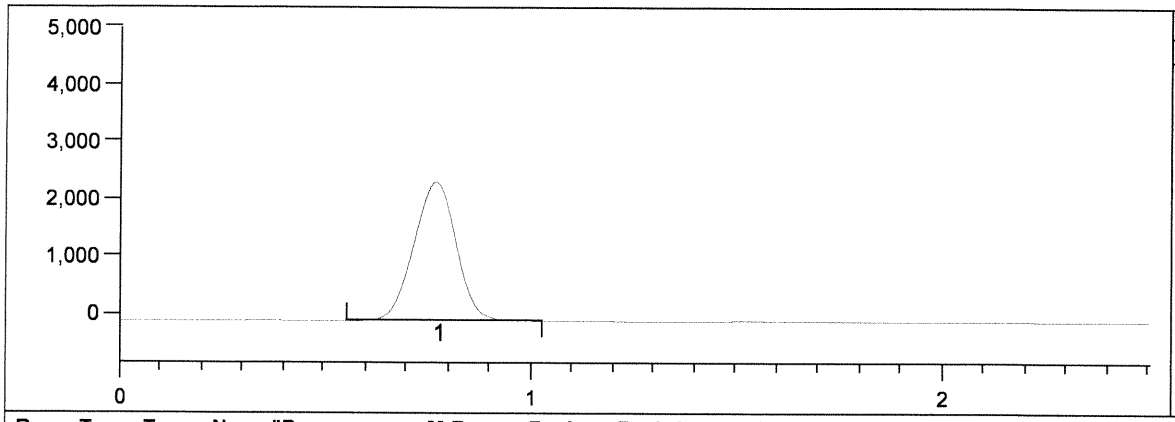
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

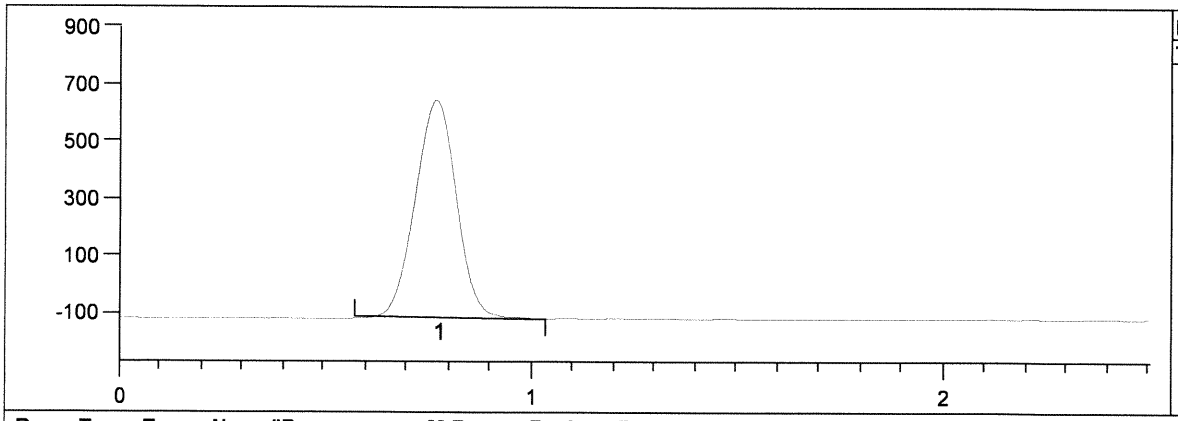


Date: 10/17/24
Time: 2:59 PM

Peak	rt	Area
1	0.77	174,116

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
82	Y	S	K2410944-002		1	174,116	17.5	0.700		< HS	accept

Notes

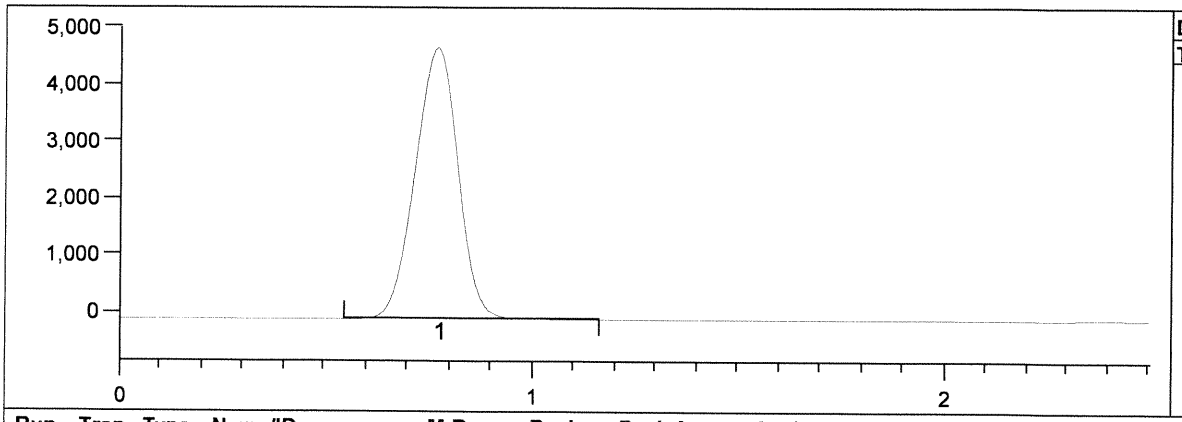


Date: 10/17/24
Time: 3:04 PM

Peak	rt	Area
1	0.77	53,375

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
83	X	MBA	MB-2		1	53,375	2.66	0.106	0.106	< 0.5	accept

Notes



Date: 10/17/24
Time: 3:09 PM

Peak	rt	Area
1	0.77	343,574

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
84	Y	S	K2410912-001		1	343,574	38.3	1.53		< HS	accept

Notes

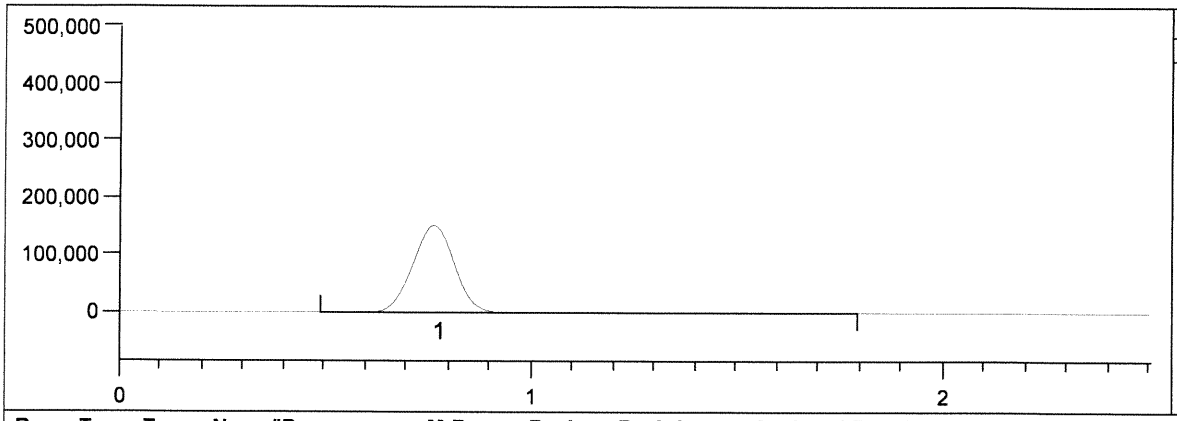
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

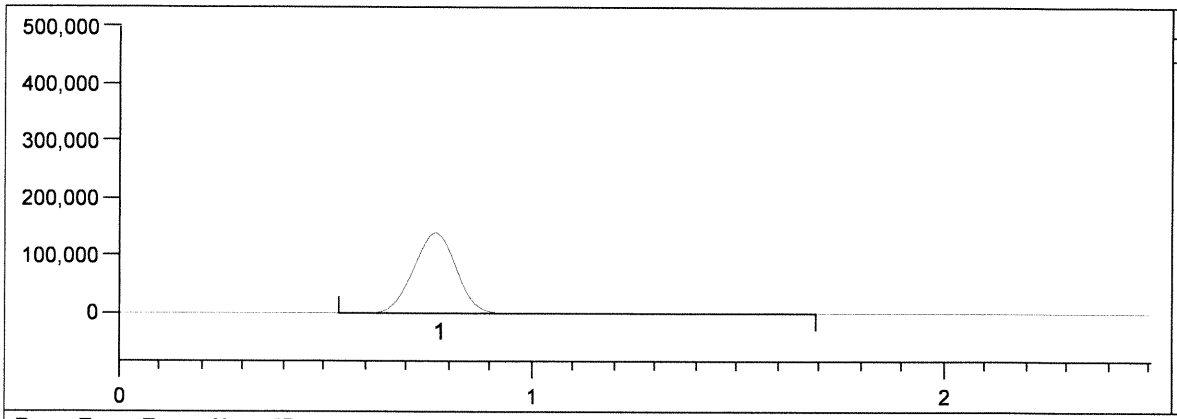
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	3:14 PM

Peak	rt	Area
1	0.76	10,748,696

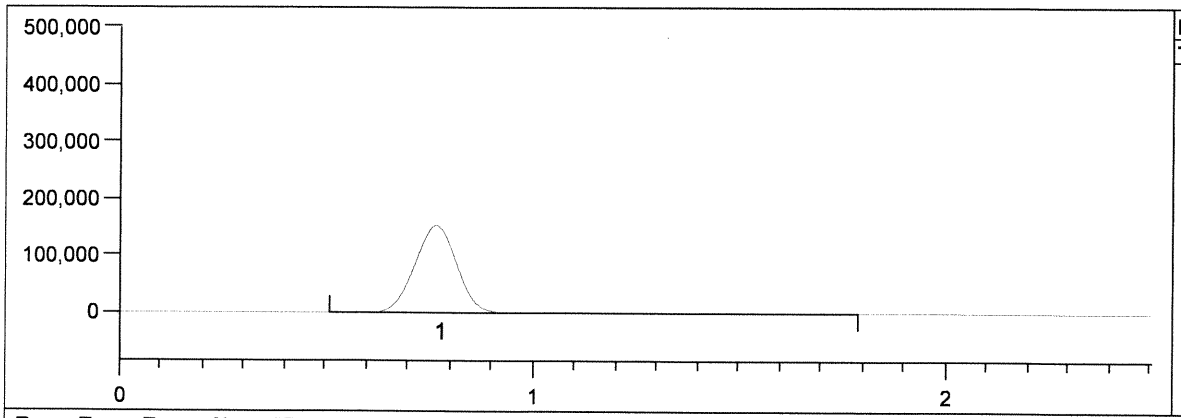
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
85	X	MS	K2410912-001		1	10,748,696	1,320	52.7	102	71-125	accept
Notes											



Date:	10/17/24
Time:	3:19 PM

Peak	rt	Area
1	0.76	10,216,047

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
86	Y	MSD	K2410912-001		1	10,216,047	1,250	50.0	97.0	71-125	accept
Notes											



Date:	10/17/24
Time:	3:24 PM

Peak	rt	Area
1	0.76	10,895,773

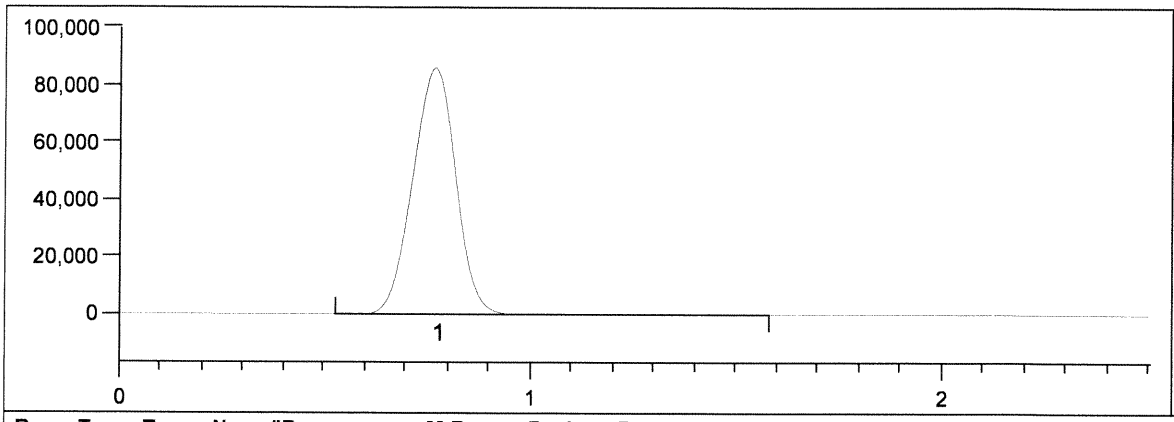
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
87	X	S	K2410913-001		1	10,895,773	1,330	53.4		< HS	accept
Notes											

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

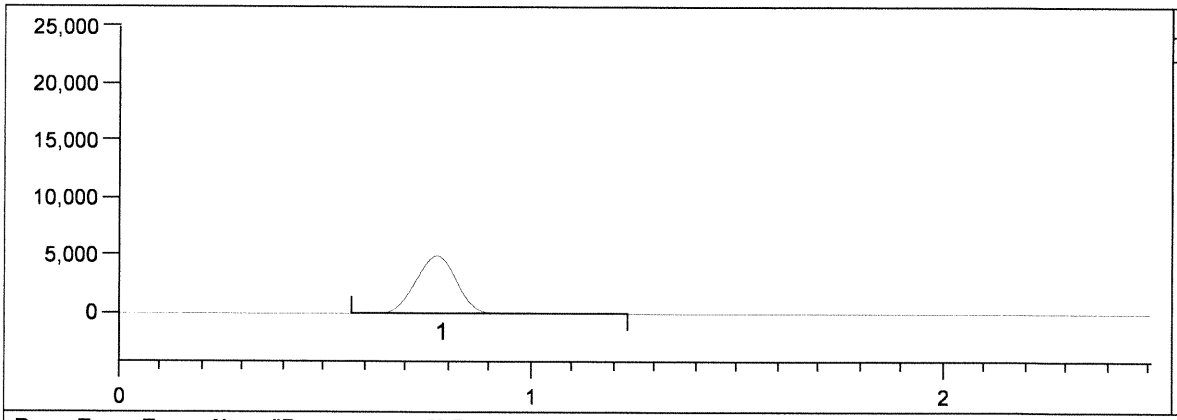
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	3:29 PM

Peak	rt	Area
1	0.77	6,257,931

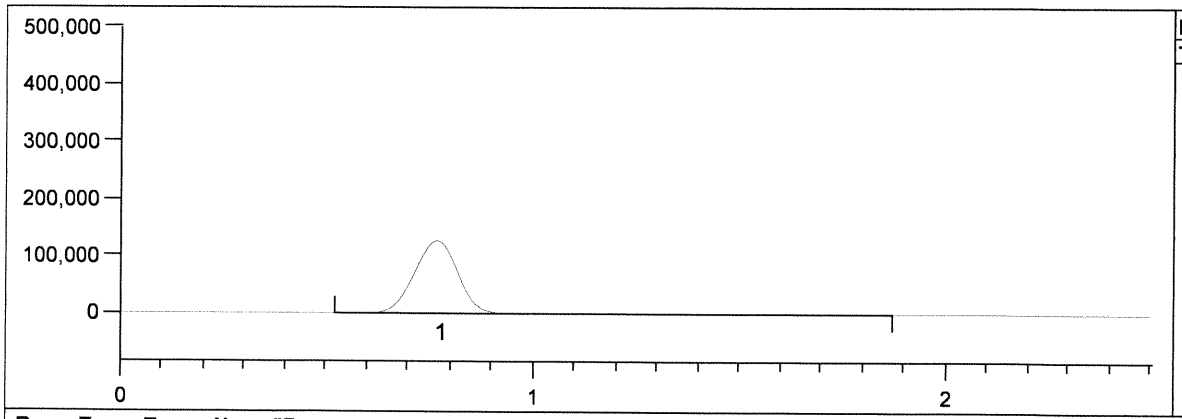
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
88	Y	S	K2410913-003		1	6,257,931	765	30.6		< HS	accept
Notes											



Date:	10/17/24
Time:	3:34 PM

Peak	rt	Area
1	0.77	358,408

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
89	X	S	K2410913-005		1	358,408	40.1	1.61		< HS	accept
Notes											



Date:	10/17/24
Time:	3:39 PM

Peak	rt	Area
1	0.77	9,331,422

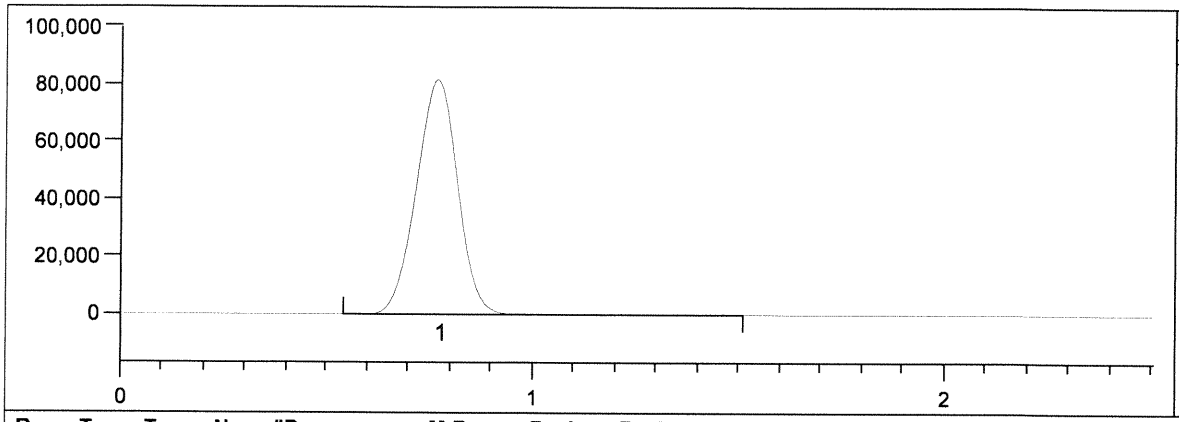
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
90	Y	S	K2410913-007		1	9,331,422	1,140	45.7		< HS	accept
Notes											

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

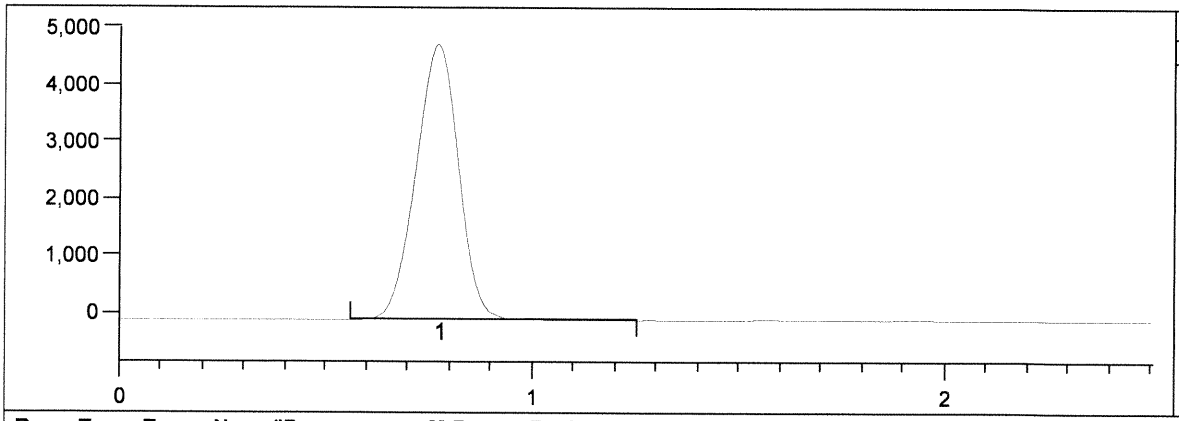


Date:	10/17/24
Time:	3:44 PM

Peak	rt	Area
1	0.77	5,761,632

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
91	X	S	K2410913-009		1	5,761,632	704	28.2		< HS	accept

Notes

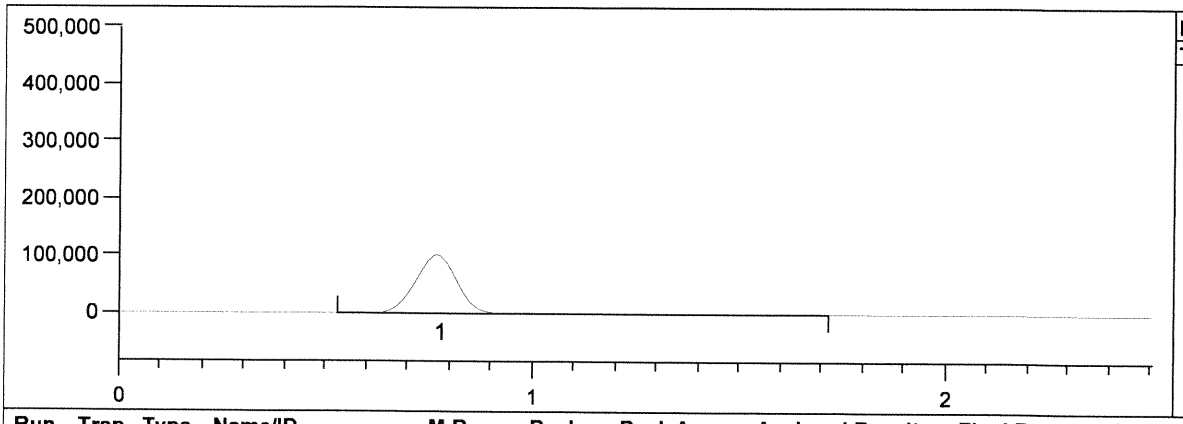


Date:	10/17/24
Time:	3:49 PM

Peak	rt	Area
1	0.77	349,075

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
92	Y	S	K2410913-011		1	349,075	39.0	1.56		< HS	accept

Notes



Date:	10/17/24
Time:	3:54 PM

Peak	rt	Area
1	0.77	7,224,471

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
93	X	S	K2410913-013		1	7,224,471	884	35.3		< HS	accept

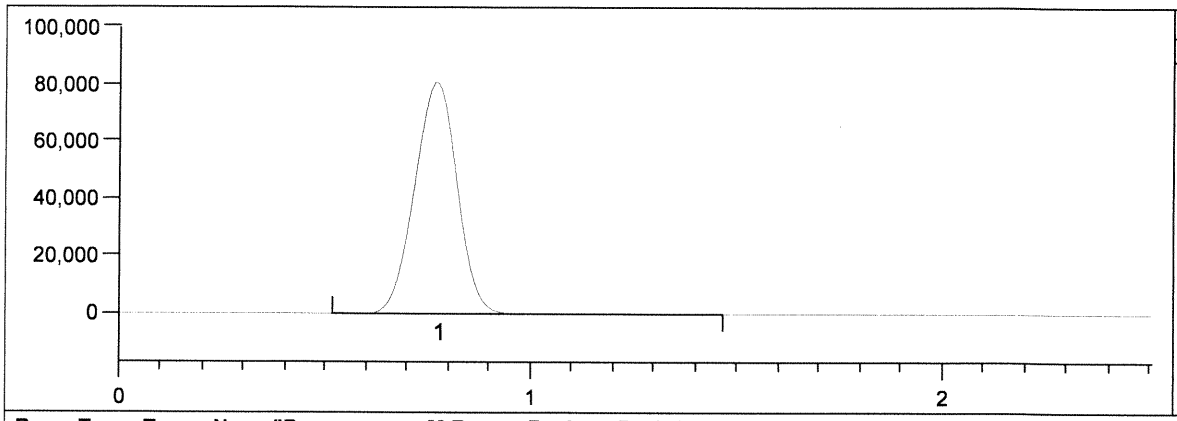
Notes

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

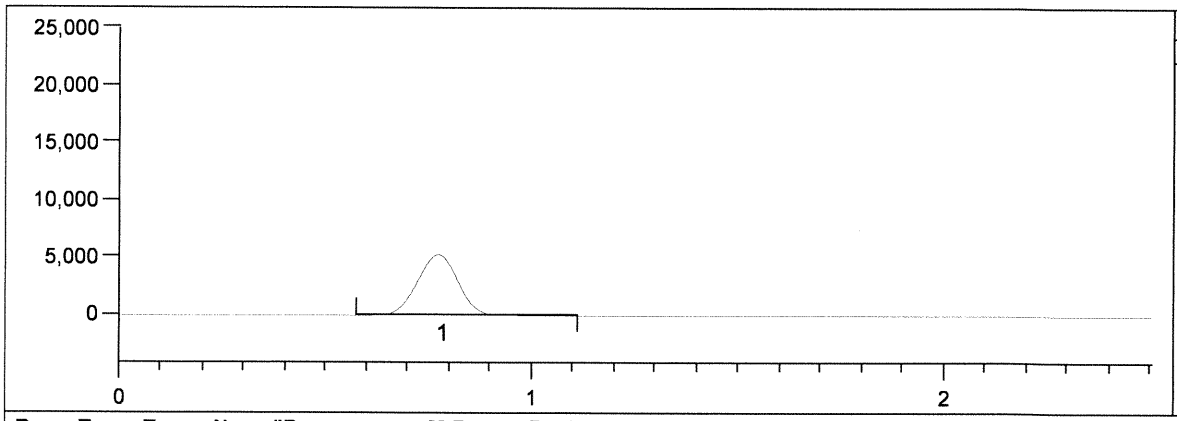
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	3:59 PM

Peak	rt	Area
1	0.77	5,888,476

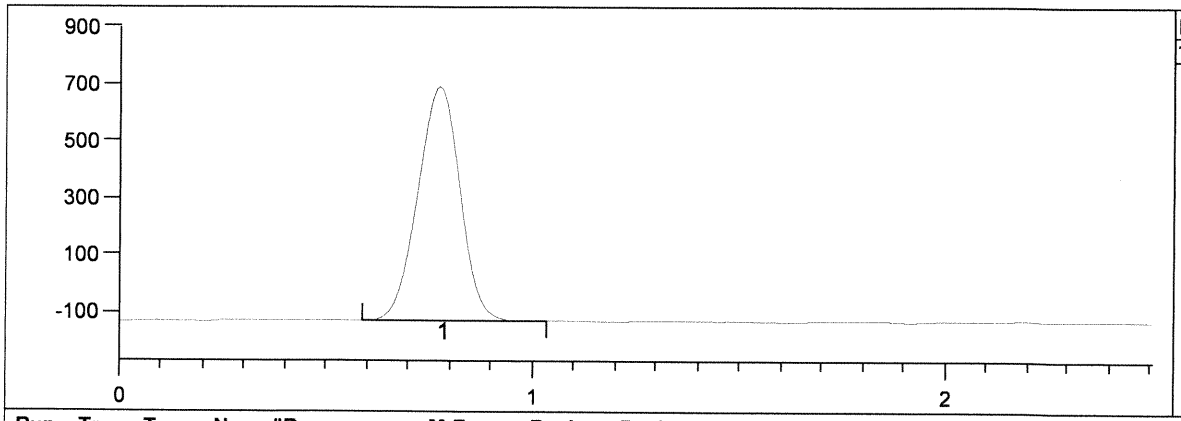
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
94	Y	S	K2410913-015		1	5,888,476	720.	28.8		< HS	accept
Notes											



Date:	10/17/24
Time:	4:04 PM

Peak	rt	Area
1	0.77	377,105

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
95	X	S	K2410913-017		1	377,105	42.4	1.70		< HS	accept
Notes											



Date:	10/17/24
Time:	4:09 PM

Peak	rt	Area
1	0.77	58,925

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
96	Y	MBA	MB-3		1	58,925	3.34	0.133	0.133	< 0.5	accept
Notes											

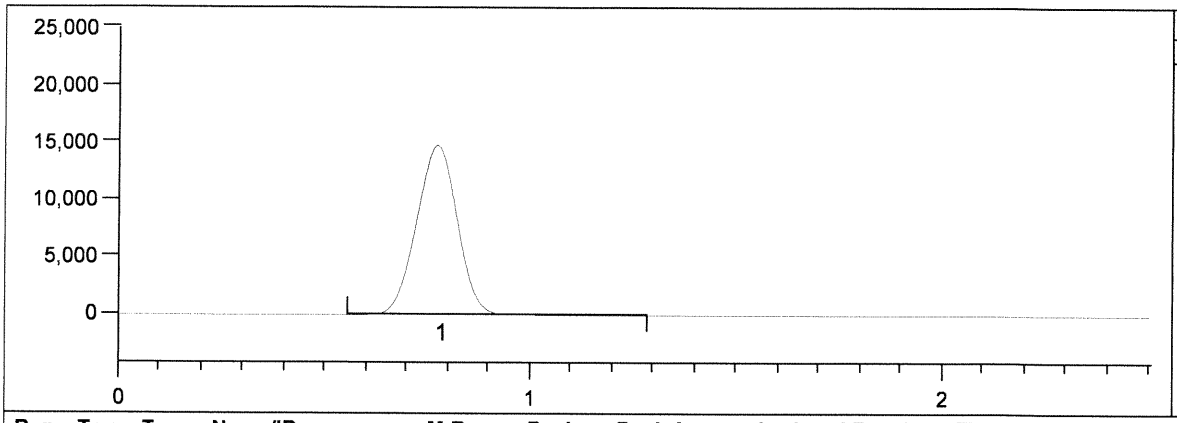
Mercury Guru ver 4.7.6 © 1995-2014 Brooks Rand Inc

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

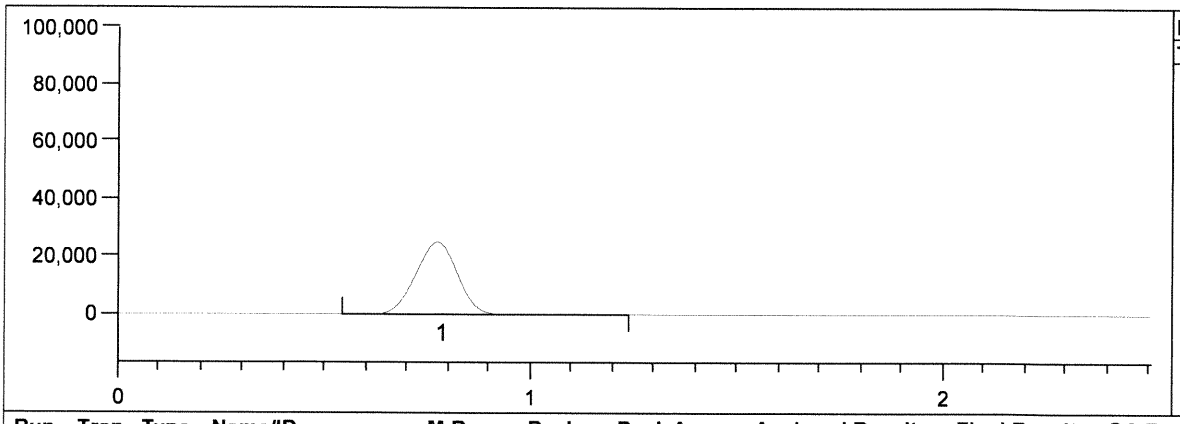
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	4:14 PM

Peak	rt	Area
1	0.77	1,048,870

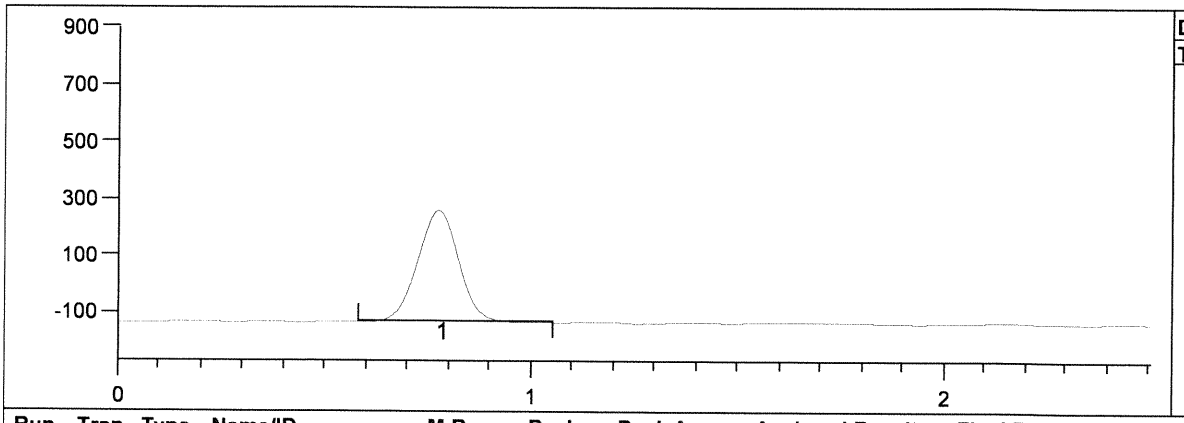
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
97	X	OPR	OPR/VER-6		1	1,048,870	125	5.00	100.	77-123	accept
Notes											



Date:	10/17/24
Time:	4:19 PM

Peak	rt	Area
1	0.77	1,838,586

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
98	Y	OPR	OPR-1		1	1,838,586	222	4.44	88.8	77-123	accept
Notes											



Date:	10/17/24
Time:	4:24 PM

Peak	rt	Area
1	0.77	28,079

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
99	X	MBA	MB-1		1	28,079	-0.452	-0.00904	-0.00904	< 0.5	accept
Notes											

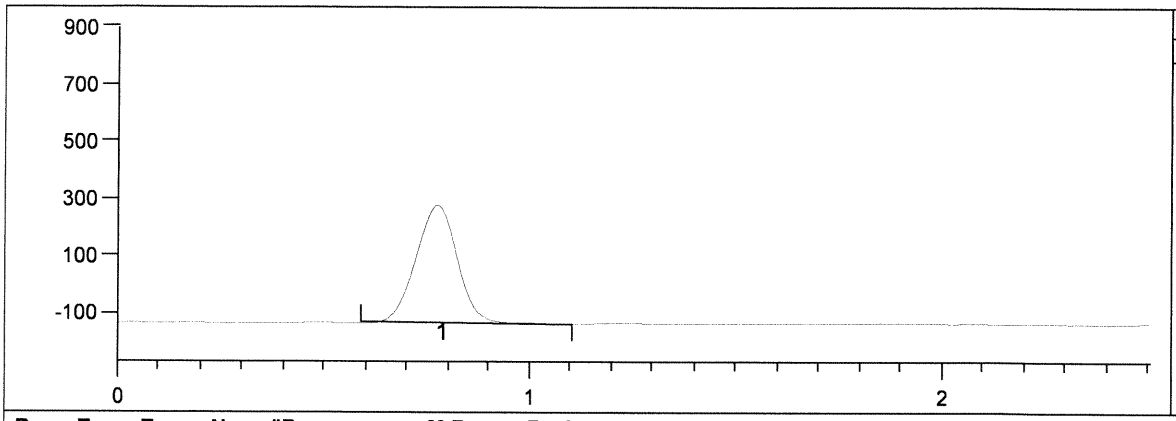
Mercury Guru ver 4.7.6 © 1995-2014 Brooks Rand Inc

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

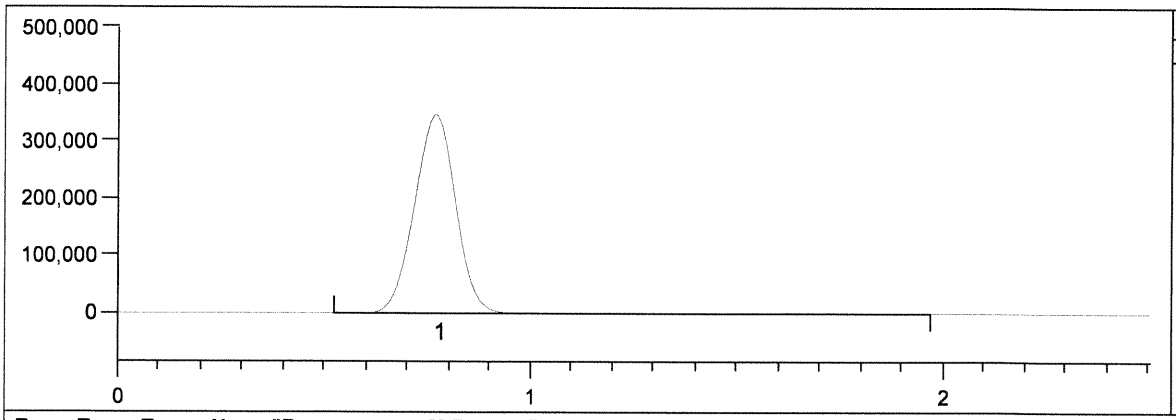
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	4:29 PM

Peak	rt	Area
1	0.77	30,167

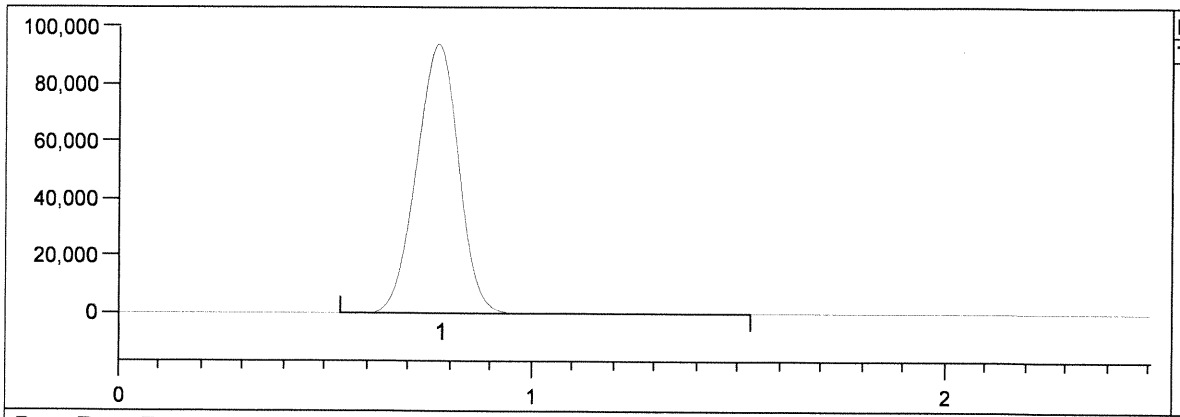
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
100	Y	MBA	MB-2		1	30,167	-0.196	-0.00391	-0.00391	< 0.5	accept
Notes											



Date:	10/17/24
Time:	4:34 PM

Peak	rt	Area
1	0.76	24,502,574

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
101	X	QCS	TORT-1		1	24,502,574	3,010	298	102	77-123	accept
Notes											



Date:	10/17/24
Time:	4:39 PM

Peak	rt	Area
1	0.77	6,807,596

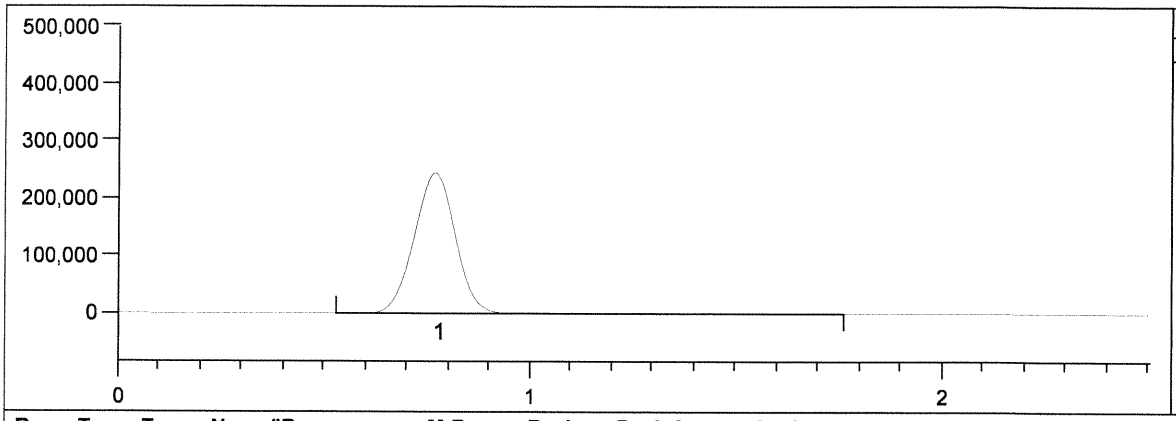
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
102	Y	S	K2409822-046		1	6,807,596	832	164		< HS	accept
Notes10X DILUTION											

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

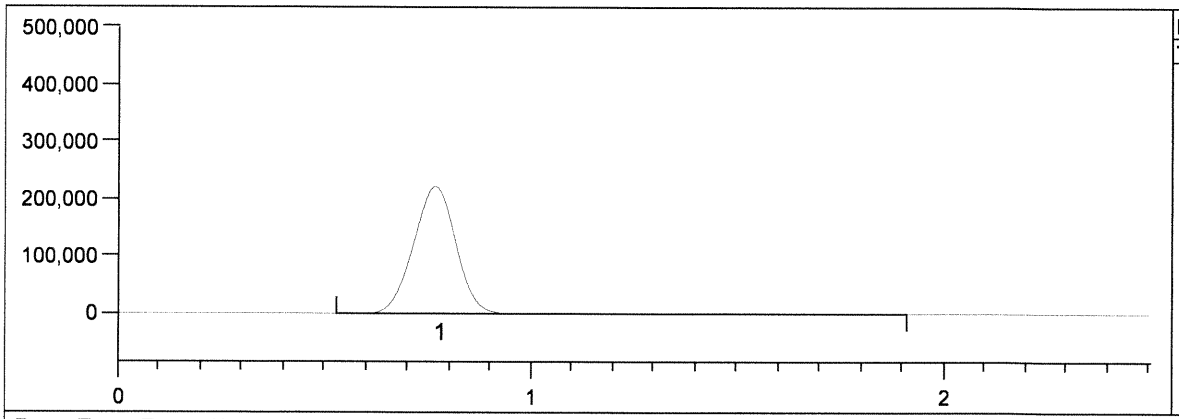
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	4:44 PM

Peak	rt	Area
1	0.76	17,247,843

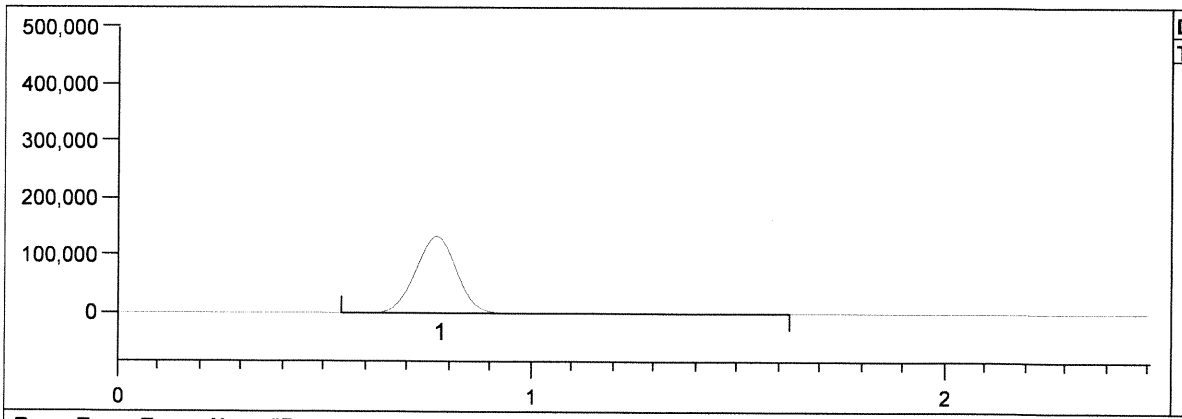
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
103	X	MS	K2409822-046		1	17,247,843	2,120	418	103	71-125	accept
Notes10X DILUTION											



Date:	10/17/24
Time:	4:49 PM

Peak	rt	Area
1	0.76	16,129,911

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
104	Y	MSD	K2409822-046		1	16,129,911	1,980	392	91.6	71-125	accept
Notes10X DILUTION											



Date:	10/17/24
Time:	4:54 PM

Peak	rt	Area
1	0.77	9,381,124

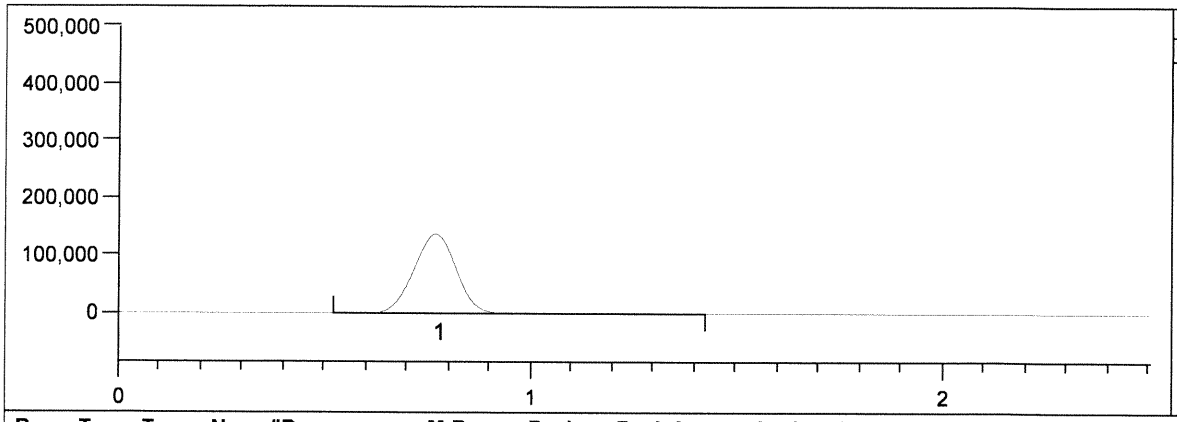
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
105	X	S	K2409822-041		1	9,381,124	1,150	229		< HS	accept
Notes10X DILUTION											

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

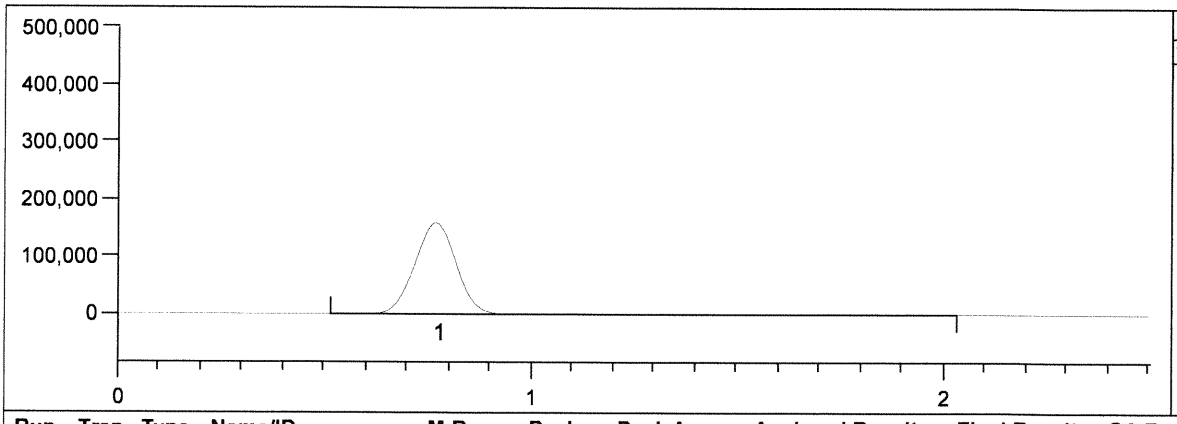
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	4:59 PM

Peak	rt	Area
1	0.77	9,949,567

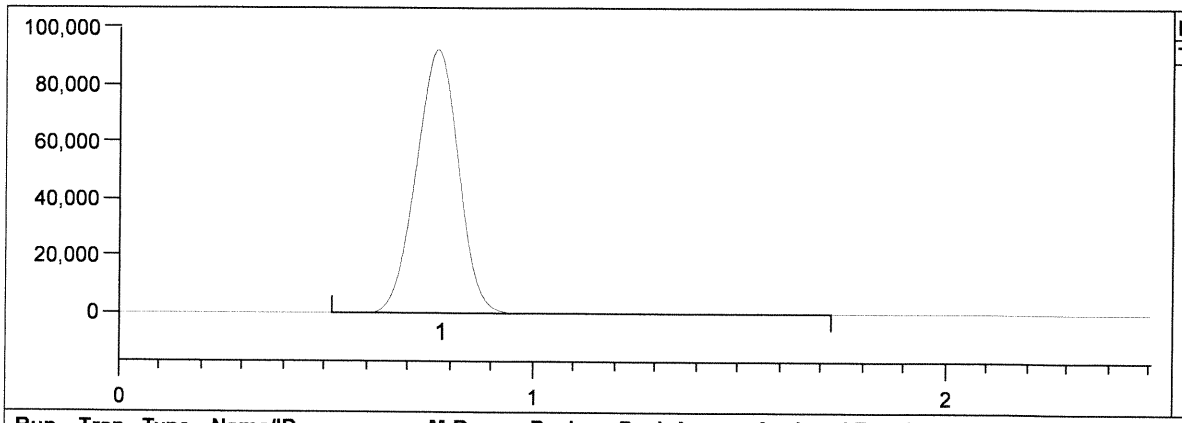
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
106	Y	S	K2409822-042		1	9,949,567	1,220	243		< HS	accept
Notes10X DILUTION											



Date:	10/17/24
Time:	5:04 PM

Peak	rt	Area
1	0.77	11,253,057

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
107	X	S	K2409822-043		1	11,253,057	1,380	275		< HS	accept
Notes10X DILUTION											



Date:	10/17/24
Time:	5:09 PM

Peak	rt	Area
1	0.77	6,652,134

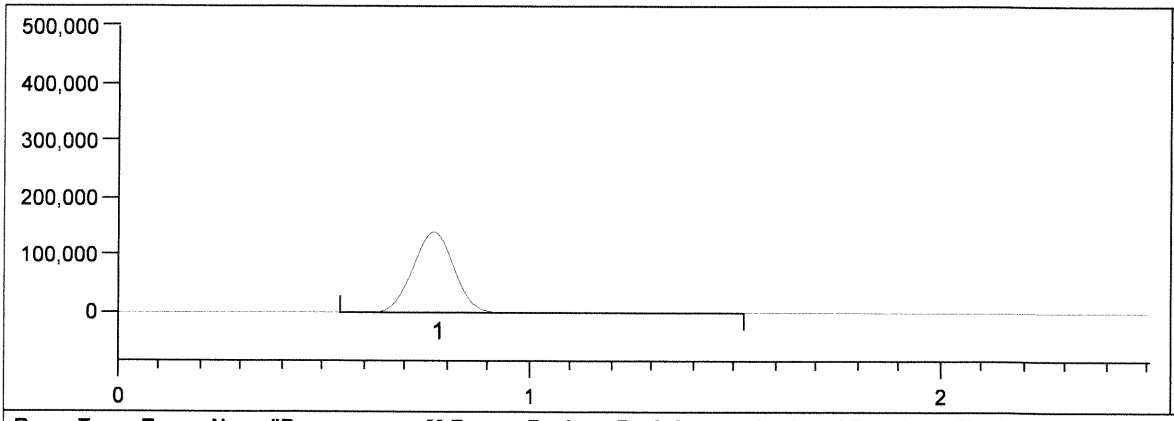
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
108	Y	S	K2409822-044		1	6,652,134	813	162		< HS	accept
Notes10X DILUTION											

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

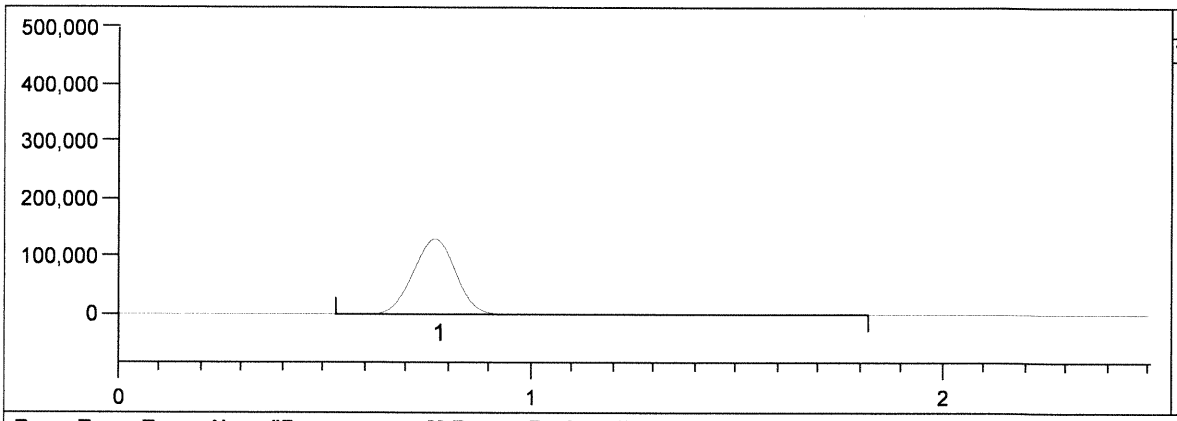
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	5:14 PM

Peak	rt	Area
1	0.76	9,890,982

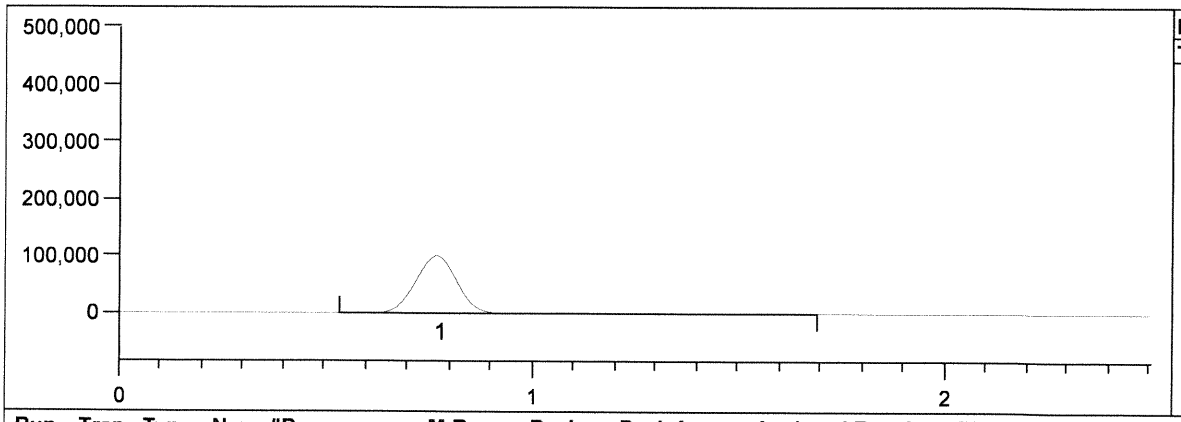
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
109	X	S	K2409822-045		1	9,890,982	1,210	239		< HS	accept
Notes10X DILUTION											



Date:	10/17/24
Time:	5:19 PM

Peak	rt	Area
1	0.76	9,502,210

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
110	Y	S	K2409822-047		1	9,502,210	1,160	231		< HS	accept
Notes10X DILUTION											



Date:	10/17/24
Time:	5:24 PM

Peak	rt	Area
1	0.77	7,119,410

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
111	X	S	K2409822-048		1	7,119,410	871	174		< HS	accept
Notes10X DILUTION											

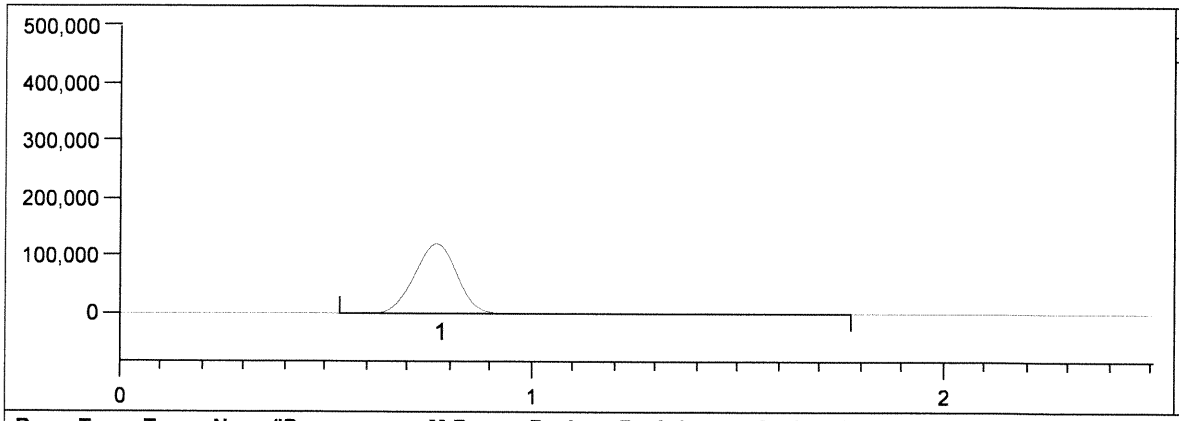
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

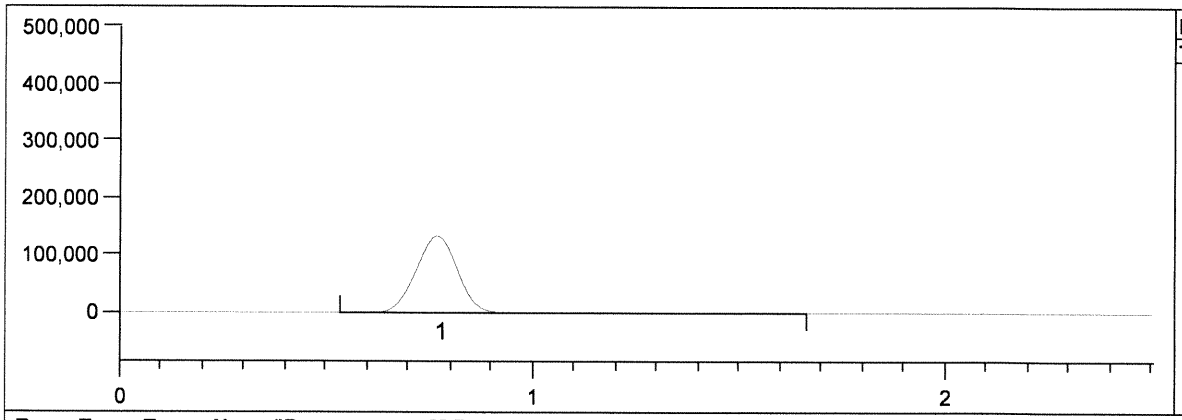
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	5:29 PM

Peak	rt	Area
1	0.76	8,842,931

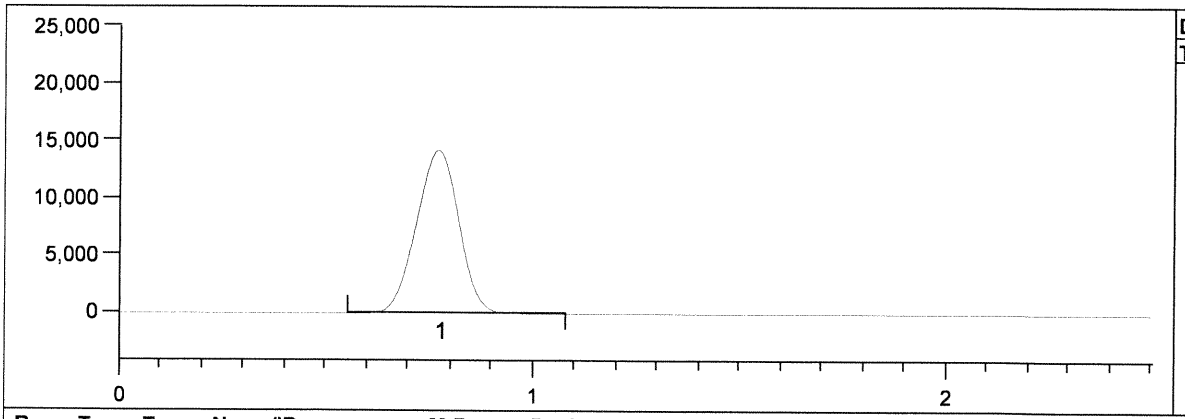
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
112	Y	S	K2409822-049		1	8,842,931	1,080	213		< HS	accept
Notes10X DILUTION											



Date:	10/17/24
Time:	5:34 PM

Peak	rt	Area
1	0.76	9,426,851

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
113	X	S	K2409822-051		1	9,426,851	1,150	230.		< HS	accept
Notes10X DILUTION											



Date:	10/17/24
Time:	5:39 PM

Peak	rt	Area
1	0.77	1,028,260

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
114	Y	OPR	VER-7		1	1,028,260	122	4.90	97.9	77-123	accept
Notes											

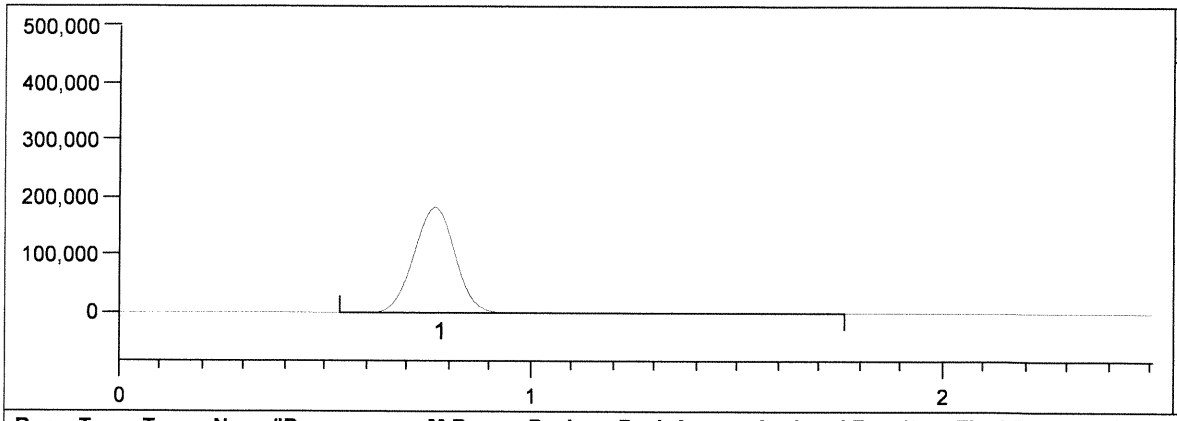
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

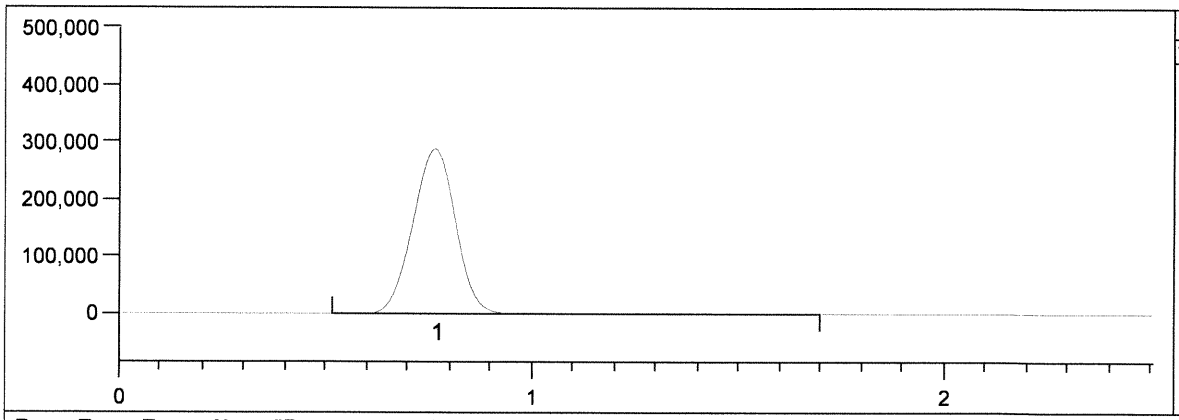
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	5:44 PM

Peak	rt	Area
1	0.76	12,909,313

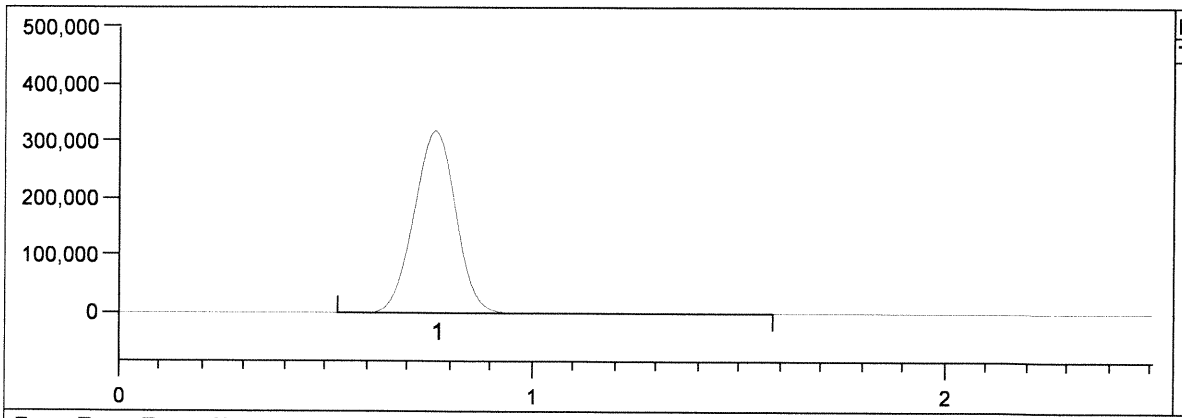
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
115	X	S	K2409822-050		1	12,909,313	1,580	313		< HS	accept
Notes10X DILUTION											



Date:	10/17/24
Time:	5:49 PM

Peak	rt	Area
1	0.76	20,968,193

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
116	Y	MS	K2409822-050		1	20,968,193	2,570	508	79.2	71-125	accept
Notes10X DILUTION											



Date:	10/17/24
Time:	5:54 PM

Peak	rt	Area
1	0.76	22,489,411

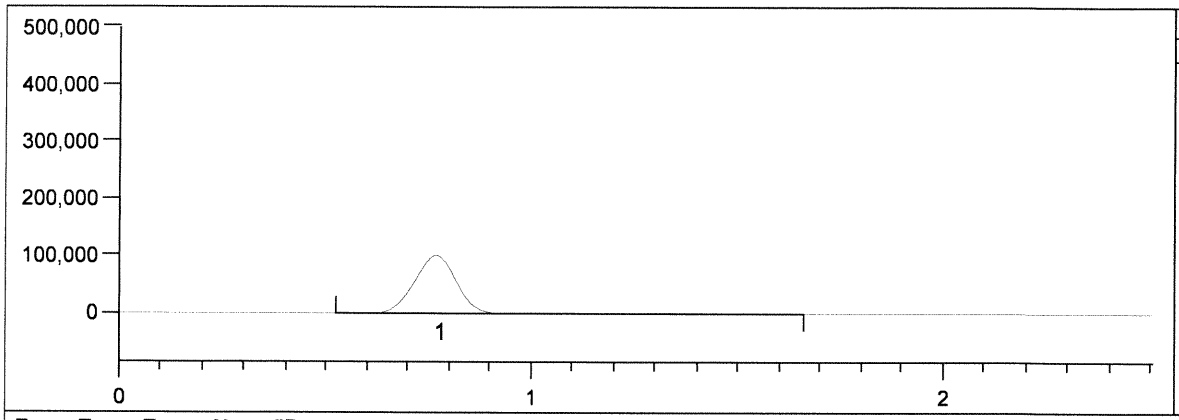
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
117	X	MSD	K2409822-050		1	22,489,411	2,760	544	94.0	71-125	accept
Notes10X DILUTION											

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

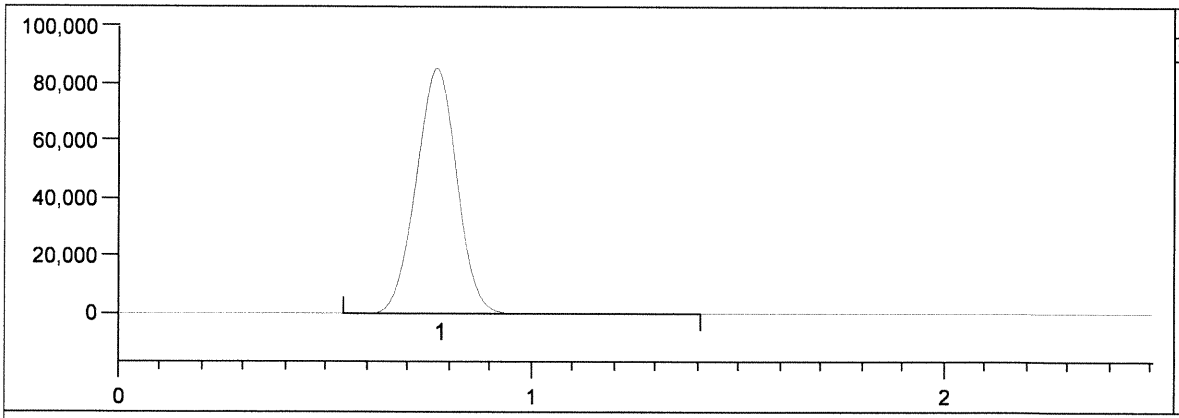


Date:	10/17/24
Time:	5:59 PM

Peak	rt	Area
1	0.76	7,333,531

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
118	Y	S	K2409822-052		1	7,333,531	897	179		< HS	accept

Notes10X DILUTION

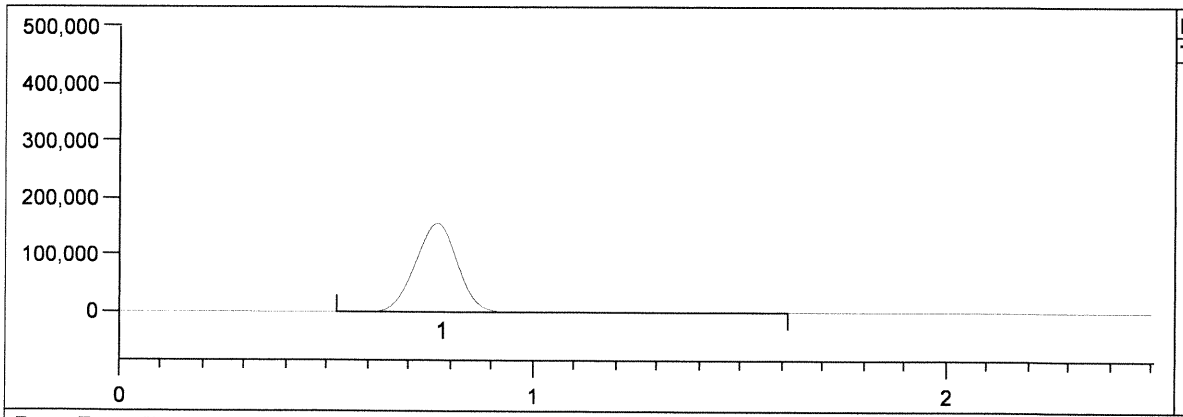


Date:	10/17/24
Time:	6:04 PM

Peak	rt	Area
1	0.77	6,006,462

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
119	X	S	K2409822-053		1	6,006,462	734	145		< HS	accept

Notes10X DILUTION



Date:	10/17/24
Time:	6:09 PM

Peak	rt	Area
1	0.76	11,330,194

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
120	Y	S	K2409822-054		1	11,330,194	1,390	277		< HS	accept

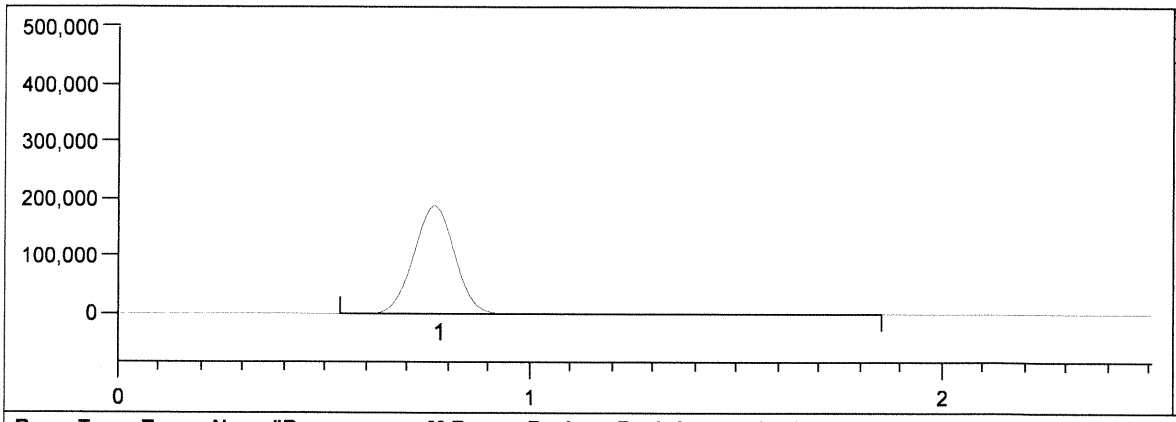
Notes10X DILUTION

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

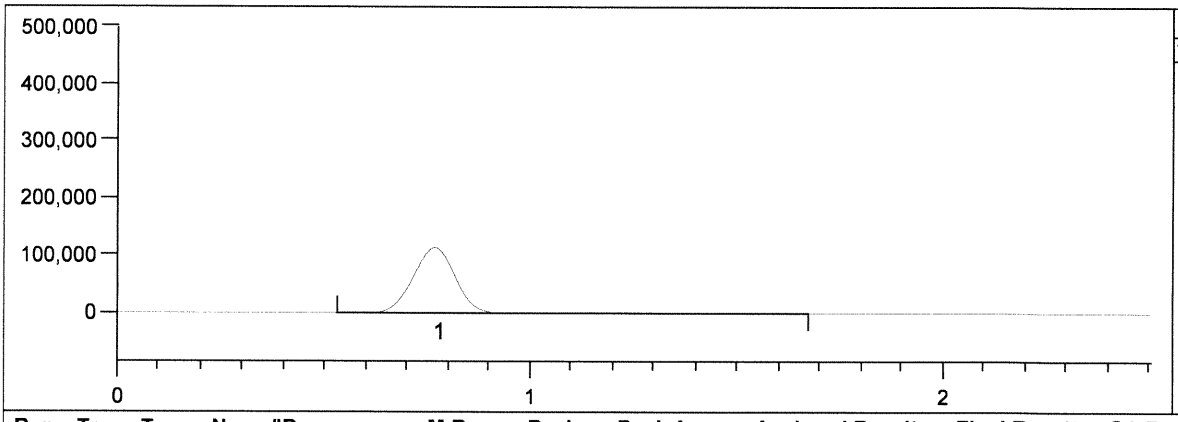
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	6:14 PM

Peak	rt	Area
1	0.76	13,360,596

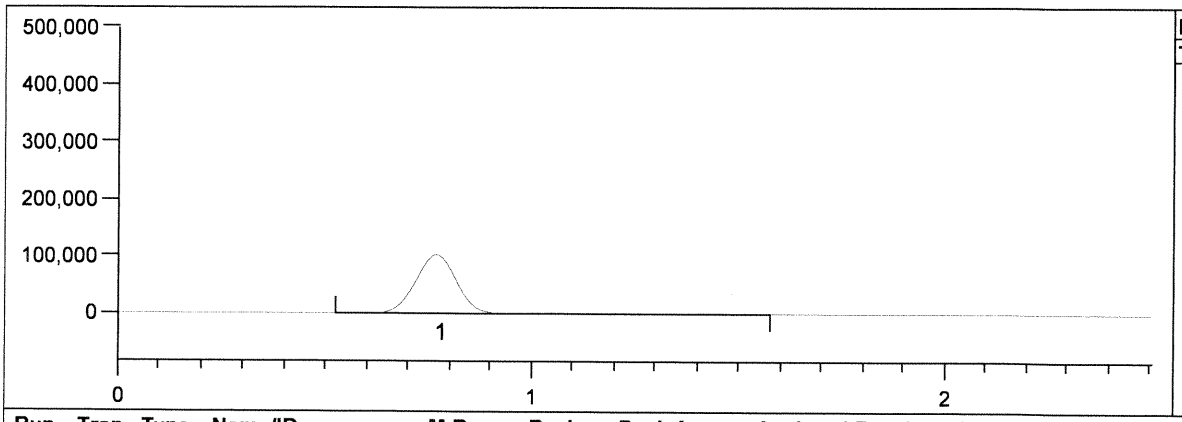
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
121	X	S	K2409822-055		1	13,360,596	1,640	323		< HS	accept
Notes10X DILUTION											



Date:	10/17/24
Time:	6:19 PM

Peak	rt	Area
1	0.76	8,261,803

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
122	Y	S	K2409822-056		1	8,261,803	1,010	202		< HS	accept
Notes10X DILUTION											



Date:	10/17/24
Time:	6:24 PM

Peak	rt	Area
1	0.76	7,286,552

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
123	X	S	K2409822-057		1	7,286,552	891	177		< HS	accept
Notes10X DILUTION											

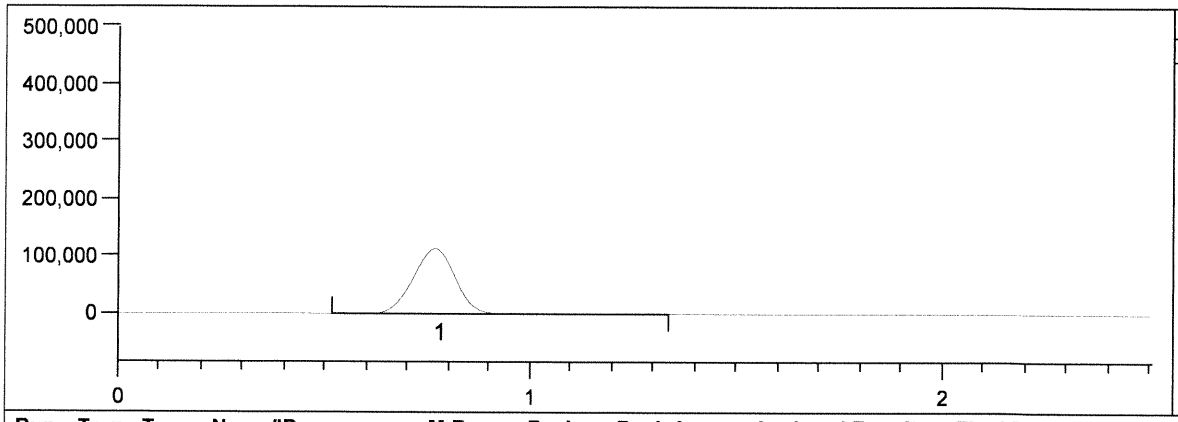
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Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

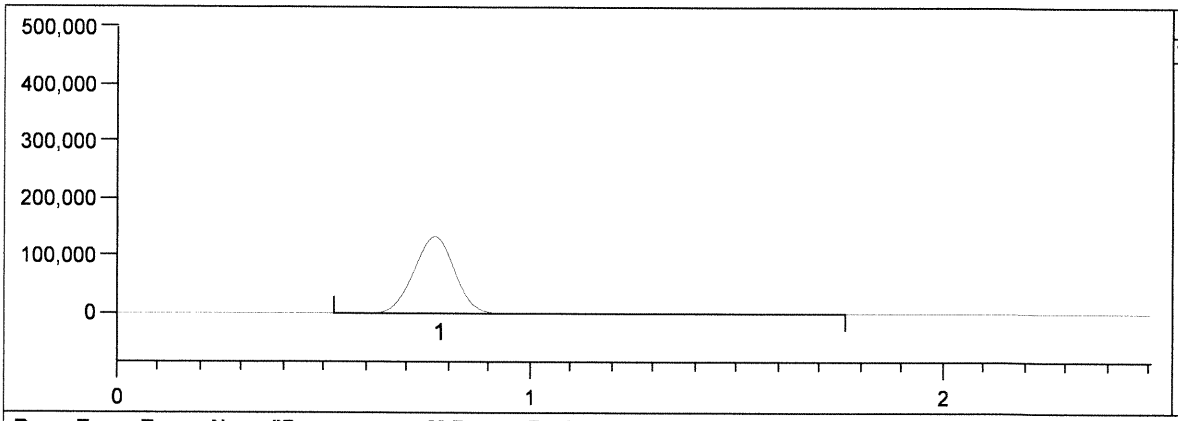
Date Analyzed: 10/17/24
Analyst Name:



Date:	10/17/24
Time:	6:29 PM

Peak	rt	Area
1	0.76	8,293,100

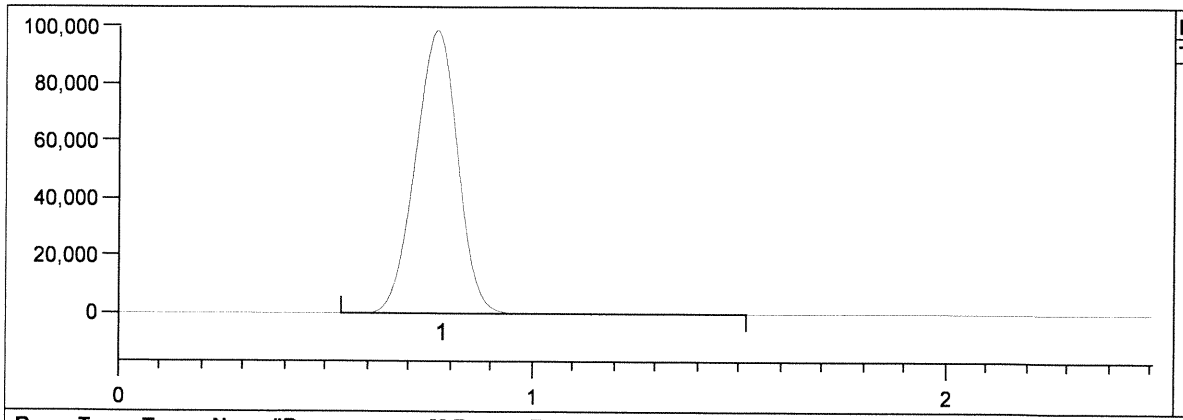
Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
124	Y	S	K2409822-058		1	8,293,100	1,010	201		< HS	accept
Notes10X DILUTION											



Date:	10/17/24
Time:	6:34 PM

Peak	rt	Area
1	0.76	9,476,038

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
125	X	S	K2409822-059		1	9,476,038	1,160	230.		< HS	accept
Notes10X DILUTION											



Date:	10/17/24
Time:	6:39 PM

Peak	rt	Area
1	0.76	7,156,155

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
126	Y	S	K2409822-060		1	7,156,155	875	175		< HS	accept
Notes10X DILUTION											

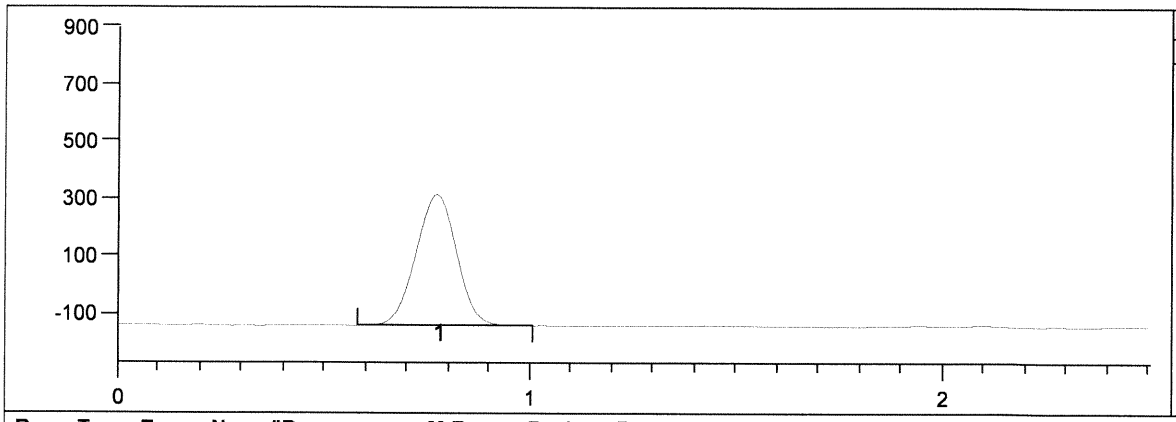
Mercury Guru ver 4.7.6 © 1995-2014 Brooks Rand Inc

Peak Report

Batch Number:
Method Number: EPA 1631E

Project Number(s):
Instrument ID: K-AFS-04

Date Analyzed: 10/17/24
Analyst Name:

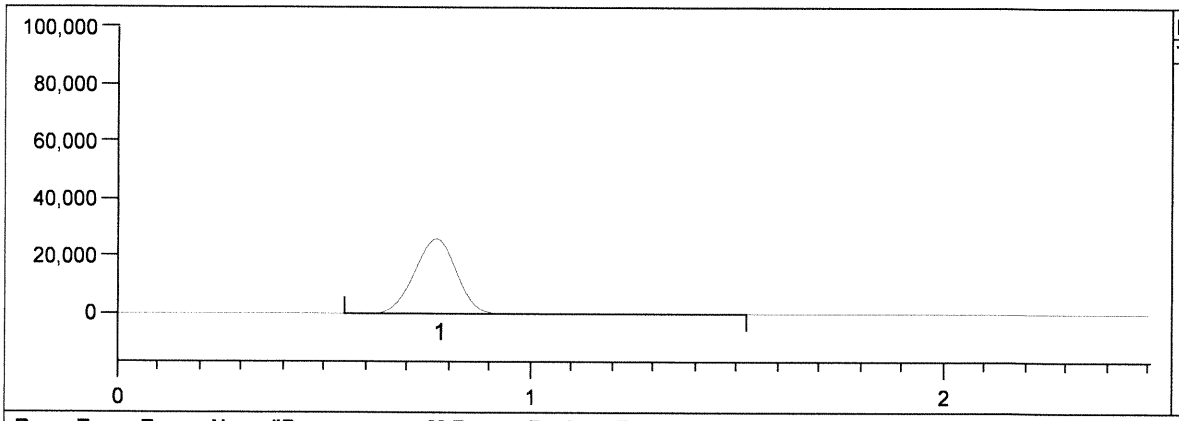


Date: 10/17/24
Time: 6:44 PM

Peak	rt	Area
1	0.77	31,934

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
127	X	MBA	MB-3		1	31,934	0.0216	0.000431	0.000431	< 0.5	accept

Notes

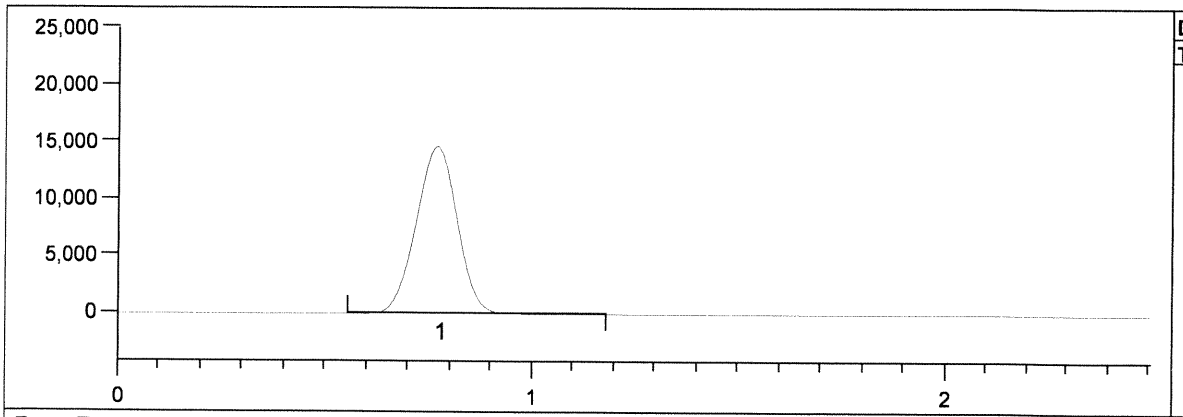


Date: 10/17/24
Time: 6:49 PM

Peak	rt	Area
1	0.77	1,911,651

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
128	Y	OPR	OPR-2		1	1,911,651	231	4.62	92.4	77-123	accept

Notes



Date: 10/17/24
Time: 6:54 PM

Peak	rt	Area
1	0.77	1,029,707

Run	Trap	Type	Name/ID	M B	Peak	Peak Area	Analyzed Result	Final Result	QA Results	Criteria	Notes
129	X	OPR	VER-8		1	1,029,707	123	4.90	98.1	77-123	accept

Notes

Service Request: K2409822 #1-52
Instrument ID: K-ICPMS-06
Calibration: 102824BICPMS06
ALS LIMS Run# 859089
Pipette IDs: 18010244, 44382947, 43187502
Cal Std: MS34-74-D ICSA: MS34-74-E
ICV Std: MS34-69-C ICSAB: MS34-74-F
LLICV Std: MS34-69-D
I.S. Solution: MS34-49-B
Tune Std: MS34-53-G

ICP-MS Data Review Form

	Yes	No	NA
1. Appropriate standardization completed	X		
2. ICV in control (+/- 10%)	X		
3. CCV's in control (+/- 10%)	X		
4. ICB/CCB's below MRL	X		
5. LLICV standard analyzed and in control	X		
6. ICS standards within 20% of true value	X		
6. All analytes within instrument linear range	X		
7. Adequate rinse out time allowed	X		
8. Internal standards in control	X		
9. Interferences checked	X		
10. Was the run terminated? If so, why.		X	

See Benchsheet exception report for sample batch QC information.
Comments: MRL=2X for Zn.

Prep Batches: 446924, 446925, 446926

Primary Review by _____ Date 10/28/24

Secondary Review by _____ Date 10/29/24

R:\ICP\MISC\Document Control\K-ICPMS-06 Review Sheet.doc

Data Review Form

Instrument ID#: **K-ICP-MS-06**
DataFile Name: **R:\ICP\WIP\DATA\K-ICP-MS-06 (Agilent 7800)\102824B.csv**
RUNNO: **859089**

K2409822

No exceptions to report.

Primary Approver: 10/28/24
Secondary Approver: 10/29/24

	Sample								
		Rjct	Data File	Acq. Date-Time	Type	L	Sample Name	Com...	Vial N...
1			001CALB.	2024-10-28 2:35:31 P	CalBlk		Blank		1
2			002CALS.	2024-10-28 2:37:34 P	CalStd		25ppb		2
3			003_ICV.d	2024-10-28 2:39:39 P	ICV		ICV		2101
4			004_CCV.	2024-10-28 2:41:44 P	CCV		CCV		2
5			005_ICB.d	2024-10-28 2:43:48 P	ICB		ICB		1
6			006_CCB.	2024-10-28 2:45:53 P	CCB		CCB		1
7			007LICV.d	2024-10-28 2:47:58 P	LLICV		LLICVT		2102
8			008_QC1.d	2024-10-28 2:51:49 P	QC1		LLICVT 2X		2202
9			009SMPL.	2024-10-28 2:53:54 P	Sample		LRSTD	+100	1102
10			010SMPL.	2024-10-28 2:55:53 P	Sample		MO STD		2105
11			011ICSA.d	2024-10-28 2:57:57 P	ICSA		ICSA		2103
12			012ICSB.d	2024-10-28 3:00:00 P	ICSB		ICSAB		2104
13			013SMPL.	2024-10-28 3:02:03 P	Sample		MO STD		2105
14			014_PB.d	2024-10-28 3:04:24 P	PB		KQ2416988-01	5X	1511
15			015_LCS.d	2024-10-28 3:06:28 P	LCS		KQ2416988-02	5X	1512
16			016_QC4.d	2024-10-28 3:08:32 P	QC4		KQ2416988-03	5X	3101
17			017_QC5.d	2024-10-28 3:10:36 P	QC5		KQ2416988-04	5X	3102
18			018_ARF.d	2024-10-28 3:12:39 P	AllRef		K2409822-001	5X	3103
19			019_Dup.d	2024-10-28 3:14:43 P	Dup		KQ2416988-05	5X	3104
20			020SMPL.	2024-10-28 3:16:46 P	Sample		K2409822-001L	25X	3105
21			021_PDS.d	2024-10-28 3:18:50 P	PDS		K2409822-001A	5X +	3106
22			022_SPK.d	2024-10-28 3:20:53 P	Spike		KQ2416988-06	5X	3107
23			023SMPL.	2024-10-28 3:22:56 P	Sample		K2409822-002	5X	3108
24			024_CCV.	2024-10-28 3:25:01 P	CCV		CCV		2
25			025_CCB.	2024-10-28 3:27:05 P	CCB		CCB		1
26			026SMPL.	2024-10-28 3:29:10 P	Sample		K2409822-003	5X	3109
27			027SMPL.	2024-10-28 3:31:15 P	Sample		K2409822-004	5X	3110
28			028SMPL.	2024-10-28 3:33:18 P	Sample		K2409822-005	5X	3111
29			029SMPL.	2024-10-28 3:35:22 P	Sample		K2409822-006	5X	3112
30			030SMPL.	2024-10-28 3:37:25 P	Sample		K2409822-007	5X	3201
31			031SMPL.	2024-10-28 3:39:28 P	Sample		K2409822-008	5X	3202
32			032SMPL.	2024-10-28 3:41:32 P	Sample		K2409822-009	5X	3203
33			033SMPL.	2024-10-28 3:43:35 P	Sample		K2409822-010	5X	3204
34			034SMPL.	2024-10-28 3:45:39 P	Sample		K2409822-011	5X	3205
35			035SMPL.	2024-10-28 3:47:43 P	Sample		K2409822-012	5X	3206

	Sample								
		Rjct	Data File	Acq. Date-Time	Type	L	Sample Name	Com...	Vial N...
36			036_CCV.	2024-10-28 3:49:49 P	CCV		CCV		2
37			037_CCB.	2024-10-28 3:51:54 P	CCB		CCB		1
38			038SMPL.	2024-10-28 3:53:59 P	Sample		K2409822-013	5X	3207
39			039SMPL.	2024-10-28 3:56:03 P	Sample		K2409822-014	5X	3208
40			040SMPL.	2024-10-28 3:58:08 P	Sample		K2409822-015	5X	3209
41			041SMPL.	2024-10-28 4:00:12 P	Sample		K2409822-016	5X	3210
42			042SMPL.	2024-10-28 4:02:16 P	Sample		K2409822-017	5X	3211
43			043SMPL.	2024-10-28 4:04:20 P	Sample		K2409822-018	5X	3212
44			044SMPL.	2024-10-28 4:06:23 P	Sample		K2409822-019	5X	3301
45			045SMPL.	2024-10-28 4:08:27 P	Sample		K2409822-020	5X	3302
46			046_CCV.	2024-10-28 4:10:31 P	CCV		CCV		2
47			047_CCB.	2024-10-28 4:12:35 P	CCB		CCB		1
48			048_PB.d	2024-10-28 4:14:39 P	PB		KQ2416989-01	5X	3303
49			049_LCS.d	2024-10-28 4:16:43 P	LCS		KQ2416989-02	5X	3304
50			050_QC4.d	2024-10-28 4:18:47 P	QC4		KQ2416989-03	5X	3305
51			051_QC5.d	2024-10-28 4:20:51 P	QC5		KQ2416989-04	5X	3306
52			052_ARF.d	2024-10-28 4:22:54 P	AllRef		K2409822-022	5X	3307
53	✓		053_Dup.d	2024-10-28 4:24:57 P	Dup		KQ2416989-05	5X	3308
54			054SMPL.	2024-10-28 4:27:02 P	Sample		K2409822-022L	25X	3309
55			055_PDS.d	2024-10-28 4:29:08 P	PDS		K2409822-022A	5X +	3310
56	✓		056_SPK.d	2024-10-28 4:31:11 P	Spike		KQ2416989-06	5X	3311
57			057SMPL.	2024-10-28 4:33:14 P	Sample		K2409822-021	5X	3312
58			058_CCV.	2024-10-28 4:35:18 P	CCV		CCV		2
59	✓		059_CCB.	2024-10-28 4:37:22 P	CCB		CCB		1
60			060_CCB.	2024-10-28 4:42:23 P	CCB		CCB		1
61			061SMPL.	2024-10-28 4:44:27 P	Sample		K2409822-023	5X	3401
62			062SMPL.	2024-10-28 4:46:31 P	Sample		K2409822-024	5X	3402
63			063SMPL.	2024-10-28 4:48:35 P	Sample		K2409822-025	5X	3403
64			064SMPL.	2024-10-28 4:50:38 P	Sample		K2409822-026	5X	3404
65			065SMPL.	2024-10-28 4:52:41 P	Sample		K2409822-027	5X	3405
66			066SMPL.	2024-10-28 4:54:45 P	Sample		K2409822-028	5X	3406
67			067SMPL.	2024-10-28 4:56:48 P	Sample		K2409822-029	5X	3407
68			068SMPL.	2024-10-28 4:58:52 P	Sample		K2409822-030	5X	3408
69			069SMPL.	2024-10-28 5:00:55 P	Sample		K2409822-031	5X	3409
70			070SMPL.	2024-10-28 5:02:58 P	Sample		K2409822-032	5X	3410

GW 10/28/24

	Sample								
		Rjct	Data File	Acq. Date-Time	Type	L	Sample Name	Com...	Vial N...
71			071_CCV.	2024-10-28 5:05:03 P	CCV		CCV		2
72			072_CCB.	2024-10-28 5:07:08 P	CCB		CCB		1
73			073SMPL.	2024-10-28 5:09:13 P	Sample		K2409822-033	5X	3411
74			074SMPL.	2024-10-28 5:11:16 P	Sample		K2409822-034	5X	3412
75			075SMPL.	2024-10-28 5:13:19 P	Sample		K2409822-035	5X	3501
76			076SMPL.	2024-10-28 5:15:22 P	Sample		K2409822-036	5X	3502
77			077SMPL.	2024-10-28 5:17:25 P	Sample		K2409822-037	5X	3503
78			078SMPL.	2024-10-28 5:19:28 P	Sample		K2409822-038	5X	3504
79			079SMPL.	2024-10-28 5:21:31 P	Sample		K2409822-039	5X	3505
80			080SMPL.	2024-10-28 5:23:35 P	Sample		K2409822-040	5X	3506
81			081_CCV.	2024-10-28 5:25:40 P	CCV		CCV		2
82			082_CCB.	2024-10-28 5:27:44 P	CCB		CCB		1
83			083_PB.d	2024-10-28 5:29:48 P	PB		KQ2416990-01	5X	3507
84			084_LCS.d	2024-10-28 5:31:51 P	LCS		KQ2416990-02	5X	3508
85	✓		085_QC4.d	2024-10-28 5:33:54 P	QC4		KQ2416990-03	5X	3509
86			086_QC5.d	2024-10-28 5:35:57 P	QC5		KQ2416990-04	5X	3510
87			087_ARF.d	2024-10-28 5:38:00 P	AllRef		K2409822-050	5X	3511
88	✓		088_Dup.d	2024-10-28 5:40:03 P	Dup		KQ2416990-05	5X	3512
89			089SMPL.	2024-10-28 5:42:06 P	Sample		K2409822-050L	25X	4101
90	✓		090_PDS.d	2024-10-28 5:44:10 P	PDS		K2409822-050A	5X +	4102
91	✓		091_SPK.d	2024-10-28 5:46:15 P	Spike		KQ2416990-06	5X	4103
92			092SMPL.	2024-10-28 5:48:18 P	Sample		K2409822-041	5X	4104
93			093_CCV.	2024-10-28 5:50:23 P	CCV		CCV		2
94			094_CCB.	2024-10-28 5:52:27 P	CCB		CCB		1
95			095SMPL.	2024-10-28 5:54:32 P	Sample		K2409822-042	5X	4105
96			096SMPL.	2024-10-28 5:56:36 P	Sample		K2409822-043	5X	4106
97			097SMPL.	2024-10-28 5:58:39 P	Sample		K2409822-044	5X	4107
98			098SMPL.	2024-10-28 6:00:43 P	Sample		K2409822-045	5X	4108
99			099SMPL.	2024-10-28 6:02:47 P	Sample		K2409822-046	5X	4109
100			100SMPL.	2024-10-28 6:04:51 P	Sample		K2409822-047	5X	4110
101			101SMPL.	2024-10-28 6:06:55 P	Sample		K2409822-048	5X	4111
102			102SMPL.	2024-10-28 6:08:59 P	Sample		K2409822-049	5X	4112
103			103SMPL.	2024-10-28 6:11:02 P	Sample		K2409822-051	5X	4201
104			104SMPL.	2024-10-28 6:13:06 P	Sample		K2409822-052	5X	4202
105	✓		105_CCV.	2024-10-28 6:15:11 P	CCV		CCV		2

10/28/2024

Sample

	Rjct	Data File	Acq. Date-Time	Type	L	Sample Name	Com...	Vial N...
106		106_CCV.	2024-10-28 6:32:33 P	CCV		CCV		2
107		107_CCB.	2024-10-28 6:34:37 P	CCB		CCB		1

Analyte

	Name	Mass	ISTD	Tune Mode	Units	Replicate
1	Cu	63	72	He	ug/l	3
2	Cu	65	72	He	ug/l	3
3	Zn	66	72	He	ug/l	3
4	Se	77	72	H2	ug/l	3
5	Se	78	72	H2	ug/l	3
6	Mo	95	115	He	ug/l	3
7	Mo	98	115	He	ug/l	3
8	Ag	107	115	He	ug/l	3
9	Ag	109	115	He	ug/l	3
10	Cd	111	115	He	ug/l	3
11	[Pb]	206	175	He	ug/l	3
12	[Pb]	207	175	He	ug/l	3
13	Pb	208	175	He	ug/l	3
14	Sc	45		He		3
15	Ge	72		H2		3
16	Ge	72		He		3
17	In	115		He		3
18	Lu	175		He		3
19	Th	232		He		3

US EPA Tune Check Report

Operator Name	ALKLS NoUser
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824.b
Acq. Date-Time	2024-10-28 9:55:30 AM
Report Comment	---
Instrument Name	G8421A JP16310358

[No Gas]

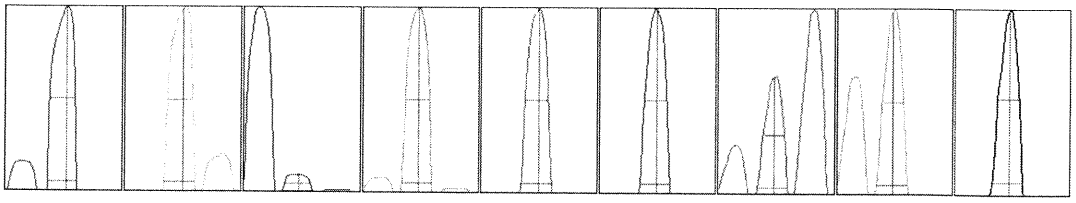
Sensitivity

Mass	CPS	RSD%	RSD% (Required)	RSD% (Flag)
7	86359.28	0.753	5.000	
9	20079.90	0.954	5.000	
24	264370.67	0.887	5.000	
59	138692.97	0.514	5.000	
115	254133.21	0.380	5.000	
140	266069.89	0.711	5.000	
208	136181.04	0.479	5.000	
209	214503.01	0.674	5.000	
238	263953.93	0.844	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
7	8535	8605	8683	8677	8680
9	1999	1988	2038	2013	2001
24	26477	26830	26325	26273	26281
59	13776	13888	13816	13922	13944
115	25384	25519	25319	25513	25332
140	26370	26786	26441	26753	26684
208	13543	13685	13686	13572	13604
209	21260	21574	21615	21387	21415
238	26064	26551	26631	26425	26307

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Flag)	W-5% (Required)
7	14289.42	7.10	6.90 - 7.10		0.741		0.900
9	3269.90	9.05	8.90 - 9.10		0.786		0.900
24	41425.87	23.95	23.90 - 24.10		0.780		0.900

US EPA Tune Check Report

Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Flag)	W-5% (Required)
59	22654.79	58.95	58.90 - 59.10		0.784		0.900
115	44970.23	115.00	114.90 - 115.10		0.780		0.900
140	48761.52	140.00	139.90 - 140.10		0.773		0.900
208	25783.41	207.95	207.90 - 208.10		0.774		0.900
209	40410.30	208.95	208.90 - 209.10		0.808		0.900
238	49339.52	237.95	237.90 - 238.10		0.790		0.900

Integration Time [sec]	0.1
Acquisition Time [sec]	268.4
Y Axis	Linear

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.59 L/min	Dilution Gas	0.42 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.60 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	8.8 V	Deflect	16.2 V
Extract 2	-165.0 V	Cell Entrance	-30 V	Plate Bias	-55 V
Omega Bias	-65 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	200 V		

QP Parameters

Mass Gain	127	Axis Gain	1.0003	QP Bias	-3.0 V
Mass Offset	125	Axis Offset	0.02		

Hardware Settings

Torch

Torch H	-0.3 mm	Torch V	-0.2 mm		

EM

Discriminator	4.1 mV	Analog HV	2465 V	Pulse HV	1620 V

Calibration Blank Report

Sample Name Blank

File Name 001CALB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 2:35:31 PM

Sample Type CalBlk

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	CPS	CPS RSD
Se	77	72	H2	90	50.9
Se	78	72	H2	3	45.8
Cu	63	72	He	150	6.7
Cu	65	72	He	43	40.5
Zn	66	72	He	203	36.9
Mo	95	115	He	8	65.5
Mo	98	115	He	11	75.5
Ag	107	115	He	12	107.9
Ag	109	115	He	10	132.3
Cd	111	115	He	2	66.7
[Pb]	206	175	He	33	26.5
[Pb]	207	175	He	24	41.7
Pb	208	175	He	126	23.9

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Ge	72	H2	288712	1.2
Sc	45	He	50756	1.1
Ge	72	He	49731	3.0
In	115	He	507235	2.9
Lu	175	He	1280862	0.8
Th	232	He	2364955	0.3

AMM
10/28/24

Calibration Standard Report

Sample Name 25ppb

File Name 002CALS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 2:37:34 PM

Sample Type CalStd

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	CPS	CPS RSD
Se	77	72	H2	1740	18.0
Se	78	72	H2	5398	2.8
Cu	63	72	He	78151	1.9
Cu	65	72	He	38987	1.8
Zn	66	72	He	9553	2.6
Mo	95	115	He	19270	2.7
Mo	98	115	He	34858	1.3
Ag	107	115	He	75517	2.1
Ag	109	115	He	76387	0.7
Cd	111	115	He	17560	1.4
[Pb]	206	175	He	117350	0.4
[Pb]	207	175	He	100896	0.7
Pb	208	175	He	463707	0.8

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	287225	1.5	288712.11	99.49	
Sc	45	He	50894	2.7	50756.45	100.27	
Ge	72	He	50122	1.7	49731.27	100.79	
In	115	He	504868	0.5	507235.31	99.53	
Lu	175	He	1280271	3.2	1280861.86	99.95	
Th	232	He	2402468	2.3	2364955.07	101.59	

Initial Calibration Verification (ICV) Report

Sample Name ICV

File Name 003_ICV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 2:39:39 PM

Sample Type ICV

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	23.23705	ug/l	6.4	1620	92.95	
Se	78	72	H2	23.90710	ug/l	3.1	5153	95.63	
Cu	63	72	He	12.25571	ug/l	3.8	37730	98.05	
Cu	65	72	He	12.12180	ug/l	2.6	18604	96.97	
Zn	66	72	He	23.66824	ug/l	3.1	8906	94.67	
Mo	95	115	He	25.52894	ug/l	1.8	38987	102.12	
Mo	98	115	He	24.55258	ug/l	0.9	67843	98.21	
Ag	107	115	He	12.22523	ug/l	1.8	73182	97.8	
Ag	109	115	He	11.91189	ug/l	0.4	72142	95.3	
Cd	111	115	He	12.32030	ug/l	1.9	8576	98.56	
Pb	208	175	He	24.57941	ug/l	2.0	462055	98.32	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	286629	0.9	288712.11	99.28	
Sc	45	He	50107	1.5	50756.45	98.72	
Ge	72	He	49279	1.9	49731.27	99.09	
In	115	He	500348	1.4	507235.31	98.64	
Lu	175	He	1297150	1.7	1280861.86	101.27	
Th	232	He	2331631	1.5	2364955.07	98.59	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 004_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 2:41:44 PM

Sample Type CCV

Comment ---

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	24.02181	ug/l	12.3	1663	96.09	
Se	78	72	H2	25.30805	ug/l	1.1	5434	101.23	
Cu	63	72	He	24.63536	ug/l	1.6	77175	98.54	
Cu	65	72	He	24.65343	ug/l	0.9	38532	98.61	
Zn	66	72	He	24.37592	ug/l	2.8	9343	97.5	
Mo	95	115	He	12.61632	ug/l	1.7	19497	100.93	
Mo	98	115	He	12.17742	ug/l	1.4	34045	97.42	
Ag	107	115	He	12.83512	ug/l	1.0	77732	102.68	
Ag	109	115	He	12.60397	ug/l	1.4	77223	100.83	
Cd	111	115	He	24.71450	ug/l	1.3	17403	98.86	
Pb	208	175	He	24.88754	ug/l	2.2	465595	99.55	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	285493	1.5	288712.11	98.89	
Sc	45	He	50619	2.1	50756.45	99.73	
Ge	72	He	50233	1.0	49731.27	101.01	
In	115	He	506173	1.1	507235.31	99.79	
Lu	175	He	1291056	2.3	1280861.86	100.8	
Th	232	He	2354054	2.5	2364955.07	99.54	

Initial Calibration Blank (ICB) Report

Sample Name ICB

File Name 005_ICB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 2:43:48 PM

Sample Type ICB

Comment ---

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.21206	ug/l	230.0	103	
Se	78	72	H2	0.00310	ug/l	13.8	4	
Cu	63	72	He	-0.00441	ug/l	N/A	140	
Cu	65	72	He	0.00586	ug/l	350.1	53	
Zn	66	72	He	-0.03874	ug/l	N/A	193	
Mo	95	115	He	0.00513	ug/l	125.6	16	
Mo	98	115	He	0.00614	ug/l	167.0	28	
Ag	107	115	He	0.00228	ug/l	161.9	25	
Ag	109	115	He	0.00472	ug/l	82.7	38	
Cd	111	115	He	0.00386	ug/l	170.1	4	
Pb	208	175	He	0.00370	ug/l	182.2	197	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	287476	2.3	288712.11	99.57	
Sc	45	He	51509	2.2	50756.45	101.48	
Ge	72	He	51022	0.6	49731.27	102.6	
In	115	He	505310	1.9	507235.31	99.62	
Lu	175	He	1298648	0.7	1280861.86	101.39	
Th	232	He	2341020	2.5	2364955.07	98.99	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 006_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 2:45:53 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	1.00119	ug/l	17.4	160	
Se	78	72	H2	-0.00042	ug/l	N/A	3	
Cu	63	72	He	-0.01181	ug/l	N/A	117	
Cu	65	72	He	-0.00685	ug/l	N/A	33	
Zn	66	72	He	-0.12499	ug/l	N/A	160	
Mo	95	115	He	0.00219	ug/l	115.5	11	
Mo	98	115	He	0.00206	ug/l	59.5	17	
Ag	107	115	He	0.00031	ug/l	811.2	13	
Ag	109	115	He	0.00276	ug/l	33.6	27	
Cd	111	115	He	0.00069	ug/l	369.5	2	
Pb	208	175	He	0.00169	ug/l	180.4	160	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	295223	1.2	288712.11	102.26	
Sc	45	He	50927	2.5	50756.45	100.34	
Ge	72	He	51046	1.3	49731.27	102.64	
In	115	He	505820	0.6	507235.31	99.72	
Lu	175	He	1306083	1.0	1280861.86	101.97	
Th	232	He	2361922	1.8	2364955.07	99.87	

Low Level Initial Calibration Verification (LLICV) Report

Sample Name LLICVT

File Name 007LICV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 2:47:58 PM

Sample Type LLICV

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc.RSD	CPS	% Rec	QC Flag
Se	77	72	H2	2.64097	ug/l	24.1	267	-264.1	
Se	78	72	H2	1.98143	ug/l	4.0	436	99.07	
Cu	63	72	He	0.20279	ug/l	8.6	787	101.4	
Cu	65	72	He	0.21765	ug/l	13.9	383	108.82	
~~Zn~~	~~66~~	~~72~~	~~He~~	~~0.76836~~	~~ug/l~~	~~22.0~~	~~493~~	~~76.84~~	~~LLICV Failed~~
Mo	95	115	He	0.20577	ug/l	12.5	329	102.88	
Mo	98	115	He	0.20339	ug/l	1.7	586	101.69	
Ag	107	115	He	0.03297	ug/l	12.3	213	82.42	
Ag	109	115	He	0.03453	ug/l	18.6	223	86.32	
Cd	111	115	He	0.04047	ug/l	4.6	30	101.18	
[Pb]	206	175	He	0.03603	ug/l	13.6	203	90.07	
[Pb]	207	175	He	0.03643	ug/l	9.2	172	91.07	
Pb	208	175	He	0.03621	ug/l	11.1	800	90.52	

2X Run 10/28/24

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	290257	0.3	288712.11	100.54	
Sc	45	He	51312	0.3	50756.45	101.09	
Ge	72	He	50256	1.3	49731.27	101.06	
In	115	He	511513	1.1	507235.31	100.84	
Lu	175	He	1287005	3.1	1280861.86	100.48	
Th	232	He	2414080	1.2	2364955.07	102.08	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	LLICVT 2X
File Name	008_QC1.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b
Acq Time	2024-10-28 2:51:49 PM
Sample Type	QC1
Comment	---
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	4.29289	ug/l	43.8	373	-429.29	
Se	78	72	H2	3.91724	ug/l	1.2	848	97.93	
Cu	63	72	He	0.37966	ug/l	0.7	1363	94.92	
Cu	65	72	He	0.40628	ug/l	4.9	690	101.57	
Zn	66	72	He	1.70465	ug/l	18.8	860	85.23	
Mo	95	115	He	0.39883	ug/l	0.0	636	99.71	
Mo	98	115	He	0.39343	ug/l	3.7	1131	98.36	
Ag	107	115	He	0.07456	ug/l	6.0	472	93.2	
Ag	109	115	He	0.08419	ug/l	13.8	535	105.24	
Cd	111	115	He	0.08334	ug/l	6.6	61	104.18	
[Pb]	206	175	He	0.07773	ug/l	11.4	410	97.16	
[Pb]	207	175	He	0.08377	ug/l	6.8	373	104.71	
Pb	208	175	He	0.08431	ug/l	5.8	1739	105.39	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	286995	1.1	288712.11	99.41	
Sc	45	He	51720	1.2	50756.45	101.9	
Ge	72	He	51153	1.2	49731.27	102.86	
In	115	He	515635	0.6	507235.31	101.66	
Lu	175	He	1317971	0.8	1280861.86	102.9	
Th	232	He	2380467	1.6	2364955.07	100.66	

Sample Report

Sample Name LRSTD

File Name 009SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 2:53:54 PM

Sample Type Sample

Comment +1000ppb +50ppb Ag

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	1041.98765	ug/l	1.4	66614	
Se	78	72	H2	1033.63446	ug/l	0.6	215916	
Cu	63	72	He	973.36210	ug/l	1.7	2937592	
Cu	65	72	He	956.52875	ug/l	1.2	1441449	
Zn	66	72	He	976.56923	ug/l	1.6	353587	
Mo	95	115	He	1012.46276	ug/l	1.2	1533986	
Mo	98	115	He	989.28849	ug/l	1.3	2712341	
Ag	107	115	He	50.90862	ug/l	0.7	302363	
Ag	109	115	He	50.14267	ug/l	0.7	301268	
Cd	111	115	He	976.69963	ug/l	0.6	674492	
Pb	208	175	He	961.61969	ug/l	2.6	18115234	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	277918	2.2	288712.11	96.26	
Sc	45	He	51529	2.8	50756.45	101.52	
Ge	72	He	48490	1.6	49731.27	97.5	
In	115	He	496461	1.8	507235.31	97.88	
Lu	175	He	1300603	2.9	1280861.86	101.54	
Th	232	He	2379878	1.5	2364955.07	100.63	

Sample Report

Sample Name MO STD

File Name 010SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 2:55:53 PM

Sample Type Sample

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.61534	ug/l	52.3	130	
Se	78	72	H2	0.15812	ug/l	23.8	37	
Cu	63	72	He	0.18005	ug/l	22.7	717	
Cu	65	72	He	0.15608	ug/l	7.3	288	
Zn	66	72	He	-0.17331	ug/l	N/A	140	
Mo	95	115	He	207.77119	ug/l	0.6	316990	
Mo	98	115	He	201.43994	ug/l	0.8	556000	
Ag	107	115	He	0.00814	ug/l	71.8	60	
Ag	109	115	He	0.00447	ug/l	53.3	37	
Cd	111	115	He	0.17355	ug/l	7.4	122	
Pb	208	175	He	0.17665	ug/l	1.7	3430	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	286850	1.9	288712.11	99.35	
Sc	45	He	50897	1.9	50756.45	100.28	
Ge	72	He	50460	1.6	49731.27	101.47	
In	115	He	499861	0.1	507235.31	98.55	
Lu	175	He	1290685	1.5	1280861.86	100.77	
Th	232	He	2325497	0.3	2364955.07	98.33	

Interference Check Solution A (ICS-A) Report

Sample Name ICSA

File Name 011ICSA.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 2:57:57 PM

Sample Type ICSA

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	ExpValue	CPS	QC Flag
Se	77	72	H2	0.38631	ug/l	41.7	-1	110	
Se	78	72	H2	0.09608	ug/l	7.9	-1	23	
Cu	63	72	He	0.55726	ug/l	6.1	-1	1827	
Cu	65	72	He	0.55877	ug/l	12.9	-1	883	
Zn	66	72	He	0.17266	ug/l	46.2	-1	260	
Mo	95	115	He	52.99105	ug/l	1.8	50	77538	
Mo	98	115	He	51.74559	ug/l	2.8	50	136957	
Ag	107	115	He	0.01147	ug/l	14.4	-1	77	
Ag	109	115	He	0.01045	ug/l	22.6	-1	70	
Cd	111	115	He	0.46785	ug/l	6.1	-1	313	
[Pb]	206	175	He	0.30049	ug/l	9.6	-1	1440	
[Pb]	207	175	He	0.27936	ug/l	4.4	-1	1149	
Pb	208	175	He	0.28748	ug/l	2.5	-1	5443	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	274368	1.2	288712.11	95.03	
Sc	45	He	49469	0.6	50756.45	97.46	
Ge	72	He	48457	0.7	49731.27	97.44	
In	115	He	479496	2.2	507235.31	94.53	
Lu	175	He	1276544	0.5	1280861.86	99.66	
Th	232	He	2340576	1.7	2364955.07	98.97	

Interference Check Solution AB (ICS-AB) Report

Sample Name ICSAB

File Name 012ICSB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:00:00 PM

Sample Type ICSB

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	ExpValue	CPS	QC Flag
Se	77	72	H2	27.65053	ug/l	11.9	25	1867	
Se	78	72	H2	25.01281	ug/l	0.9	25	5265	
Cu	63	72	He	46.36940	ug/l	1.7	50	140703	
Cu	65	72	He	45.55335	ug/l	1.7	50	68978	
Zn	66	72	He	23.25326	ug/l	2.7	25	8649	
Mo	95	115	He	53.58531	ug/l	0.9	50	78755	
Mo	98	115	He	52.13748	ug/l	1.3	50	138623	
Ag	107	115	He	12.40153	ug/l	1.1	12.5	71449	
Ag	109	115	He	11.91480	ug/l	0.3	12.5	69445	
Cd	111	115	He	24.76826	ug/l	1.1	25	16591	
[Pb]	206	175	He	0.26218	ug/l	3.9	-1	1277	
[Pb]	207	175	He	0.24878	ug/l	3.4	-1	1039	
Pb	208	175	He	0.25833	ug/l	3.3	-1	4966	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	279898	1.3	288712.11	96.95	
Sc	45	He	50633	0.6	50756.45	99.76	
Ge	72	He	48697	1.4	49731.27	97.92	
In	115	He	481537	1.4	507235.31	94.93	
Lu	175	He	1292824	1.1	1280861.86	100.93	
Th	232	He	2347954	0.6	2364955.07	99.28	

Sample Report

Sample Name MO STD

File Name 013SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:02:03 PM

Sample Type Sample

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	-0.01243	ug/l	N/A	90	
Se	78	72	H2	0.00745	ug/l	162.5	5	
Cu	63	72	He	-0.00129	ug/l	N/A	147	
Cu	65	72	He	0.02153	ug/l	99.6	77	
Zn	66	72	He	-0.38483	ug/l	N/A	60	
Mo	95	115	He	206.67162	ug/l	0.6	319616	
Mo	98	115	He	201.23703	ug/l	2.5	562924	
Ag	107	115	He	0.00194	ug/l	157.3	23	
Ag	109	115	He	0.00191	ug/l	206.7	22	
Cd	111	115	He	0.03559	ug/l	29.2	27	
Pb	208	175	He	0.01434	ug/l	93.3	399	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	290847	0.4	288712.11	100.74	
Sc	45	He	51278	0.9	50756.45	101.03	
Ge	72	He	49811	1.1	49731.27	100.16	
In	115	He	506699	1.4	507235.31	99.89	
Lu	175	He	1308309	0.9	1280861.86	102.14	
Th	232	He	2370433	1.7	2364955.07	100.23	

Prep Blank (PB) Report

Sample Name KQ2416988-01

File Name 014_PB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:04:24 PM

Sample Type PB

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.18068	ug/l	204.3	103	
Se	78	72	H2	0.03617	ug/l	12.5	11	
Cu	63	72	He	0.02687	ug/l	128.3	233	
Cu	65	72	He	0.03709	ug/l	29.9	100	
Zn	66	72	He	-0.43727	ug/l	N/A	40	
Mo	95	115	He	0.11581	ug/l	17.8	186	
Mo	98	115	He	0.08472	ug/l	9.5	247	
Ag	107	115	He	0.00116	ug/l	181.7	18	
Ag	109	115	He	0.00005	ug/l	1644.4	10	
Cd	111	115	He	0.02000	ug/l	20.0	16	
[Pb]	206	175	He	0.01865	ug/l	30.5	124	
[Pb]	207	175	He	0.02176	ug/l	16.5	116	
Pb	208	175	He	0.01885	ug/l	4.4	489	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	292052	1.5	288712.11	101.16	
Sc	45	He	50519	2.7	50756.45	99.53	
Ge	72	He	49533	1.5	49731.27	99.6	
In	115	He	503735	1.3	507235.31	99.31	
Lu	175	He	1317240	1.9	1280861.86	102.84	
Th	232	He	2382689	2.3	2364955.07	100.75	

Laboratory Control Sample (LCS) Report

Sample Name KQ2416988-02

File Name 015_LCS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:06:28 PM

Sample Type LCS

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	33.63014	ug/l	6.8	2374	33.3	100.99	
Se	78	72	H2	32.83951	ug/l	3.2	7293	33.3	98.62	
Cu	63	72	He	46.30898	ug/l	2.3	145984	50	92.62	
Cu	65	72	He	46.01287	ug/l	1.0	72400	50	92.03	
Zn	66	72	He	91.24773	ug/l	2.2	34659	100	91.25	
Mo	95	115	He	32.89480	ug/l	2.0	51393	33.3	98.78	
Mo	98	115	He	31.77899	ug/l	1.5	89842	33.3	95.43	
Ag	107	115	He	9.61907	ug/l	1.2	58916	10	96.19	
Ag	109	115	He	9.41512	ug/l	0.6	58340	10	94.15	
Cd	111	115	He	9.24480	ug/l	1.7	6584	10	92.45	
[Pb]	206	175	He	92.76324	ug/l	0.8	447221	100	92.76	
[Pb]	207	175	He	92.78913	ug/l	0.3	384611	100	92.79	
Pb	208	175	He	94.17397	ug/l	0.5	1793704	100	94.17	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	295463	2.6	288712.11	102.34	
Sc	45	He	49920	1.1	50756.45	98.35	
Ge	72	He	50597	1.1	49731.27	101.74	
In	115	He	511928	1.7	507235.31	100.93	
Lu	175	He	1314238	0.7	1280861.86	102.61	
Th	232	He	2414502	0.7	2364955.07	102.1	

Laboratory Control Sample (LCS) Report

Sample Name	KQ2416988-03
File Name	016_QC4.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b
Acq Time	2024-10-28 3:08:32 PM
Sample Type	QC4
Comment	5X
ISTD Ref FileName	001CALB.d
Operator	ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	4.93722	ug/l	40.6	420	4.8	102.86	
Se	78	72	H2	4.60154	ug/l	1.7	1002	4.8	95.87	
Cu	63	72	He	6.08489	ug/l	0.6	18652	6.6	92.2	
Cu	65	72	He	6.21237	ug/l	0.8	9477	6.6	94.13	
Zn	66	72	He	55.05213	ug/l	1.4	20271	57.4	95.91	
Mo	95	115	He	0.27045	ug/l	14.2	423	-1	-27.04	
Mo	98	115	He	0.25268	ug/l	10.8	713	-1	-25.27	
Ag	107	115	He	0.25296	ug/l	4.0	1535	0.27	93.69	
Ag	109	115	He	0.26036	ug/l	6.5	1597	0.27	96.43	
Cd	111	115	He	0.29991	ug/l	8.6	212	0.296	101.32	
Pb	208	175	He	0.12256	ug/l	11.2	2427	0.116	105.66	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	288784	2.8	288712.11	100.03	
Sc	45	He	51164	1.5	50756.45	100.8	
Ge	72	He	48858	1.5	49731.27	98.24	
In	115	He	503545	0.8	507235.31	99.27	
Lu	175	He	1294366	1.7	1280861.86	101.05	
Th	232	He	2382356	2.0	2364955.07	100.74	

Laboratory Control Sample (LCS) Report

Sample Name KQ2416988-04

File Name 017_QC5.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:10:36 PM

Sample Type QC5

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	19.55840	ug/l	11.3	1380	21.8	89.72	
Se	78	72	H2	20.27703	ug/l	4.8	4380	21.8	93.01	
Cu	63	72	He	862.41900	ug/l	1.1	2669234	994	86.76	
Cu	65	72	He	845.50557	ug/l	1.5	1306555	994	85.06	
Zn	66	72	He	250.95348	ug/l	3.3	93305	272	92.26	
Mo	95	115	He	6.66822	ug/l	0.9	10056	6.88	96.92	
Mo	98	115	He	6.44824	ug/l	0.4	17589	6.88	93.72	
Ag	107	115	He	10.25207	ug/l	0.9	60564	-1	-1025.21	
Ag	109	115	He	10.07505	ug/l	1.1	60206	-1	-1007.5	
Cd	111	115	He	77.39574	ug/l	1.1	53154	84.6	91.48	
Pb	208	175	He	0.40333	ug/l	1.5	7649	0.45	89.63	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	287323	2.1	288712.11	99.52	
Sc	45	He	50776	1.8	50756.45	100.04	
Ge	72	He	49724	1.5	49731.27	99.99	
In	115	He	493708	0.9	507235.31	97.33	
Lu	175	He	1287274	1.7	1280861.86	100.5	
Th	232	He	2390445	1.5	2364955.07	101.08	

Reference Sample Report

Sample Name K2409822-001

File Name 018_ARF.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:12:39 PM

Sample Type AllRef

Comment 5X

ISTD Ref FileName 001CALB.d

Sample QC Pass/Fial Pass

ISTD QC Pass/Fail Pass

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	12.86876	ug/l	11.3	960	
Se	78	72	H2	12.53749	ug/l	1.2	2769	
Cu	63	72	He	7.01957	ug/l	3.8	21991	
Cu	65	72	He	6.92894	ug/l	2.2	10808	
Zn	66	72	He	405.32443	ug/l	0.5	151407	
Mo	95	115	He	0.16735	ug/l	15.6	266	
Mo	98	115	He	0.17985	ug/l	21.4	512	
Ag	107	115	He	0.04171	ug/l	11.4	263	
Ag	109	115	He	0.04042	ug/l	13.9	257	
Cd	111	115	He	1.82031	ug/l	3.4	1280	
Pb	208	175	He	0.67414	ug/l	3.4	12993	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	293519	0.7	288712.11	101.66	
Sc	45	He	51158	1.9	50756.45	100.79	
Ge	72	He	49982	0.3	49731.27	100.5	
In	115	He	504852	0.3	507235.31	99.53	
Lu	175	He	1316735	1.0	1280861.86	102.8	
Th	232	He	2419669	0.3	2364955.07	102.31	

Duplicate Sample Report

Sample Name	KQ2416988-05
File Name	019_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b
Acq Time	2024-10-28 3:14:43 PM
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD Ref FileName	Pass
QC Ref File Name	018_
Default Text	ARF ALRLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	RPD	Flag
Se	77	72	H2	13.44242	ug/l	1.6	1013	4.36	
Se	78	72	H2	13.07867	ug/l	2.1	2933	4.23	
Cu	63	72	He	7.14885	ug/l	2.5	22752	1.82	
Cu	65	72	He	7.02604	ug/l	2.3	11134	1.39	
Zn	66	72	He	389.88179	ug/l	0.2	147984	3.88	
Mo	95	115	He	0.17258	ug/l	9.2	271		<5x MRL
Mo	98	115	He	0.15178	ug/l	11.2	430		<5x MRL
Ag	107	115	He	0.03488	ug/l	8.7	220		<5x MRL
Ag	109	115	He	0.03971	ug/l	20.4	250		<5x MRL
Cd	111	115	He	1.92399	ug/l	1.2	1340	5.54	
[Pb]	206	175	He	0.64533	ug/l	1.1	3115	4.44	
[Pb]	207	175	He	0.64930	ug/l	2.7	2690	1.41	
Pb	208	175	He	0.64846	ug/l	1.9	12359	3.88	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	297998	1.1	288712.11	103.22	
Sc	45	He	51352	2.7	50756.45	101.17	
Ge	72	He	50784	0.4	49731.27	102.12	
In	115	He	500190	0.1	507235.31	98.61	
Lu	175	He	1301549	0.5	1280861.86	101.62	
Th	232	He	2428303	1.0	2364955.07	102.68	

Sample Report

Sample Name K2409822-001L

File Name 020SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:16:46 PM

Sample Type Sample

Comment 25X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	2.74524	ug/l	41.7	287	
Se	78	72	H2	2.48600	ug/l	3.7	571	
Cu	63	72	He	1.49423	ug/l	8.5	4961	
Cu	65	72	He	1.51394	ug/l	9.8	2475	
Zn	66	72	He	81.32874	ug/l	1.7	31569	
Mo	95	115	He	0.07007	ug/l	14.3	119	
Mo	98	115	He	0.07075	ug/l	54.1	213	
Ag	107	115	He	0.00858	ug/l	24.4	65	
Ag	109	115	He	0.00958	ug/l	30.4	70	
Cd	111	115	He	0.36323	ug/l	5.4	264	
Pb	208	175	He	0.15610	ug/l	12.8	3132	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	303661	1.8	288712.11	105.18	
Sc	45	He	53302	1.4	50756.45	105.02	
Ge	72	He	51658	0.6	49731.27	103.87	
In	115	He	519063	1.5	507235.31	102.33	
Lu	175	He	1328472	1.3	1280861.86	103.72	
Th	232	He	2423303	2.2	2364955.07	102.47	

Post Digestion Spike Sample (PDS) Report

Sample Name K2409822-001A

File Name 021_PDS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:18:50 PM

Sample Type PDS

Comment 5X +50ppb +5ppb Ag

ISTD Ref FileName 001CALB.d

QC Ref File Name 018_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Se	77	H2	63.76854	ug/l	7.5	4487	50	101.8	
Se	78	H2	63.24365	ug/l	2.1	14255	50	101.41	
Cu	63	He	55.01686	ug/l	1.9	173851	50	95.99	
Cu	65	He	54.90220	ug/l	1.1	86600	50	95.95	
Zn	66	He	455.05409	ug/l	1.4	172474	50	99.46	
Mo	95	He	50.19171	ug/l	0.2	78807	50	100.05	
Mo	98	He	48.73121	ug/l	0.5	138418	50	97.1	
Ag	107	He	4.96354	ug/l	1.4	30555	5	98.44	
Ag	109	He	4.77361	ug/l	0.9	29727	5	94.66	
Cd	111	He	49.82662	ug/l	0.6	35654	50	96.01	
[Pb]	206	He	47.91128	ug/l	2.4	236326	50	94.47	
[Pb]	207	He	47.24341	ug/l	1.6	200375	50	93.17	
Pb	208	He	48.04312	ug/l	2.0	936264	50	94.74	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	299790	0.8	288712.11	103.84	
Sc	45	He	52693	0.8	50756.45	103.82	
Ge	72	He	50731	2.0	49731.27	102.01	
In	115	He	514394	1.6	507235.31	101.41	
Lu	175	He	1344974	2.1	1280861.86	105.01	
Th	232	He	2425147	0.7	2364955.07	102.55	

Matrix Spike Sample (MS) Report

Sample Name KQ2416988-06

File Name 022_SPK.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:20:53 PM

Sample Type Spike

Comment 5X

ISTD Ref FileName 001CALB.d

QC Ref File Name 018_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Se	77	H2	46.83087	ug/l	1.6	3397	33.3	101.99	
Se	78	H2	46.28771	ug/l	0.5	10679	33.3	101.35	
Cu	63	He	54.24695	ug/l	0.9	173934	50	94.45	
Cu	65	He	54.49209	ug/l	1.6	87200	50	95.13	
Zn	66	He	522.49464	ug/l	1.3	200892	100	117.17	
Mo	95	He	33.80493	ug/l	1.8	53483	33.3	101.01	
Mo	98	He	33.12069	ug/l	1.4	94800	33.3	98.92	
Ag	107	He	9.64054	ug/l	2.0	59789	10	95.99	
Ag	109	He	9.40560	ug/l	1.0	59012	10	93.65	
Cd	111	He	11.41194	ug/l	2.1	8229	10	95.92	
[Pb]	206	He	93.02113	ug/l	1.7	463564	100	92.35	
[Pb]	207	He	92.83626	ug/l	2.6	397729	100	92.18	
Pb	208	He	93.83042	ug/l	2.2	1847274	100	93.16	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	306825	0.9	288712.11	106.27	
Sc	45	He	52840	0.1	50756.45	104.11	
Ge	72	He	51467	1.2	49731.27	103.49	
In	115	He	518366	1.3	507235.31	102.19	
Lu	175	He	1358903	2.3	1280861.86	106.09	
Th	232	He	2466416	1.2	2364955.07	104.29	

Sample Report

Sample Name K2409822-002

File Name 023SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:22:56 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	12.44297	ug/l	7.3	987	
Se	78	72	H2	11.73578	ug/l	2.7	2746	
Cu	63	72	He	13.72251	ug/l	1.6	43941	
Cu	65	72	He	13.69095	ug/l	2.5	21859	
Zn	66	72	He	495.52423	ug/l	1.2	189798	
Mo	95	115	He	0.20325	ug/l	11.7	329	
Mo	98	115	He	0.20031	ug/l	9.7	583	
Ag	107	115	He	0.04688	ug/l	15.4	302	
Ag	109	115	He	0.04418	ug/l	7.6	287	
Cd	111	115	He	8.67574	ug/l	1.7	6244	
Pb	208	175	He	0.44599	ug/l	1.4	9036	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	311010	1.5	288712.11	107.72	
Sc	45	He	54232	1.8	50756.45	106.85	
Ge	72	He	51263	0.5	49731.27	103.08	
In	115	He	517290	1.3	507235.31	101.98	
Lu	175	He	1377216	0.4	1280861.86	107.52	
Th	232	He	2454316	0.8	2364955.07	103.78	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 024_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:25:01 PM

Sample Type CCV

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	26.13114	ug/l	10.8	1954	104.52	
Se	78	72	H2	25.52499	ug/l	0.8	5938	102.1	
Cu	63	72	He	24.85218	ug/l	2.3	82240	99.41	
Cu	65	72	He	24.67769	ug/l	4.0	40738	98.71	
Zn	66	72	He	24.13570	ug/l	3.4	9773	96.54	
Mo	95	115	He	12.82633	ug/l	2.5	20653	102.61	
Mo	98	115	He	12.34504	ug/l	1.3	35957	98.76	
Ag	107	115	He	12.67288	ug/l	1.3	79963	101.38	
Ag	109	115	He	12.36397	ug/l	2.3	78907	98.91	
Cd	111	115	He	24.84264	ug/l	1.8	18224	99.37	
Pb	208	175	He	24.56875	ug/l	1.2	484224	98.28	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	309300	0.9	288712.11	107.13	
Sc	45	He	53570	2.6	50756.45	105.54	
Ge	72	He	53076	2.4	49731.27	106.73	
In	115	He	527420	2.0	507235.31	103.98	
Lu	175	He	1359835	1.6	1280861.86	106.17	
Th	232	He	2447737	2.1	2364955.07	103.5	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 025_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:27:05 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	-0.31027	ug/l	N/A	77	
Se	78	72	H2	0.01669	ug/l	80.7	8	
Cu	63	72	He	0.00270	ug/l	402.0	170	
Cu	65	72	He	0.02652	ug/l	81.6	90	
Zn	66	72	He	0.18993	ug/l	83.6	293	
Mo	95	115	He	0.01799	ug/l	41.1	37	
Mo	98	115	He	0.01841	ug/l	36.7	64	
Ag	107	115	He	0.00477	ug/l	63.0	42	
Ag	109	115	He	0.00368	ug/l	81.3	33	
Cd	111	115	He	0.00863	ug/l	11.9	8	
Pb	208	175	He	0.01550	ug/l	4.2	436	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	317554	0.8	288712.11	109.99	
Sc	45	He	53021	2.5	50756.45	104.46	
Ge	72	He	53371	1.2	49731.27	107.32	
In	115	He	522730	0.6	507235.31	103.05	
Lu	175	He	1350110	0.8	1280861.86	105.41	
Th	232	He	2445749	1.3	2364955.07	103.42	

Sample Report

Sample Name K2409822-003

File Name 026SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:29:10 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	12.87482	ug/l	8.5	1017	
Se	78	72	H2	13.21463	ug/l	3.5	3092	
Cu	63	72	He	10.59660	ug/l	2.0	34068	
Cu	65	72	He	10.56177	ug/l	4.2	16920	
Zn	66	72	He	398.97012	ug/l	0.8	153307	
Mo	95	115	He	0.21213	ug/l	4.3	339	
Mo	98	115	He	0.19165	ug/l	5.4	552	
Ag	107	115	He	0.04631	ug/l	5.4	295	
Ag	109	115	He	0.05693	ug/l	26.2	362	
Cd	111	115	He	3.55813	ug/l	1.4	2533	
Pb	208	175	He	1.06937	ug/l	2.9	21156	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	310925	0.6	288712.11	107.69	
Sc	45	He	53252	1.1	50756.45	104.92	
Ge	72	He	51414	0.5	49731.27	103.38	
In	115	He	511447	1.0	507235.31	100.83	
Lu	175	He	1357517	3.6	1280861.86	105.98	
Th	232	He	2430636	2.2	2364955.07	102.78	

Sample Report

Sample Name K2409822-004

File Name 027SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:31:15 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	9.33570	ug/l	13.8	770	
Se	78	72	H2	9.72163	ug/l	5.2	2294	
Cu	63	72	He	11.20057	ug/l	0.9	36607	
Cu	65	72	He	11.27418	ug/l	1.7	18367	
Zn	66	72	He	435.07674	ug/l	2.5	169948	
Mo	95	115	He	0.17093	ug/l	6.9	280	
Mo	98	115	He	0.17704	ug/l	5.4	521	
Ag	107	115	He	0.07153	ug/l	3.2	458	
Ag	109	115	He	0.07525	ug/l	7.2	485	
Cd	111	115	He	2.77708	ug/l	1.2	2017	
Pb	208	175	He	0.85270	ug/l	3.4	16936	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	313442	0.4	288712.11	108.57	
Sc	45	He	52887	2.4	50756.45	104.2	
Ge	72	He	52280	1.5	49731.27	105.13	
In	115	He	521721	1.8	507235.31	102.86	
Lu	175	He	1360144	1.6	1280861.86	106.19	
Th	232	He	2482206	1.0	2364955.07	104.96	

Sample Report

Sample Name K2409822-005

File Name 028SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:33:18 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	11.50023	ug/l	16.0	913	
Se	78	72	H2	11.45675	ug/l	3.2	2666	
Cu	63	72	He	8.56629	ug/l	0.7	28519	
Cu	65	72	He	8.58835	ug/l	1.1	14241	
Zn	66	72	He	374.27292	ug/l	2.4	148753	
Mo	95	115	He	0.20307	ug/l	8.7	330	
Mo	98	115	He	0.18272	ug/l	4.5	536	
Ag	107	115	He	0.02945	ug/l	22.7	195	
Ag	109	115	He	0.02571	ug/l	9.6	172	
Cd	111	115	He	3.01297	ug/l	1.6	2180	
Pb	208	175	He	0.36329	ug/l	3.3	7348	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	309253	1.9	288712.11	107.11	
Sc	45	He	54078	1.0	50756.45	106.54	
Ge	72	He	53180	0.9	49731.27	106.93	
In	115	He	519754	0.6	507235.31	102.47	
Lu	175	He	1370580	1.6	1280861.86	107	
Th	232	He	2497496	0.5	2364955.07	105.6	

Sample Report

Sample Name K2409822-006

File Name 029SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:35:22 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	9.40535	ug/l	14.5	783	
Se	78	72	H2	10.12480	ug/l	0.5	2412	
Cu	63	72	He	12.41000	ug/l	2.1	41163	
Cu	65	72	He	12.61983	ug/l	1.2	20867	
Zn	66	72	He	527.79166	ug/l	0.3	209324	
Mo	95	115	He	0.22273	ug/l	9.1	364	
Mo	98	115	He	0.20687	ug/l	11.2	610	
Ag	107	115	He	0.04011	ug/l	18.5	263	
Ag	109	115	He	0.04623	ug/l	5.5	303	
Cd	111	115	He	7.13005	ug/l	1.4	5201	
Pb	208	175	He	0.57874	ug/l	2.9	11518	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	316481	0.9	288712.11	109.62	
Sc	45	He	54553	2.2	50756.45	107.48	
Ge	72	He	53083	0.7	49731.27	106.74	
In	115	He	524218	0.3	507235.31	103.35	
Lu	175	He	1357625	1.7	1280861.86	105.99	
Th	232	He	2471694	0.7	2364955.07	104.51	

Sample Report

Sample Name K2409822-007

File Name 030SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:37:25 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	12.23903	ug/l	2.2	997	
Se	78	72	H2	12.72055	ug/l	3.3	3053	
Cu	63	72	He	7.65855	ug/l	2.7	25243	
Cu	65	72	He	7.69143	ug/l	4.0	12632	
Zn	66	72	He	398.17414	ug/l	1.9	156600	
Mo	95	115	He	0.18105	ug/l	19.5	298	
Mo	98	115	He	0.18684	ug/l	11.7	552	
Ag	107	115	He	0.04860	ug/l	8.1	317	
Ag	109	115	He	0.05120	ug/l	12.4	335	
Cd	111	115	He	2.88309	ug/l	1.9	2105	
Pb	208	175	He	0.56582	ug/l	2.1	11302	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	319032	2.3	288712.11	110.5	
Sc	45	He	54215	0.9	50756.45	106.81	
Ge	72	He	52638	2.3	49731.27	105.85	
In	115	He	524345	0.8	507235.31	103.37	
Lu	175	He	1362435	1.9	1280861.86	106.37	
Th	232	He	2493484	0.8	2364955.07	105.43	

Sample Report

Sample Name K2409822-008

File Name 031SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:39:28 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	9.52466	ug/l	13.2	793	
Se	78	72	H2	9.18511	ug/l	3.4	2194	
Cu	63	72	He	6.78134	ug/l	0.1	22718	
Cu	65	72	He	6.93404	ug/l	4.6	11553	
Zn	66	72	He	376.87792	ug/l	2.5	150463	
Mo	95	115	He	0.13549	ug/l	11.2	224	
Mo	98	115	He	0.13143	ug/l	4.4	391	
Ag	107	115	He	0.03011	ug/l	21.8	200	
Ag	109	115	He	0.02999	ug/l	20.6	200	
Cd	111	115	He	1.36165	ug/l	3.6	993	
Pb	208	175	He	0.43596	ug/l	0.6	8820	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	317445	3.2	288712.11	109.95	
Sc	45	He	54821	1.8	50756.45	108.01	
Ge	72	He	53438	2.8	49731.27	107.45	
In	115	He	523438	1.5	507235.31	103.19	
Lu	175	He	1374692	1.4	1280861.86	107.33	
Th	232	He	2509852	0.4	2364955.07	106.13	

Sample Report

Sample Name K2409822-009

File Name 032SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:41:32 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	13.25587	ug/l	22.2	1100	
Se	78	72	H2	13.05420	ug/l	2.8	3216	
Cu	63	72	He	9.06103	ug/l	3.3	30146	
Cu	65	72	He	8.91877	ug/l	1.5	14786	
Zn	66	72	He	477.33071	ug/l	1.9	189655	
Mo	95	115	He	0.21794	ug/l	0.8	360	
Mo	98	115	He	0.20344	ug/l	9.5	606	
Ag	107	115	He	0.05420	ug/l	4.2	355	
Ag	109	115	He	0.05645	ug/l	5.1	372	
Cd	111	115	He	2.00524	ug/l	1.4	1477	
Pb	208	175	He	2.16543	ug/l	2.6	43851	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	327406	0.5	288712.11	113.4	
Sc	45	He	54945	2.5	50756.45	108.25	
Ge	72	He	53187	2.3	49731.27	106.95	
In	115	He	529049	1.1	507235.31	104.3	
Lu	175	He	1393847	3.3	1280861.86	108.82	
Th	232	He	2505196	0.8	2364955.07	105.93	

Sample Report

Sample Name K2409822-010

File Name 033SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:43:35 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	10.31052	ug/l	17.8	860	
Se	78	72	H2	10.25399	ug/l	1.0	2474	
Cu	63	72	He	6.93173	ug/l	2.6	23249	
Cu	65	72	He	6.93474	ug/l	3.1	11580	
Zn	66	72	He	351.38068	ug/l	2.1	140561	
Mo	95	115	He	0.12023	ug/l	19.7	200	
Mo	98	115	He	0.12829	ug/l	21.1	382	
Ag	107	115	He	0.02203	ug/l	25.3	150	
Ag	109	115	He	0.01815	ug/l	20.3	125	
Cd	111	115	He	1.73551	ug/l	2.4	1266	
Pb	208	175	He	0.31244	ug/l	3.0	6315	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	320492	1.8	288712.11	111.01	
Sc	45	He	53975	2.3	50756.45	106.34	
Ge	72	He	53535	3.0	49731.27	107.65	
In	115	He	524021	1.5	507235.31	103.31	
Lu	175	He	1365361	0.9	1280861.86	106.6	
Th	232	He	2482728	1.6	2364955.07	104.98	

Sample Report

Sample Name K2409822-011

File Name 034SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:45:39 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	7.74382	ug/l	7.4	673	
Se	78	72	H2	7.31072	ug/l	1.9	1773	
Cu	63	72	He	7.16478	ug/l	1.6	24344	
Cu	65	72	He	7.12866	ug/l	1.9	12062	
Zn	66	72	He	348.29737	ug/l	2.3	141143	
Mo	95	115	He	0.21541	ug/l	9.9	354	
Mo	98	115	He	0.21678	ug/l	8.0	642	
Ag	107	115	He	0.06774	ug/l	26.7	440	
Ag	109	115	He	0.05167	ug/l	6.9	340	
Cd	111	115	He	1.22837	ug/l	3.1	903	
Pb	208	175	He	0.40910	ug/l	1.8	8383	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	322031	0.7	288712.11	111.54	
Sc	45	He	54814	1.4	50756.45	107.99	
Ge	72	He	54224	1.7	49731.27	109.03	
In	115	He	527304	1.6	507235.31	103.96	
Lu	175	He	1391352	1.8	1280861.86	108.63	
Th	232	He	2484640	2.1	2364955.07	105.06	

Sample Report

Sample Name K2409822-012

File Name 035SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:47:43 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	8.45365	ug/l	12.9	737	
Se	78	72	H2	7.75817	ug/l	2.7	1908	
Cu	63	72	He	9.12069	ug/l	1.7	30329	
Cu	65	72	He	9.32829	ug/l	1.7	15452	
Zn	66	72	He	369.91467	ug/l	1.2	146927	
Mo	95	115	He	0.27379	ug/l	4.0	444	
Mo	98	115	He	0.20850	ug/l	8.1	612	
Ag	107	115	He	0.07128	ug/l	13.0	457	
Ag	109	115	He	0.06619	ug/l	5.0	428	
Cd	111	115	He	1.58725	ug/l	3.1	1155	
Pb	208	175	He	0.87736	ug/l	1.6	17610	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	326444	1.2	288712.11	113.07	
Sc	45	He	55808	1.4	50756.45	109.95	
Ge	72	He	53140	0.6	49731.27	106.85	
In	115	He	522232	1.3	507235.31	102.96	
Lu	175	He	1374590	1.2	1280861.86	107.32	
Th	232	He	2498918	0.9	2364955.07	105.66	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 036_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:49:49 PM

Sample Type CCV

Comment —

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	26.46397	ug/l	6.3	2114	105.86	
Se	78	72	H2	25.36966	ug/l	0.3	6309	101.48	
Cu	63	72	He	26.07969	ug/l	1.8	84678	104.32	
Cu	65	72	He	26.16450	ug/l	1.4	42386	104.66	
Zn	66	72	He	26.64870	ug/l	3.4	10567	106.59	
Mo	95	115	He	12.85627	ug/l	1.2	21037	102.85	
Mo	98	115	He	12.17400	ug/l	0.9	36038	97.39	
Ag	107	115	He	12.62238	ug/l	1.9	80929	100.98	
Ag	109	115	He	12.52593	ug/l	1.1	81251	100.21	
Cd	111	115	He	24.55706	ug/l	1.0	18308	98.23	
Pb	208	175	He	24.75203	ug/l	0.9	485300	99.01	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	330645	0.5	288712.11	114.52	
Sc	45	He	55598	1.2	50756.45	109.54	
Ge	72	He	52073	1.5	49731.27	104.71	
In	115	He	535926	1.4	507235.31	105.66	
Lu	175	He	1352684	1.0	1280861.86	105.61	
Th	232	He	2469728	0.8	2364955.07	104.43	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 037_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:51:54 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.49845	ug/l	61.7	137	
Se	78	72	H2	0.02619	ug/l	33.0	10	
Cu	63	72	He	0.00027	ug/l	5391.6	163	
Cu	65	72	He	0.02606	ug/l	45.6	90	
Zn	66	72	He	0.08599	ug/l	100.7	253	
Mo	95	115	He	0.00474	ug/l	66.1	16	
Mo	98	115	He	0.00651	ug/l	35.9	30	
Ag	107	115	He	0.00292	ug/l	54.3	30	
Ag	109	115	He	0.00448	ug/l	40.9	38	
Cd	111	115	He	0.01052	ug/l	56.8	9	
Pb	208	175	He	0.00716	ug/l	30.5	273	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	320106	0.9	288712.11	110.87	
Sc	45	He	54500	1.9	50756.45	107.38	
Ge	72	He	53699	0.6	49731.27	107.98	
In	115	He	521572	0.8	507235.31	102.83	
Lu	175	He	1353666	1.9	1280861.86	105.68	
Th	232	He	2472961	0.6	2364955.07	104.57	

Sample Report

Sample Name K2409822-013

File Name 038SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:53:59 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	11.09641	ug/l	11.0	893	
Se	78	72	H2	11.28515	ug/l	2.2	2648	
Cu	63	72	He	15.56050	ug/l	2.6	50058	
Cu	65	72	He	15.38952	ug/l	2.8	24693	
Zn	66	72	He	528.87450	ug/l	1.6	203599	
Mo	95	115	He	0.98672	ug/l	7.1	1545	
Mo	98	115	He	0.91369	ug/l	5.4	2586	
Ag	107	115	He	0.07074	ug/l	3.6	443	
Ag	109	115	He	0.07370	ug/l	3.7	465	
Cd	111	115	He	3.47280	ug/l	3.1	2467	
Pb	208	175	He	2.61734	ug/l	1.1	51303	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	311828	2.8	288712.11	108.01	
Sc	45	He	54092	2.5	50756.45	106.57	
Ge	72	He	51537	2.0	49731.27	103.63	
In	115	He	510359	0.7	507235.31	100.62	
Lu	175	He	1349226	1.3	1280861.86	105.34	
Th	232	He	2445815	2.9	2364955.07	103.42	

Sample Report

Sample Name K2409822-014

File Name 039SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:56:03 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	10.81773	ug/l	5.4	873	
Se	78	72	H2	11.15968	ug/l	2.2	2623	
Cu	63	72	He	10.25187	ug/l	4.2	33082	
Cu	65	72	He	10.30872	ug/l	2.4	16578	
Zn	66	72	He	395.90720	ug/l	0.8	152714	
Mo	95	115	He	0.32763	ug/l	4.9	512	
Mo	98	115	He	0.33670	ug/l	3.1	949	
Ag	107	115	He	0.04202	ug/l	7.1	265	
Ag	109	115	He	0.04919	ug/l	10.5	310	
Cd	111	115	He	3.07684	ug/l	1.8	2161	
Pb	208	175	He	0.39451	ug/l	0.9	7749	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	312343	2.5	288712.11	108.18	
Sc	45	He	53188	1.6	50756.45	104.79	
Ge	72	He	51614	1.4	49731.27	103.79	
In	115	He	504514	0.3	507235.31	99.46	
Lu	175	He	1332744	2.7	1280861.86	104.05	
Th	232	He	2421780	1.3	2364955.07	102.4	

Sample Report

Sample Name K2409822-015

File Name 040SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 3:58:08 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	10.60517	ug/l	8.7	860	
Se	78	72	H2	10.48352	ug/l	3.2	2471	
Cu	63	72	He	8.46436	ug/l	2.4	27520	
Cu	65	72	He	8.27786	ug/l	2.7	13406	
Zn	66	72	He	425.30637	ug/l	1.4	165075	
Mo	95	115	He	0.18100	ug/l	2.9	294	
Mo	98	115	He	0.16721	ug/l	3.7	490	
Ag	107	115	He	0.05534	ug/l	12.2	355	
Ag	109	115	He	0.04645	ug/l	13.2	302	
Cd	111	115	He	1.58572	ug/l	3.2	1146	
Pb	208	175	He	0.33154	ug/l	5.0	6614	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	313050	1.3	288712.11	108.43	
Sc	45	He	54232	0.9	50756.45	106.85	
Ge	72	He	51939	0.6	49731.27	104.44	
In	115	He	518670	0.5	507235.31	102.25	
Lu	175	He	1349682	1.3	1280861.86	105.37	
Th	232	He	2467583	2.0	2364955.07	104.34	

Sample Report

Sample Name K2409822-016

File Name 041SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:00:12 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	11.48478	ug/l	0.8	940	
Se	78	72	H2	11.14751	ug/l	2.1	2673	
Cu	63	72	He	10.61125	ug/l	1.1	34853	
Cu	65	72	He	10.48736	ug/l	0.3	17167	
Zn	66	72	He	524.19556	ug/l	0.6	205717	
Mo	95	115	He	0.18480	ug/l	4.1	299	
Mo	98	115	He	0.18919	ug/l	3.5	550	
Ag	107	115	He	0.06920	ug/l	15.5	438	
Ag	109	115	He	0.07294	ug/l	6.3	465	
Cd	111	115	He	2.53050	ug/l	1.0	1817	
Pb	208	175	He	0.84547	ug/l	1.4	16526	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	318530	0.4	288712.11	110.33	
Sc	45	He	54155	1.4	50756.45	106.7	
Ge	72	He	52527	0.6	49731.27	105.62	
In	115	He	515868	1.5	507235.31	101.7	
Lu	175	He	1338156	0.4	1280861.86	104.47	
Th	232	He	2437748	1.7	2364955.07	103.08	

Sample Report

Sample Name K2409822-017

File Name 042SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:02:16 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	12.14644	ug/l	21.2	973	
Se	78	72	H2	11.57706	ug/l	1.6	2732	
Cu	63	72	He	12.69540	ug/l	2.3	41200	
Cu	65	72	He	12.89181	ug/l	3.1	20852	
Zn	66	72	He	548.52881	ug/l	2.2	212833	
Mo	95	115	He	0.18880	ug/l	14.5	307	
Mo	98	115	He	0.16810	ug/l	13.3	492	
Ag	107	115	He	0.07821	ug/l	8.7	497	
Ag	109	115	He	0.06616	ug/l	3.6	425	
Cd	111	115	He	4.50260	ug/l	2.5	3248	
Pb	208	175	He	0.49266	ug/l	2.1	9703	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	313542	1.4	288712.11	108.6	
Sc	45	He	54627	2.4	50756.45	107.63	
Ge	72	He	51959	3.1	49731.27	104.48	
In	115	He	518400	0.4	507235.31	102.2	
Lu	175	He	1340434	1.1	1280861.86	104.65	
Th	232	He	2453649	0.4	2364955.07	103.75	

Sample Report

Sample Name K2409822-018

File Name 043SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:04:20 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	15.06089	ug/l	5.2	1210	
Se	78	72	H2	13.77901	ug/l	3.5	3326	
Cu	63	72	He	10.85713	ug/l	1.3	35418	
Cu	65	72	He	10.99551	ug/l	3.5	17871	
Zn	66	72	He	370.28429	ug/l	2.4	144381	
Mo	95	115	He	0.21066	ug/l	19.3	343	
Mo	98	115	He	0.21602	ug/l	6.6	633	
Ag	107	115	He	0.04861	ug/l	18.8	315	
Ag	109	115	He	0.05229	ug/l	8.2	340	
Cd	111	115	He	2.42348	ug/l	2.6	1760	
Pb	208	175	He	0.32483	ug/l	1.3	6528	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	320749	0.2	288712.11	111.1	
Sc	45	He	54844	1.0	50756.45	108.05	
Ge	72	He	52180	1.8	49731.27	104.92	
In	115	He	521559	0.4	507235.31	102.82	
Lu	175	He	1358721	1.0	1280861.86	106.08	
Th	232	He	2433148	0.5	2364955.07	102.88	

Sample Report

Sample Name K2409822-019

File Name 044SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:06:23 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	12.45006	ug/l	12.5	1030	
Se	78	72	H2	11.61532	ug/l	1.3	2841	
Cu	63	72	He	7.79075	ug/l	2.0	25767	
Cu	65	72	He	7.61277	ug/l	3.7	12534	
Zn	66	72	He	364.20099	ug/l	3.6	143684	
Mo	95	115	He	0.13181	ug/l	3.1	219	
Mo	98	115	He	0.13965	ug/l	7.6	416	
Ag	107	115	He	0.04837	ug/l	9.5	315	
Ag	109	115	He	0.04361	ug/l	7.7	287	
Cd	111	115	He	2.25031	ug/l	1.2	1642	
Pb	208	175	He	0.22148	ug/l	3.8	4448	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	324928	1.2	288712.11	112.54	
Sc	45	He	54751	1.0	50756.45	107.87	
Ge	72	He	52799	1.5	49731.27	106.17	
In	115	He	524144	0.8	507235.31	103.33	
Lu	175	He	1345352	1.8	1280861.86	105.03	
Th	232	He	2459616	0.6	2364955.07	104	

Sample Report

Sample Name K2409822-020

File Name 045SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:08:27 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	15.83906	ug/l	3.8	1240	
Se	78	72	H2	13.39481	ug/l	4.2	3160	
Cu	63	72	He	11.11595	ug/l	0.6	36962	
Cu	65	72	He	10.99376	ug/l	1.4	18218	
Zn	66	72	He	453.18841	ug/l	0.8	180110	
Mo	95	115	He	0.16626	ug/l	8.9	271	
Mo	98	115	He	0.15525	ug/l	5.7	456	
Ag	107	115	He	0.08735	ug/l	3.1	553	
Ag	109	115	He	0.07862	ug/l	7.8	503	
Cd	111	115	He	2.11109	ug/l	1.4	1524	
Pb	208	175	He	0.22778	ug/l	2.6	4569	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	313667	2.3	288712.11	108.64	
Sc	45	He	54798	2.3	50756.45	107.96	
Ge	72	He	53187	0.8	49731.27	106.95	
In	115	He	518466	1.3	507235.31	102.21	
Lu	175	He	1344468	1.1	1280861.86	104.97	
Th	232	He	2429136	1.7	2364955.07	102.71	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 046_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:10:31 PM

Sample Type CCV

Comment ---

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	25.79293	ug/l	8.3	2030	103.17	
Se	78	72	H2	25.14539	ug/l	1.9	6152	100.58	
Cu	63	72	He	25.21380	ug/l	1.7	84735	100.86	
Cu	65	72	He	25.20930	ug/l	0.5	42271	100.84	
Zn	66	72	He	25.32035	ug/l	3.1	10404	101.28	
Mo	95	115	He	12.78528	ug/l	1.4	20752	102.28	
Mo	98	115	He	12.27641	ug/l	1.0	36046	98.21	
Ag	107	115	He	12.80148	ug/l	1.6	81430	102.41	
Ag	109	115	He	12.42046	ug/l	0.6	79921	99.36	
Cd	111	115	He	24.73798	ug/l	0.1	18296	98.95	
Pb	208	175	He	24.49418	ug/l	1.7	479228	97.98	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	325305	1.6	288712.11	112.67	
Sc	45	He	54838	2.1	50756.45	108.04	
Ge	72	He	53889	0.7	49731.27	108.36	
In	115	He	531626	1.0	507235.31	104.81	
Lu	175	He	1350099	2.6	1280861.86	105.41	
Th	232	He	2403124	1.2	2364955.07	101.61	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 047_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:12:35 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	-0.30975	ug/l	N/A	80	
Se	78	72	H2	-0.00199	ug/l	N/A	3	
Cu	63	72	He	-0.00222	ug/l	N/A	157	
Cu	65	72	He	0.00069	ug/l	2603.6	48	
Zn	66	72	He	-0.08572	ug/l	N/A	187	
Mo	95	115	He	0.00258	ug/l	95.6	12	
Mo	98	115	He	0.00258	ug/l	71.1	19	
Ag	107	115	He	0.00051	ug/l	420.1	15	
Ag	109	115	He	0.00077	ug/l	180.4	15	
Cd	111	115	He	0.00265	ug/l	113.8	4	
Pb	208	175	He	0.00021	ug/l	667.9	138	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	331731	1.5	288712.11	114.9	
Sc	45	He	55728	1.3	50756.45	109.8	
Ge	72	He	54325	0.8	49731.27	109.24	
In	115	He	528127	1.8	507235.31	104.12	
Lu	175	He	1364470	2.6	1280861.86	106.53	
Th	232	He	2404535	1.8	2364955.07	101.67	

Prep Blank (PB) Report

Sample Name KQ2416989-01

File Name 048_PB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:14:39 PM

Sample Type PB

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.09350	ug/l	469.8	107	
Se	78	72	H2	-0.00573	ug/l	N/A	2	
Cu	63	72	He	0.02674	ug/l	61.3	250	
Cu	65	72	He	0.04455	ug/l	23.9	120	
Zn	66	72	He	-0.39509	ug/l	N/A	60	
Mo	95	115	He	-0.00159	ug/l	N/A	6	
Mo	98	115	He	0.00024	ug/l	267.4	12	
Ag	107	115	He	-0.00031	ug/l	N/A	10	
Ag	109	115	He	-0.00004	ug/l	N/A	10	
Cd	111	115	He	-0.00147	ug/l	N/A	1	
[Pb]	206	175	He	-0.00395	ug/l	N/A	16	
[Pb]	207	175	He	-0.00055	ug/l	N/A	23	
Pb	208	175	He	-0.00209	ug/l	N/A	91	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	320637	1.5	288712.11	111.06	
Sc	45	He	54854	1.7	50756.45	108.07	
Ge	72	He	53311	0.5	49731.27	107.2	
In	115	He	532321	0.9	507235.31	104.95	
Lu	175	He	1347005	0.5	1280861.86	105.16	
Th	232	He	2437426	0.9	2364955.07	103.06	

Laboratory Control Sample (LCS) Report

Sample Name KQ2416989-02

File Name 049_LCS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:16:43 PM

Sample Type LCS

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	36.05537	ug/l	6.4	2790	33.3	108.27	
Se	78	72	H2	32.38212	ug/l	1.9	7906	33.3	97.24	
Cu	63	72	He	47.38845	ug/l	1.0	157646	50	94.78	
Cu	65	72	He	46.38795	ug/l	0.7	77019	50	92.78	
Zn	66	72	He	92.46702	ug/l	0.4	37062	100	92.47	
Mo	95	115	He	33.38413	ug/l	1.1	53721	33.3	100.25	
Mo	98	115	He	32.38917	ug/l	1.0	94292	33.3	97.26	
Ag	107	115	He	9.79526	ug/l	1.2	61787	10	97.95	
Ag	109	115	He	9.51402	ug/l	3.1	60713	10	95.14	
Cd	111	115	He	9.43695	ug/l	0.9	6922	10	94.37	
[Pb]	206	175	He	92.20123	ug/l	2.1	458317	100	92.2	
[Pb]	207	175	He	93.34052	ug/l	2.3	398933	100	93.34	
Pb	208	175	He	93.75366	ug/l	1.8	1841272	100	93.75	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	324621	1.0	288712.11	112.44	
Sc	45	He	55169	1.5	50756.45	108.69	
Ge	72	He	53387	0.3	49731.27	107.35	
In	115	He	527159	0.3	507235.31	103.93	
Lu	175	He	1355380	1.4	1280861.86	105.82	
Th	232	He	2406735	3.3	2364955.07	101.77	

Laboratory Control Sample (LCS) Report

Sample Name KQ2416989-03

File Name 050_QC4.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:18:47 PM

Sample Type QC4

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	5.81676	ug/l	6.1	517	4.8	121.18	
Se	78	72	H2	4.69050	ug/l	2.2	1109	4.8	97.72	
Cu	63	72	He	6.17620	ug/l	2.3	19761	6.6	93.58	
Cu	65	72	He	6.28954	ug/l	2.6	10014	6.6	95.3	
Zn	66	72	He	55.35969	ug/l	1.3	21286	57.4	96.45	
Mo	95	115	He	0.25843	ug/l	13.2	414	-1	-25.84	
Mo	98	115	He	0.27029	ug/l	7.5	781	-1	-27.03	
Ag	107	115	He	0.24993	ug/l	4.8	1555	0.27	92.57	
Ag	109	115	He	0.26128	ug/l	2.7	1643	0.27	96.77	
Cd	111	115	He	0.29507	ug/l	2.1	214	0.296	99.69	
Pb	208	175	He	0.12030	ug/l	11.2	2483	0.116	103.71	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	313577	2.0	288712.11	108.61	
Sc	45	He	53182	0.7	50756.45	104.78	
Ge	72	He	51016	2.3	49731.27	102.58	
In	115	He	516495	2.4	507235.31	101.83	
Lu	175	He	1348306	2.8	1280861.86	105.27	
Th	232	He	2460127	1.5	2364955.07	104.02	

Laboratory Control Sample (LCS) Report

Sample Name KQ2416989-04

File Name 051_QC5.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:20:51 PM

Sample Type QC5

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	19.28066	ug/l	9.4	1460	21.8	88.44	
Se	78	72	H2	21.01612	ug/l	1.6	4861	21.8	96.4	
Cu	63	72	He	879.29684	ug/l	3.2	2876624	994	88.46	
Cu	65	72	He	861.90406	ug/l	3.7	1407733	994	86.71	
Zn	66	72	He	254.29599	ug/l	3.9	99943	272	93.49	
Mo	95	115	He	6.77674	ug/l	3.2	10561	6.88	98.5	
Mo	98	115	He	6.64026	ug/l	1.9	18722	6.88	96.52	
Ag	107	115	He	6.56096	ug/l	1.9	40068	-1	-656.1	
Ag	109	115	He	6.48151	ug/l	1.6	40041	-1	-648.15	
Cd	111	115	He	79.06546	ug/l	1.2	56133	84.6	93.46	
Pb	208	175	He	0.41182	ug/l	6.2	8041	0.45	91.52	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	307541	1.9	288712.11	106.52	
Sc	45	He	53607	0.0	50756.45	105.62	
Ge	72	He	52591	3.4	49731.27	105.75	
In	115	He	510429	2.1	507235.31	100.63	
Lu	175	He	1325233	1.0	1280861.86	103.46	
Th	232	He	2412680	1.8	2364955.07	102.02	

Reference Sample Report

Sample Name	K2409822-022
File Name	052_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b
Acq Time	2024-10-28 4:22:54 PM
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	12.30932	ug/l	15.0	1017	
Se	78	72	H2	11.22877	ug/l	2.9	2736	
Cu	63	72	He	12.96999	ug/l	2.5	42691	
Cu	65	72	He	12.53869	ug/l	3.5	20572	
Zn	66	72	He	568.39632	ug/l	4.1	223632	
Mo	95	115	He	0.20663	ug/l	5.7	342	
Mo	98	115	He	0.19572	ug/l	9.1	583	
Ag	107	115	He	0.05282	ug/l	6.6	347	
Ag	109	115	He	0.05504	ug/l	11.9	363	
Cd	111	115	He	3.19672	ug/l	1.7	2357	
Pb	208	175	He	0.45358	ug/l	1.8	9071	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	323616	1.0	288712.11	112.09	
Sc	45	He	54473	0.4	50756.45	107.32	
Ge	72	He	52702	2.6	49731.27	105.97	
In	115	He	529649	1.4	507235.31	104.42	
Lu	175	He	1359944	0.9	1280861.86	106.17	
Th	232	He	2465172	0.9	2364955.07	104.24	

Duplicate Sample Report

Sample Name	KQ2416989-05
File Name	053_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b
Acq Time	2024-10-28 4:24:57 PM
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD Ref FileName	Pass
QC Ref File Name	052_
Default Text	ARF ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	RPD	Flag
Se	77	72	H2	11.61819	ug/l	8.3	963	5.78	
Se	78	72	H2	11.35269	ug/l	8.7	2757	1.1	
Cu	63	72	He	11.75897	ug/l	1.8	38997	9.79	
Cu	65	72	He	11.63548	ug/l	2.1	19230	7.47	
Zn	66	72	He	562.83554	ug/l	1.7	223050	0.98	
Mo	95	115	He	0.16504	ug/l	7.5	273		<5x MRL
Mo	98	115	He	0.17029	ug/l	13.1	507		<5x MRL
Ag	107	115	He	0.04625	ug/l	11.7	303		<5x MRL
Ag	109	115	He	0.05436	ug/l	12.5	357		<5x MRL
Cd	111	115	He	3.09483	ug/l	2.0	2269	3.24	
[Pb]	206	175	He	0.43430	ug/l	1.4	2177	7.04	
[Pb]	207	175	He	0.45456	ug/l	4.7	1952	2.94	
Pb	208	175	He	0.44378	ug/l	2.5	8777	2.18	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	322941	1.8	288712.11	111.86	
Sc	45	He	55578	1.2	50756.45	109.5	
Ge	72	He	53053	1.2	49731.27	106.68	
In	115	He	526605	0.4	507235.31	103.82	
Lu	175	He	1344601	1.8	1280861.86	104.98	
Th	232	He	2452760	1.0	2364955.07	103.71	

Sample Report

Sample Name K2409822-022L

File Name 054SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:27:02 PM

Sample Type Sample

Comment 25X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	2.49945	ug/l	25.3	297	
Se	78	72	H2	2.36490	ug/l	4.6	598	
Cu	63	72	He	2.67617	ug/l	5.1	9293	
Cu	65	72	He	2.59301	ug/l	9.0	4461	
Zn	66	72	He	114.49661	ug/l	1.5	47038	
Mo	95	115	He	0.04409	ug/l	18.9	81	
Mo	98	115	He	0.03994	ug/l	13.6	131	
Ag	107	115	He	0.01226	ug/l	8.8	92	
Ag	109	115	He	0.01139	ug/l	20.7	85	
Cd	111	115	He	0.65360	ug/l	2.1	494	
Pb	208	175	He	0.10428	ug/l	5.0	2169	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	334545	1.4	288712.11	115.88	
Sc	45	He	56324	2.2	50756.45	110.97	
Ge	72	He	54789	1.4	49731.27	110.17	
In	115	He	541337	1.0	507235.31	106.72	
Lu	175	He	1347544	0.7	1280861.86	105.21	
Th	232	He	2465172	0.4	2364955.07	104.24	

Post Digestion Spike Sample (PDS) Report

Sample Name K2409822-022A

File Name 055_PDS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:29:08 PM

Sample Type PDS

Comment 5X +50ppb +5ppb Ag

ISTD Ref FileName 001CALB.d

QC Ref File Name 052_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Se	77	H2	63.33503	ug/l	2.0	4781	50	102.05	
Se	78	H2	62.48477	ug/l	3.3	15106	50	102.51	
Cu	63	He	61.00580	ug/l	0.8	197664	50	96.07	
Cu	65	He	60.49151	ug/l	1.4	97833	50	95.91	
Zn	66	He	624.96065	ug/l	0.8	242825	50	113.13	
Mo	95	He	50.66424	ug/l	1.2	81585	50	100.92	
Mo	98	He	48.97656	ug/l	0.2	142690	50	97.56	
Ag	107	He	4.92977	ug/l	3.2	31120	5	97.54	
Ag	109	He	4.84729	ug/l	0.6	30961	5	95.84	
Cd	111	He	51.48944	ug/l	1.4	37787	50	96.59	
[Pb]	206	He	48.20740	ug/l	1.6	237006	50	95.48	
[Pb]	207	He	47.74601	ug/l	1.5	201829	50	94.61	
Pb	208	He	48.41921	ug/l	1.9	940449	50	95.93	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	321662	1.4	288712.11	111.41	
Sc	45	He	55330	1.9	50756.45	109.01	
Ge	72	He	52012	1.4	49731.27	104.59	
In	115	He	527598	1.3	507235.31	104.01	
Lu	175	He	1340377	1.5	1280861.86	104.65	
Th	232	He	2454260	2.2	2364955.07	103.78	

Matrix Spike Sample (MS) Report

Sample Name KQ2416989-06

File Name 056_SPK.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:31:11 PM

Sample Type Spike

Comment 5X

ISTD Ref FileName 001CALB.d

QC Ref File Name 052_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Se	77	H2	46.34694	ug/l	6.8	3517	33.3	102.22	
Se	78	H2	45.35631	ug/l	0.7	10947	33.3	102.49	
Cu	63	He	58.11176	ug/l	2.7	196826	50	90.28	
Cu	65	He	56.53038	ug/l	1.5	95584	50	87.98	
Zn	66	He	605.10932	ug/l	2.6	245757	100	36.71	Spike Failed
Mo	95	He	33.46856	ug/l	0.9	54477	33.3	99.89	
Mo	98	He	32.93161	ug/l	0.5	96973	33.3	98.31	
Ag	107	He	9.45492	ug/l	1.5	60329	10	94.02	
Ag	109	He	9.20078	ug/l	1.8	59382	10	91.46	
Cd	111	He	12.57685	ug/l	1.5	9330	10	93.8	
[Pb]	206	He	90.45480	ug/l	1.2	456366	100	89.99	
[Pb]	207	He	92.01590	ug/l	0.5	399179	100	91.57	
Pb	208	He	92.17937	ug/l	1.0	1837424	100	91.73	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	320972	0.9	288712.11	111.17	
Sc	45	He	56140	1.5	50756.45	110.61	
Ge	72	He	54385	1.9	49731.27	109.36	
In	115	He	533235	0.8	507235.31	105.13	
Lu	175	He	1375507	1.1	1280861.86	107.39	
Th	232	He	2474572	0.3	2364955.07	104.64	

Sample Report

Sample Name K2409822-021

File Name 057SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:33:14 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	10.41052	ug/l	14.8	900	
Se	78	72	H2	10.36979	ug/l	4.7	2598	
Cu	63	72	He	7.20727	ug/l	2.2	24551	
Cu	65	72	He	7.20841	ug/l	2.8	12227	
Zn	66	72	He	342.53041	ug/l	0.5	139220	
Mo	95	115	He	0.16302	ug/l	4.5	274	
Mo	98	115	He	0.17315	ug/l	8.7	523	
Ag	107	115	He	0.02676	ug/l	14.1	183	
Ag	109	115	He	0.02721	ug/l	19.4	187	
Cd	111	115	He	1.61622	ug/l	1.1	1205	
Pb	208	175	He	0.26232	ug/l	6.6	5390	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	332845	0.9	288712.11	115.29	
Sc	45	He	56889	1.4	50756.45	112.08	
Ge	72	He	54372	1.6	49731.27	109.33	
In	115	He	535189	0.6	507235.31	105.51	
Lu	175	He	1383840	2.5	1280861.86	108.04	
Th	232	He	2465361	0.8	2364955.07	104.25	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 058_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:35:18 PM

Sample Type CCV

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	24.33932	ug/l	10.5	1954	97.36	
Se	78	72	H2	25.31304	ug/l	3.0	6303	101.25	
Cu	63	72	He	25.16500	ug/l	0.1	86559	100.66	
Cu	65	72	He	24.48057	ug/l	1.3	42009	97.92	
Zn	66	72	He	24.72220	ug/l	2.2	10401	98.89	
Mo	95	115	He	12.59570	ug/l	1.2	21085	100.77	
Mo	98	115	He	12.15607	ug/l	0.2	36811	97.25	
Ag	107	115	He	12.63892	ug/l	1.2	82910	101.11	
Ag	109	115	He	12.13343	ug/l	0.9	80515	97.07	
Cd	111	115	He	24.53716	ug/l	0.7	18715	98.15	
Pb	208	175	He	24.59245	ug/l	1.7	483730	98.37	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	331201	2.0	288712.11	114.72	
Sc	45	He	56728	0.6	50756.45	111.77	
Ge	72	He	55151	1.1	49731.27	110.9	
In	115	He	548235	0.4	507235.31	108.08	
Lu	175	He	1357130	1.1	1280861.86	105.95	
Th	232	He	2430203	0.8	2364955.07	102.76	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 059_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:37:22 PM

Sample Type CCB

Comment —

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	-0.04730	ug/l	N/A	100	
Se	78	72	H2	0.01668	ug/l	67.5	8	
Cu	63	72	He	0.09180	ug/l	70.5	480	
Cu	65	72	He	0.12785	ug/l	64.6	267	
Zn	66	72	He	0.54010	ug/l	88.6	447	
Mo	95	115	He	0.03948	ug/l	39.0	74	
Mo	98	115	He	0.03753	ug/l	65.9	126	
Ag	107	115	He	0.01362	ug/l	67.4	102	
Ag	109	115	He	0.01574	ug/l	63.8	115	
Cd	111	115	He	0.04584	ug/l	61.2	37	CCB Failed
Pb	208	175	He	0.06541	ug/l	50.4	1436	CCB Failed

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	332935	2.0	288712.11	115.32	
Sc	45	He	57113	0.7	50756.45	112.52	
Ge	72	He	55017	1.5	49731.27	110.63	
In	115	He	549141	1.4	507235.31	108.26	
Lu	175	He	1374343	1.4	1280861.86	107.3	
Th	232	He	2450171	3.4	2364955.07	103.6	

see rerun ans 10/28/24

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 060_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:42:23 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	-0.09719	ug/l	N/A	97	
Se	78	72	H2	-0.00342	ug/l	N/A	3	
Cu	63	72	He	0.00407	ug/l	346.5	177	
Cu	65	72	He	0.02384	ug/l	52.1	87	
Zn	66	72	He	0.14130	ug/l	29.1	277	
Mo	95	115	He	0.00236	ug/l	128.9	12	
Mo	98	115	He	0.00727	ug/l	54.5	33	
Ag	107	115	He	0.00017	ug/l	513.0	13	
Ag	109	115	He	0.00147	ug/l	137.8	20	
Cd	111	115	He	0.00074	ug/l	460.2	2	
Pb	208	175	He	0.00553	ug/l	150.5	241	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	333327	0.6	288712.11	115.45	
Sc	45	He	55474	0.7	50756.45	109.29	
Ge	72	He	53946	1.4	49731.27	108.48	
In	115	He	541477	1.3	507235.31	106.75	
Lu	175	He	1356482	0.6	1280861.86	105.9	
Th	232	He	2445293	0.4	2364955.07	103.4	

Sample Report

Sample Name K2409822-023

File Name 061SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:44:27 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	10.06387	ug/l	12.2	853	
Se	78	72	H2	9.26070	ug/l	0.8	2265	
Cu	63	72	He	7.59458	ug/l	3.3	24972	
Cu	65	72	He	7.35108	ug/l	2.5	12040	
Zn	66	72	He	314.67716	ug/l	0.2	123510	
Mo	95	115	He	0.13229	ug/l	15.7	223	
Mo	98	115	He	0.11560	ug/l	10.3	352	
Ag	107	115	He	0.10124	ug/l	5.7	658	
Ag	109	115	He	0.10453	ug/l	3.0	685	
Cd	111	115	He	0.70738	ug/l	3.2	527	
Pb	208	175	He	1.33071	ug/l	1.5	26512	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	324903	1.0	288712.11	112.54	
Sc	45	He	56026	1.6	50756.45	110.38	
Ge	72	He	52497	1.0	49731.27	105.56	
In	115	He	533449	1.0	507235.31	105.17	
Lu	175	He	1367825	0.4	1280861.86	106.79	
Th	232	He	2475006	2.7	2364955.07	104.65	

Sample Report

Sample Name K2409822-024

File Name 062SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:46:31 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	9.05006	ug/l	11.0	770	
Se	78	72	H2	8.30406	ug/l	1.8	2012	
Cu	63	72	He	6.77409	ug/l	1.1	22344	
Cu	65	72	He	6.78093	ug/l	4.8	11134	
Zn	66	72	He	315.18354	ug/l	1.1	123974	
Mo	95	115	He	0.20264	ug/l	10.6	338	
Mo	98	115	He	0.20121	ug/l	2.9	603	
Ag	107	115	He	0.22134	ug/l	5.3	1422	
Ag	109	115	He	0.22220	ug/l	9.6	1442	
Cd	111	115	He	1.81386	ug/l	0.3	1345	
Pb	208	175	He	1.66519	ug/l	2.9	32436	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	321746	1.1	288712.11	111.44	
Sc	45	He	54664	1.7	50756.45	107.7	
Ge	72	He	52615	1.5	49731.27	105.8	
In	115	He	532581	1.2	507235.31	105	
Lu	175	He	1338994	1.1	1280861.86	104.54	
Th	232	He	2458438	1.1	2364955.07	103.95	

Sample Report

Sample Name K2409822-025

File Name 063SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:48:35 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	10.01350	ug/l	23.5	877	
Se	78	72	H2	9.26066	ug/l	1.3	2340	
Cu	63	72	He	7.84139	ug/l	1.7	26922	
Cu	65	72	He	7.76153	ug/l	4.3	13266	
Zn	66	72	He	303.18300	ug/l	2.1	124240	
Mo	95	115	He	0.18505	ug/l	4.0	313	
Mo	98	115	He	0.17597	ug/l	11.2	537	
Ag	107	115	He	0.19755	ug/l	13.2	1288	
Ag	109	115	He	0.20239	ug/l	4.7	1333	
Cd	111	115	He	1.25422	ug/l	2.7	944	
Pb	208	175	He	1.52473	ug/l	1.2	30057	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	335666	0.9	288712.11	116.26	
Sc	45	He	55240	1.9	50756.45	108.83	
Ge	72	He	54813	1.1	49731.27	110.22	
In	115	He	540028	0.8	507235.31	106.47	
Lu	175	He	1354385	0.9	1280861.86	105.74	
Th	232	He	2481617	2.5	2364955.07	104.93	

Sample Report

Sample Name K2409822-026

File Name 064SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:50:38 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	11.51440	ug/l	6.2	987	
Se	78	72	H2	10.03454	ug/l	6.6	2516	
Cu	63	72	He	7.68628	ug/l	1.3	25854	
Cu	65	72	He	7.83209	ug/l	1.9	13116	
Zn	66	72	He	271.62417	ug/l	0.8	109076	
Mo	95	115	He	0.11908	ug/l	7.8	206	
Mo	98	115	He	0.09284	ug/l	4.8	290	
Ag	107	115	He	0.19453	ug/l	8.0	1275	
Ag	109	115	He	0.18516	ug/l	3.8	1227	
Cd	111	115	He	1.26702	ug/l	2.3	958	
Pb	208	175	He	1.18629	ug/l	0.4	23701	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	333376	2.4	288712.11	115.47	
Sc	45	He	55966	1.3	50756.45	110.26	
Ge	72	He	53702	2.0	49731.27	107.98	
In	115	He	542739	0.5	507235.31	107	
Lu	175	He	1370837	0.6	1280861.86	107.02	
Th	232	He	2495885	0.8	2364955.07	105.54	

Sample Report

Sample Name K2409822-027

File Name 065SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:52:41 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	7.91401	ug/l	18.3	710	
Se	78	72	H2	7.97750	ug/l	3.6	2004	
Cu	63	72	He	4.49503	ug/l	2.0	15582	
Cu	65	72	He	4.40101	ug/l	2.1	7582	
Zn	66	72	He	241.75525	ug/l	2.4	99607	
Mo	95	115	He	0.11702	ug/l	4.9	204	
Mo	98	115	He	0.13097	ug/l	5.3	409	
Ag	107	115	He	0.10829	ug/l	8.2	723	
Ag	109	115	He	0.10151	ug/l	7.3	685	
Cd	111	115	He	1.04266	ug/l	1.2	798	
Pb	208	175	He	0.34298	ug/l	1.8	7014	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	333559	1.2	288712.11	115.53	
Sc	45	He	57180	1.3	50756.45	112.66	
Ge	72	He	55091	1.3	49731.27	110.78	
In	115	He	548746	1.5	507235.31	108.18	
Lu	175	He	1384147	1.7	1280861.86	108.06	
Th	232	He	2501329	1.5	2364955.07	105.77	

Sample Report

Sample Name K2409822-028

File Name 066SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:54:45 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	7.16105	ug/l	9.7	650	
Se	78	72	H2	7.95573	ug/l	3.8	1990	
Cu	63	72	He	5.81905	ug/l	3.8	19814	
Cu	65	72	He	5.69927	ug/l	1.5	9657	
Zn	66	72	He	311.98739	ug/l	1.0	126549	
Mo	95	115	He	0.20601	ug/l	14.5	350	
Mo	98	115	He	0.19503	ug/l	10.5	597	
Ag	107	115	He	0.11004	ug/l	4.7	727	
Ag	109	115	He	0.09589	ug/l	2.9	640	
Cd	111	115	He	0.91142	ug/l	2.1	690	
Pb	208	175	He	1.69338	ug/l	1.1	33351	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	332259	1.4	288712.11	115.08	
Sc	45	He	56534	0.6	50756.45	111.38	
Ge	72	He	54255	0.9	49731.27	109.1	
In	115	He	542661	1.5	507235.31	106.98	
Lu	175	He	1353832	2.1	1280861.86	105.7	
Th	232	He	2450382	2.0	2364955.07	103.61	

Sample Report

Sample Name K2409822-029

File Name 067SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:56:48 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	8.35031	ug/l	12.4	767	
Se	78	72	H2	8.79502	ug/l	5.1	2277	
Cu	63	72	He	6.09684	ug/l	0.6	21243	
Cu	65	72	He	6.02108	ug/l	3.0	10437	
Zn	66	72	He	279.41049	ug/l	2.0	116014	
Mo	95	115	He	0.13821	ug/l	18.3	237	
Mo	98	115	He	0.14367	ug/l	16.7	440	
Ag	107	115	He	0.09216	ug/l	2.1	608	
Ag	109	115	He	0.09924	ug/l	6.2	660	
Cd	111	115	He	0.92300	ug/l	2.5	696	
Pb	208	175	He	0.79951	ug/l	1.6	16229	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	344031	1.5	288712.11	119.16	
Sc	45	He	57588	2.0	50756.45	113.46	
Ge	72	He	55532	1.7	49731.27	111.66	
In	115	He	540655	1.2	507235.31	106.59	
Lu	175	He	1389006	0.8	1280861.86	108.44	
Th	232	He	2475617	1.4	2364955.07	104.68	

Sample Report

Sample Name K2409822-030

File Name 068SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 4:58:52 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	7.27858	ug/l	10.0	690	
Se	78	72	H2	7.74303	ug/l	2.6	2028	
Cu	63	72	He	5.24871	ug/l	0.4	18596	
Cu	65	72	He	5.21208	ug/l	3.2	9186	
Zn	66	72	He	311.16483	ug/l	0.7	131205	
Mo	95	115	He	0.13978	ug/l	18.3	243	
Mo	98	115	He	0.14094	ug/l	4.6	441	
Ag	107	115	He	0.03786	ug/l	31.7	263	
Ag	109	115	He	0.03810	ug/l	19.8	265	
Cd	111	115	He	0.50331	ug/l	3.7	388	
Pb	208	175	He	1.18259	ug/l	2.6	23776	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	347851	0.9	288712.11	120.48	
Sc	45	He	58194	1.4	50756.45	114.65	
Ge	72	He	56396	1.2	49731.27	113.4	
In	115	He	551853	2.0	507235.31	108.8	
Lu	175	He	1380329	3.4	1280861.86	107.77	
Th	232	He	2529320	1.1	2364955.07	106.95	

Sample Report

Sample Name K2409822-031

File Name 069SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:00:55 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	10.75757	ug/l	5.8	960	
Se	78	72	H2	10.22254	ug/l	5.4	2650	
Cu	63	72	He	7.14194	ug/l	1.2	25042	
Cu	65	72	He	6.94363	ug/l	4.2	12117	
Zn	66	72	He	347.90677	ug/l	3.1	145455	
Mo	95	115	He	0.30288	ug/l	11.3	517	
Mo	98	115	He	0.31476	ug/l	2.0	968	
Ag	107	115	He	0.20374	ug/l	4.7	1353	
Ag	109	115	He	0.18612	ug/l	3.3	1250	
Cd	111	115	He	1.61409	ug/l	1.4	1237	
Pb	208	175	He	0.75943	ug/l	3.3	15507	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	344577	2.2	288712.11	119.35	
Sc	45	He	58974	3.8	50756.45	116.19	
Ge	72	He	55951	1.9	49731.27	112.51	
In	115	He	550093	1.4	507235.31	108.45	
Lu	175	He	1396905	1.1	1280861.86	109.06	
Th	232	He	2531476	2.5	2364955.07	107.04	

Sample Report

Sample Name K2409822-032

File Name 070SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:02:58 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	9.19023	ug/l	9.5	830	
Se	78	72	H2	8.95595	ug/l	2.8	2310	
Cu	63	72	He	6.41430	ug/l	1.1	22541	
Cu	65	72	He	6.53372	ug/l	4.3	11425	
Zn	66	72	He	273.35823	ug/l	2.5	114529	
Mo	95	115	He	0.12702	ug/l	13.6	220	
Mo	98	115	He	0.14022	ug/l	12.4	434	
Ag	107	115	He	0.13059	ug/l	7.9	865	
Ag	109	115	He	0.13516	ug/l	11.1	903	
Cd	111	115	He	0.71557	ug/l	1.0	545	
Pb	208	175	He	0.75582	ug/l	2.0	15629	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	342612	1.2	288712.11	118.67	
Sc	45	He	58362	0.7	50756.45	114.98	
Ge	72	He	56038	1.5	49731.27	112.68	
In	115	He	545862	0.3	507235.31	107.62	
Lu	175	He	1414678	2.8	1280861.86	110.45	
Th	232	He	2537498	1.6	2364955.07	107.3	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 071_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:05:03 PM

Sample Type CCV

Comment —

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	25.42450	ug/l	6.4	2174	101.7	
Se	78	72	H2	25.07787	ug/l	2.6	6663	100.31	
Cu	63	72	He	25.14068	ug/l	2.7	90345	100.56	
Cu	65	72	He	24.40187	ug/l	1.2	43757	97.61	
Zn	66	72	He	25.56386	ug/l	3.7	11228	102.26	
Mo	95	115	He	12.88870	ug/l	1.0	21951	103.11	
Mo	98	115	He	12.48278	ug/l	1.7	38456	99.86	
Ag	107	115	He	12.86138	ug/l	1.1	85841	102.89	
Ag	109	115	He	12.47595	ug/l	0.2	84234	99.81	
Cd	111	115	He	24.79199	ug/l	1.1	19238	99.17	
Pb	208	175	He	24.36042	ug/l	1.0	495061	97.44	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	353416	2.9	288712.11	122.41	
Sc	45	He	58991	0.3	50756.45	116.22	
Ge	72	He	57634	1.4	49731.27	115.89	
In	115	He	557809	0.9	507235.31	109.97	
Lu	175	He	1402069	1.2	1280861.86	109.46	
Th	232	He	2505107	1.0	2364955.07	105.93	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 072_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:07:08 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.36824	ug/l	102.4	137	
Se	78	72	H2	0.01944	ug/l	51.9	9	
Cu	63	72	He	0.00675	ug/l	182.6	197	
Cu	65	72	He	0.00778	ug/l	107.7	63	
Zn	66	72	He	0.17988	ug/l	30.7	310	
Mo	95	115	He	0.00358	ug/l	132.7	14	
Mo	98	115	He	0.00379	ug/l	157.2	23	
Ag	107	115	He	0.00312	ug/l	66.8	33	
Ag	109	115	He	0.00164	ug/l	68.3	22	
Cd	111	115	He	0.00199	ug/l	125.2	3	
Pb	208	175	He	0.00334	ug/l	53.5	207	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	343401	2.0	288712.11	118.94	
Sc	45	He	58592	1.1	50756.45	115.44	
Ge	72	He	57256	1.4	49731.27	115.13	
In	115	He	553992	1.9	507235.31	109.22	
Lu	175	He	1408810	1.8	1280861.86	109.99	
Th	232	He	2515141	1.8	2364955.07	106.35	

Sample Report

Sample Name K2409822-033

File Name 073SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:09:13 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	5.60188	ug/l	9.3	537	
Se	78	72	H2	6.20449	ug/l	5.1	1568	
Cu	63	72	He	4.65799	ug/l	2.7	16166	
Cu	65	72	He	4.97174	ug/l	4.9	8574	
Zn	66	72	He	341.13950	ug/l	2.8	140715	
Mo	95	115	He	0.23647	ug/l	9.3	397	
Mo	98	115	He	0.24759	ug/l	5.5	748	
Ag	107	115	He	0.13860	ug/l	1.8	905	
Ag	109	115	He	0.13958	ug/l	4.1	920	
Cd	111	115	He	0.34104	ug/l	5.7	257	
Pb	208	175	He	0.68705	ug/l	0.2	14091	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	335345	1.5	288712.11	116.15	
Sc	45	He	57147	0.5	50756.45	112.59	
Ge	72	He	55201	2.3	49731.27	111	
In	115	He	538546	1.3	507235.31	106.17	
Lu	175	He	1401461	0.3	1280861.86	109.42	
Th	232	He	2511530	1.5	2364955.07	106.2	

Sample Report

Sample Name K2409822-034

File Name 074SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:11:16 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	8.82101	ug/l	19.3	797	
Se	78	72	H2	7.20479	ug/l	5.5	1846	
Cu	63	72	He	7.54398	ug/l	0.7	26395	
Cu	65	72	He	7.58551	ug/l	1.1	13213	
Zn	66	72	He	276.00309	ug/l	2.1	115228	
Mo	95	115	He	0.18855	ug/l	11.6	324	
Mo	98	115	He	0.17029	ug/l	7.2	528	
Ag	107	115	He	0.21230	ug/l	7.0	1407	
Ag	109	115	He	0.19115	ug/l	2.2	1280	
Cd	111	115	He	0.52196	ug/l	7.1	400	
Pb	208	175	He	0.64261	ug/l	1.3	13157	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	340276	0.9	288712.11	117.86	
Sc	45	He	57431	2.7	50756.45	113.15	
Ge	72	He	55851	3.1	49731.27	112.3	
In	115	He	548852	1.1	507235.31	108.2	
Lu	175	He	1398461	2.7	1280861.86	109.18	
Th	232	He	2513530	0.2	2364955.07	106.28	

Sample Report

Sample Name K2409822-035

File Name 075SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:13:19 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	10.93133	ug/l	7.1	967	
Se	78	72	H2	9.73816	ug/l	2.7	2511	
Cu	63	72	He	6.15987	ug/l	2.2	21400	
Cu	65	72	He	6.09032	ug/l	2.7	10534	
Zn	66	72	He	326.30418	ug/l	1.9	135087	
Mo	95	115	He	0.25233	ug/l	6.7	426	
Mo	98	115	He	0.28235	ug/l	4.9	857	
Ag	107	115	He	0.36999	ug/l	3.8	2412	
Ag	109	115	He	0.35711	ug/l	3.7	2354	
Cd	111	115	He	7.95368	ug/l	2.1	5998	
Pb	208	175	He	1.84726	ug/l	0.6	37320	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	342528	2.0	288712.11	118.64	
Sc	45	He	57364	2.0	50756.45	113.02	
Ge	72	He	55385	1.4	49731.27	111.37	
In	115	He	542023	1.0	507235.31	106.86	
Lu	175	He	1389178	2.3	1280861.86	108.46	
Th	232	He	2544176	0.8	2364955.07	107.58	

Sample Report

Sample Name K2409822-036

File Name 076SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:15:22 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	7.41476	ug/l	13.9	693	
Se	78	72	H2	7.09281	ug/l	3.2	1839	
Cu	63	72	He	7.32594	ug/l	3.1	25593	
Cu	65	72	He	7.34621	ug/l	2.6	12779	
Zn	66	72	He	262.72955	ug/l	2.0	109567	
Mo	95	115	He	0.18499	ug/l	12.4	314	
Mo	98	115	He	0.15784	ug/l	5.5	484	
Ag	107	115	He	0.21609	ug/l	7.7	1413	
Ag	109	115	He	0.20376	ug/l	4.8	1348	
Cd	111	115	He	1.44025	ug/l	3.2	1088	
Pb	208	175	He	1.30505	ug/l	1.6	26534	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	344166	0.9	288712.11	119.21	
Sc	45	He	57683	2.1	50756.45	113.65	
Ge	72	He	55773	1.8	49731.27	112.15	
In	115	He	542347	1.3	507235.31	106.92	
Lu	175	He	1396087	2.1	1280861.86	109	
Th	232	He	2508785	1.2	2364955.07	106.08	

Sample Report

Sample Name K2409822-037

File Name 077SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:17:25 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	7.11303	ug/l	7.8	680	
Se	78	72	H2	6.32951	ug/l	4.1	1665	
Cu	63	72	He	5.14709	ug/l	1.7	18402	
Cu	65	72	He	5.16930	ug/l	0.3	9191	
Zn	66	72	He	324.30389	ug/l	1.1	137955	
Mo	95	115	He	0.14975	ug/l	13.3	256	
Mo	98	115	He	0.16568	ug/l	16.4	507	
Ag	107	115	He	0.16925	ug/l	9.0	1108	
Ag	109	115	He	0.17263	ug/l	5.8	1143	
Cd	111	115	He	0.90295	ug/l	7.2	682	
Pb	208	175	He	0.89146	ug/l	1.8	18241	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	349385	2.4	288712.11	121.01	
Sc	45	He	58047	0.9	50756.45	114.36	
Ge	72	He	56901	0.4	49731.27	114.42	
In	115	He	541900	2.0	507235.31	106.83	
Lu	175	He	1401589	1.5	1280861.86	109.43	
Th	232	He	2538954	1.7	2364955.07	107.36	

Sample Report

Sample Name K2409822-038

File Name 078SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:19:28 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	5.80817	ug/l	4.9	573	
Se	78	72	H2	5.99817	ug/l	4.1	1573	
Cu	63	72	He	4.46227	ug/l	3.9	15702	
Cu	65	72	He	4.51719	ug/l	2.5	7901	
Zn	66	72	He	321.94934	ug/l	2.1	134621	
Mo	95	115	He	0.17706	ug/l	18.4	302	
Mo	98	115	He	0.16358	ug/l	1.6	503	
Ag	107	115	He	0.09000	ug/l	1.8	598	
Ag	109	115	He	0.07984	ug/l	8.3	537	
Cd	111	115	He	0.56268	ug/l	2.2	428	
Pb	208	175	He	0.62466	ug/l	1.5	12928	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	348143	1.4	288712.11	120.58	
Sc	45	He	58462	0.6	50756.45	115.18	
Ge	72	He	55937	1.1	49731.27	112.48	
In	115	He	544220	1.6	507235.31	107.29	
Lu	175	He	1412950	1.1	1280861.86	110.31	
Th	232	He	2524108	1.5	2364955.07	106.73	

Sample Report

Sample Name K2409822-039

File Name 079SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:21:31 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	8.08170	ug/l	4.9	763	
Se	78	72	H2	7.13181	ug/l	2.8	1889	
Cu	63	72	He	6.11288	ug/l	2.0	21587	
Cu	65	72	He	6.20361	ug/l	3.8	10898	
Zn	66	72	He	328.35311	ug/l	2.4	138119	
Mo	95	115	He	0.19732	ug/l	12.6	338	
Mo	98	115	He	0.19240	ug/l	6.8	592	
Ag	107	115	He	0.21525	ug/l	5.8	1420	
Ag	109	115	He	0.19294	ug/l	7.2	1287	
Cd	111	115	He	0.59638	ug/l	2.1	455	
Pb	208	175	He	0.93121	ug/l	0.9	19116	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	351792	1.3	288712.11	121.85	
Sc	45	He	59245	2.2	50756.45	116.72	
Ge	72	He	56279	1.5	49731.27	113.17	
In	115	He	546574	1.3	507235.31	107.76	
Lu	175	He	1406425	1.3	1280861.86	109.8	
Th	232	He	2510797	2.2	2364955.07	106.17	

Sample Report

Sample Name K2409822-040

File Name 080SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:23:35 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	14.71397	ug/l	18.6	1287	
Se	78	72	H2	14.57200	ug/l	3.7	3822	
Cu	63	72	He	9.66880	ug/l	0.5	33500	
Cu	65	72	He	9.54696	ug/l	0.4	16481	
Zn	66	72	He	288.22888	ug/l	1.5	119372	
Mo	95	115	He	0.50394	ug/l	5.5	839	
Mo	98	115	He	0.46819	ug/l	4.4	1408	
Ag	107	115	He	0.50588	ug/l	2.4	3280	
Ag	109	115	He	0.48247	ug/l	3.2	3164	
Cd	111	115	He	12.87901	ug/l	0.8	9674	
Pb	208	175	He	5.21012	ug/l	0.3	106014	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	348565	1.3	288712.11	120.73	
Sc	45	He	57997	0.7	50756.45	114.26	
Ge	72	He	55382	0.8	49731.27	111.36	
In	115	He	539907	1.2	507235.31	106.44	
Lu	175	He	1402359	2.1	1280861.86	109.49	
Th	232	He	2462327	3.0	2364955.07	104.12	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 081_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:25:40 PM

Sample Type CCV

Comment —

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	26.49111	ug/l	2.5	2177	105.96	
Se	78	72	H2	25.25040	ug/l	0.8	6460	101	
Cu	63	72	He	25.34385	ug/l	1.7	88062	101.38	
Cu	65	72	He	25.42568	ug/l	1.6	44077	101.7	
Zn	66	72	He	25.62694	ug/l	2.2	10884	102.51	
Mo	95	115	He	13.17956	ug/l	1.4	21751	105.44	
Mo	98	115	He	12.69472	ug/l	2.4	37894	101.56	
Ag	107	115	He	12.90597	ug/l	2.1	83464	103.25	
Ag	109	115	He	12.72047	ug/l	1.0	83224	101.76	
Cd	111	115	He	25.12827	ug/l	1.4	18895	100.51	
Pb	208	175	He	24.91964	ug/l	0.3	490175	99.68	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	340129	1.5	288712.11	117.81	
Sc	45	He	57967	0.1	50756.45	114.21	
Ge	72	He	55723	1.6	49731.27	112.05	
In	115	He	540580	1.9	507235.31	106.57	
Lu	175	He	1356991	0.5	1280861.86	105.94	
Th	232	He	2477428	1.4	2364955.07	104.76	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 082_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:27:44 PM

Sample Type CCB

Comment —

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.25792	ug/l	254.3	130	
Se	78	72	H2	0.00232	ug/l	411.0	5	
Cu	63	72	He	-0.00999	ug/l	N/A	133	
Cu	65	72	He	0.00872	ug/l	223.9	63	
Zn	66	72	He	-0.19273	ug/l	N/A	147	
Mo	95	115	He	0.00489	ug/l	69.7	17	
Mo	98	115	He	0.00597	ug/l	96.3	30	
Ag	107	115	He	0.00165	ug/l	68.6	23	
Ag	109	115	He	0.00242	ug/l	72.6	27	
Cd	111	115	He	0.00502	ug/l	43.3	6	
Pb	208	175	He	0.00411	ug/l	91.1	219	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	349769	0.2	288712.11	121.15	
Sc	45	He	58693	1.1	50756.45	115.64	
Ge	72	He	55633	0.6	49731.27	111.87	
In	115	He	550735	1.1	507235.31	108.58	
Lu	175	He	1384013	2.9	1280861.86	108.05	
Th	232	He	2474150	2.4	2364955.07	104.62	

Prep Blank (PB) Report

Sample Name KQ2416990-01

File Name 083_PB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:29:48 PM

Sample Type PB

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.15239	ug/l	122.4	120	
Se	78	72	H2	-0.00241	ug/l	N/A	3	
Cu	63	72	He	0.00366	ug/l	282.9	180	
Cu	65	72	He	0.00700	ug/l	86.3	60	
Zn	66	72	He	-0.32025	ug/l	N/A	93	
Mo	95	115	He	0.00098	ug/l	353.8	10	
Mo	98	115	He	0.00125	ug/l	222.3	16	
Ag	107	115	He	0.00117	ug/l	63.8	20	
Ag	109	115	He	0.00068	ug/l	192.3	15	
Cd	111	115	He	0.00071	ug/l	109.7	2	
[Pb]	206	175	He	-0.00066	ug/l	N/A	32	
[Pb]	207	175	He	0.00065	ug/l	473.1	29	
Pb	208	175	He	0.00043	ug/l	110.2	142	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	344953	2.8	288712.11	119.48	
Sc	45	He	56852	1.3	50756.45	112.01	
Ge	72	He	55448	0.7	49731.27	111.5	
In	115	He	546275	1.0	507235.31	107.7	
Lu	175	He	1364315	1.0	1280861.86	106.52	
Th	232	He	2487829	2.0	2364955.07	105.2	

Laboratory Control Sample (LCS) Report

Sample Name KQ2416990-02

File Name 084_LCS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:31:51 PM

Sample Type LCS

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	35.36550	ug/l	6.9	2894	33.3	106.2	
Se	78	72	H2	32.99369	ug/l	1.8	8508	33.3	99.08	
Cu	63	72	He	47.15919	ug/l	0.8	163998	50	94.32	
Cu	65	72	He	46.46901	ug/l	1.0	80651	50	92.94	
Zn	66	72	He	93.48267	ug/l	2.4	39168	100	93.48	
Mo	95	115	He	33.70532	ug/l	1.5	55672	33.3	101.22	
Mo	98	115	He	32.76737	ug/l	1.8	97910	33.3	98.4	
Ag	107	115	He	9.71108	ug/l	1.9	62876	10	97.11	
Ag	109	115	He	9.48558	ug/l	2.2	62124	10	94.86	
Cd	111	115	He	9.27126	ug/l	1.7	6980	10	92.71	
[Pb]	206	175	He	92.61324	ug/l	2.2	463796	100	92.61	
[Pb]	207	175	He	93.38694	ug/l	2.4	402119	100	93.39	
Pb	208	175	He	94.04269	ug/l	2.0	1860704	100	94.04	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	342896	0.4	288712.11	118.77	
Sc	45	He	56952	0.8	50756.45	112.21	
Ge	72	He	55814	1.6	49731.27	112.23	
In	115	He	541172	1.5	507235.31	106.69	
Lu	175	He	1365597	2.0	1280861.86	106.62	
Th	232	He	2491607	1.4	2364955.07	105.36	

Laboratory Control Sample (LCS) Report

Sample Name KQ2416990-03

File Name 085_QC4.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:33:54 PM

Sample Type QC4

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	6.05795	ug/l	19.5	577	4.8	126.21	QC4 Main CR1 Failed
Se	78	72	H2	4.61743	ug/l	5.2	1176	4.8	96.2	
Cu	63	72	He	6.07792	ug/l	2.2	20382	6.6	92.09	
Cu	65	72	He	6.09050	ug/l	2.0	10165	6.6	92.28	
Zn	66	72	He	54.21875	ug/l	2.1	21847	57.4	94.46	
Mo	95	115	He	0.24998	ug/l	3.3	412	-1	-25	
Mo	98	115	He	0.25618	ug/l	9.3	760	-1	-25.62	
Ag	107	115	He	0.26729	ug/l	5.0	1705	0.27	99	
Ag	109	115	He	0.25200	ug/l	1.9	1625	0.27	93.33	
Cd	111	115	He	0.28450	ug/l	4.3	211	0.296	96.11	
Pb	208	175	He	0.13423	ug/l	3.3	2778	0.116	115.72	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	337904	1.5	288712.11	117.04	
Sc	45	He	56357	1.2	50756.45	111.03	
Ge	72	He	53458	1.8	49731.27	107.49	
In	115	He	529580	1.2	507235.31	104.41	
Lu	175	He	1359564	0.5	1280861.86	106.14	
Th	232	He	2458727	2.8	2364955.07	103.97	

Laboratory Control Sample (LCS) Report

Sample Name KQ2416990-04

File Name 086_QC5.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:35:57 PM

Sample Type QC5

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	21.55346	ug/l	12.6	1707	21.8	98.87	
Se	78	72	H2	21.59806	ug/l	4.6	5266	21.8	99.07	
Cu	63	72	He	910.12153	ug/l	1.9	3026314	994	91.56	
Cu	65	72	He	904.25580	ug/l	1.1	1501453	994	90.97	
Zn	66	72	He	266.71727	ug/l	1.5	106554	272	98.06	
Mo	95	115	He	7.03978	ug/l	0.7	11327	6.88	102.32	
Mo	98	115	He	6.66507	ug/l	3.2	19390	6.88	96.88	
Ag	107	115	He	4.38952	ug/l	1.5	27669	-1	-438.95	
Ag	109	115	He	4.13054	ug/l	1.9	26337	-1	-413.05	
Cd	111	115	He	80.01719	ug/l	0.8	58631	84.6	94.58	
Pb	208	175	He	0.39595	ug/l	1.9	7859	0.45	87.99	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	324403	2.8	288712.11	112.36	
Sc	45	He	55962	2.3	50756.45	110.26	
Ge	72	He	53425	1.3	49731.27	107.43	
In	115	He	526752	1.8	507235.31	103.85	
Lu	175	He	1346902	1.6	1280861.86	105.16	
Th	232	He	2442659	1.8	2364955.07	103.29	

Reference Sample Report

Sample Name	K2409822-050
File Name	087_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b
Acq Time	2024-10-28 5:38:00 PM
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	6.92309	ug/l	17.0	630	
Se	78	72	H2	6.93179	ug/l	5.6	1729	
Cu	63	72	He	7.97698	ug/l	2.2	26786	
Cu	65	72	He	7.93837	ug/l	2.5	13280	
Zn	66	72	He	469.25005	ug/l	1.1	188021	
Mo	95	115	He	0.13572	ug/l	11.5	228	
Mo	98	115	He	0.14896	ug/l	7.4	448	
Ag	107	115	He	0.07349	ug/l	4.3	478	
Ag	109	115	He	0.06142	ug/l	13.5	405	
Cd	111	115	He	0.96337	ug/l	4.7	712	
Pb	208	175	He	0.24417	ug/l	1.7	4937	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	331117	0.2	288712.11	114.69	
Sc	45	He	56046	0.8	50756.45	110.42	
Ge	72	He	53629	2.2	49731.27	107.84	
In	115	He	530572	1.2	507235.31	104.6	
Lu	175	He	1357682	1.6	1280861.86	106	
Th	232	He	2468139	0.6	2364955.07	104.36	

Duplicate Sample Report

Sample Name	KQ2416990-05
File Name	088_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b
Acq Time	2024-10-28 5:40:03 PM
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	001CALB.d
Sample QC Pass/Fial	Pass
ISTD Ref FileName	Pass
QC Ref File Name	087_
Default Text	ARE ALRLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	RPD	Flag
Se	77	72	H2	7.03674	ug/l	13.3	660		<5x MRL
Se	78	72	H2	6.79190	ug/l	1.8	1750		<5x MRL
Cu	63	72	He	7.67190	ug/l	2.8	26338	3.9	
Cu	65	72	He	7.76706	ug/l	3.6	13280	2.18	
Zn	66	72	He	417.53090	ug/l	1.6	171070	11.66	
Mo	95	115	He	0.18022	ug/l	13.0	304		<5x MRL
Mo	98	115	He	0.15843	ug/l	8.8	481		<5x MRL
Ag	107	115	He	0.06222	ug/l	8.2	412		<5x MRL
Ag	109	115	He	0.06371	ug/l	7.2	425		<5x MRL
Cd	111	115	He	0.91832	ug/l	1.7	688	4.79	
[Pb]	206	175	He	0.23227	ug/l	5.5	1193	0.2	
[Pb]	207	175	He	0.22993	ug/l	4.4	1013	6.92	
Pb	208	175	He	0.24000	ug/l	3.7	4863	1.72	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	342058	0.3	288712.11	118.48	
Sc	45	He	57227	2.8	50756.45	112.75	
Ge	72	He	54826	2.5	49731.27	110.25	
In	115	He	537438	2.4	507235.31	105.95	
Lu	175	He	1360540	2.8	1280861.86	106.22	
Th	232	He	2470261	2.6	2364955.07	104.45	

Sample Report

Sample Name K2409822-050L

File Name 089SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:42:06 PM

Sample Type Sample

Comment 25X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	1.54488	ug/l	41.3	230	
Se	78	72	H2	1.31968	ug/l	11.6	346	
Cu	63	72	He	1.59022	ug/l	3.2	5598	
Cu	65	72	He	1.58583	ug/l	2.6	2754	
Zn	66	72	He	93.04578	ug/l	4.8	38325	
Mo	95	115	He	0.03171	ug/l	35.1	61	
Mo	98	115	He	0.02828	ug/l	18.9	97	
Ag	107	115	He	0.01144	ug/l	19.9	87	
Ag	109	115	He	0.01130	ug/l	32.7	85	
Cd	111	115	He	0.19249	ug/l	2.2	147	
Pb	208	175	He	0.04889	ug/l	4.0	1097	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	344769	1.6	288712.11	119.42	
Sc	45	He	57278	3.0	50756.45	112.85	
Ge	72	He	54894	1.6	49731.27	110.38	
In	115	He	544187	1.0	507235.31	107.28	
Lu	175	He	1360007	0.4	1280861.86	106.18	
Th	232	He	2442482	2.6	2364955.07	103.28	

Post Digestion Spike Sample (PDS) Report

Sample Name K2409822-050A

File Name 090_PDS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:44:10 PM

Sample Type PDS

Comment 5X +50ppb +5ppb Ag

ISTD Ref FileName 001CALB.d

QC Ref File Name 087_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Se	77	H2	57.37436	ug/l	7.2	4654	50	100.9	
Se	78	H2	56.67725	ug/l	3.5	14686	50	99.49	
Cu	63	He	56.19024	ug/l	1.8	192851	50	96.43	
Cu	65	He	55.38028	ug/l	0.9	94874	50	94.88	
Zn	66	He	506.57931	ug/l	1.1	208521	50	74.66	PDS Failed
Mo	95	He	50.49930	ug/l	1.2	84066	50	100.73	
Mo	98	He	49.07174	ug/l	1.0	147789	50	97.85	
Ag	107	He	4.97447	ug/l	1.4	32468	5	98.02	
Ag	109	He	4.88270	ug/l	1.8	32239	5	96.43	
Cd	111	He	48.56242	ug/l	1.4	36844	50	95.2	
[Pb]	206	He	46.88955	ug/l	0.5	237858	50	93.32	
[Pb]	207	He	46.80407	ug/l	1.4	204134	50	93.12	
Pb	208	He	47.26393	ug/l	0.5	947234	50	94.04	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	344668	1.5	288712.11	119.38	
Sc	45	He	58138	1.6	50756.45	114.54	
Ge	72	He	55094	0.8	49731.27	110.78	
In	115	He	545387	0.6	507235.31	107.52	
Lu	175	He	1382799	0.5	1280861.86	107.96	
Th	232	He	2512741	0.5	2364955.07	106.25	

Matrix Spike Sample (MS) Report

Sample Name KQ2416990-06

File Name 091_SPK.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:46:15 PM

Sample Type Spike

Comment 5X

ISTD Ref FileName 001CALB.d

QC Ref File Name 087_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Se	77	H2	39.56478	ug/l	3.7	3217	33.3	98.02	
Se	78	H2	40.29922	ug/l	0.8	10365	33.3	100.2	
Cu	63	He	55.42369	ug/l	1.8	189838	50	94.89	
Cu	65	He	54.46405	ug/l	2.4	93103	50	93.05	
Zn	66	He	517.00309	ug/l	1.8	212353	100	47.75	Spike Failed
Mo	95	He	33.83144	ug/l	0.5	56121	33.3	101.19	
Mo	98	He	33.13235	ug/l	1.2	99416	33.3	99.05	
Ag	107	He	9.46735	ug/l	0.6	61558	10	93.94	
Ag	109	He	9.31869	ug/l	1.1	61289	10	92.57	
Cd	111	He	10.44573	ug/l	1.5	7897	10	94.82	
[Pb]	206	He	90.17858	ug/l	2.9	460939	100	89.95	
[Pb]	207	He	91.62555	ug/l	1.8	402766	100	91.38	
Pb	208	He	91.77075	ug/l	2.8	1853299	100	91.53	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	342027	1.3	288712.11	118.47	
Sc	45	He	58984	1.7	50756.45	116.21	
Ge	72	He	54984	1.5	49731.27	110.56	
In	115	He	543402	1.6	507235.31	107.13	
Lu	175	He	1394033	2.4	1280861.86	108.84	
Th	232	He	2487984	1.3	2364955.07	105.2	

Sample Report

Sample Name K2409822-041

File Name 092SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:48:18 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	7.09558	ug/l	20.2	650	
Se	78	72	H2	6.92784	ug/l	2.3	1750	
Cu	63	72	He	6.59949	ug/l	0.7	22592	
Cu	65	72	He	6.70662	ug/l	1.8	11426	
Zn	66	72	He	318.38069	ug/l	1.5	129943	
Mo	95	115	He	0.24803	ug/l	6.5	411	
Mo	98	115	He	0.23875	ug/l	6.8	713	
Ag	107	115	He	0.16013	ug/l	7.4	1032	
Ag	109	115	He	0.14636	ug/l	9.0	953	
Cd	111	115	He	0.72168	ug/l	1.7	536	
Pb	208	175	He	1.12182	ug/l	0.6	22105	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	335366	2.0	288712.11	116.16	
Sc	45	He	56665	1.3	50756.45	111.64	
Ge	72	He	54592	0.3	49731.27	109.77	
In	115	He	532354	0.4	507235.31	104.95	
Lu	175	He	1351653	1.1	1280861.86	105.53	
Th	232	He	2453704	1.8	2364955.07	103.75	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 093_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:50:23 PM

Sample Type CCV

Comment —

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	26.59106	ug/l	9.0	2194	106.36	
Se	78	72	H2	25.17480	ug/l	2.0	6461	100.7	
Cu	63	72	He	24.74163	ug/l	0.6	87343	98.97	
Cu	65	72	He	24.83668	ug/l	1.1	43739	99.35	
Zn	66	72	He	25.26220	ug/l	4.5	10904	101.05	
Mo	95	115	He	12.69796	ug/l	1.4	21662	101.58	
Mo	98	115	He	12.40002	ug/l	0.8	38268	99.2	
Ag	107	115	He	12.72170	ug/l	0.6	85053	101.77	
Ag	109	115	He	12.40268	ug/l	0.5	83880	99.22	
Cd	111	115	He	24.61213	ug/l	1.0	19131	98.45	
Pb	208	175	He	24.73083	ug/l	2.4	495574	98.92	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	341299	1.4	288712.11	118.21	
Sc	45	He	57913	0.6	50756.45	114.1	
Ge	72	He	56600	0.6	49731.27	113.81	
In	115	He	558736	0.5	507235.31	110.15	
Lu	175	He	1382843	1.9	1280861.86	107.96	
Th	232	He	2492429	0.1	2364955.07	105.39	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 094_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:52:27 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.03526	ug/l	736.3	110	
Se	78	72	H2	0.01038	ug/l	56.0	7	
Cu	63	72	He	-0.00005	ug/l	N/A	170	
Cu	65	72	He	0.03211	ug/l	42.8	105	
Zn	66	72	He	-0.19705	ug/l	N/A	147	
Mo	95	115	He	0.00483	ug/l	39.8	17	
Mo	98	115	He	0.00879	ug/l	82.4	39	
Ag	107	115	He	0.00390	ug/l	28.9	38	
Ag	109	115	He	0.00388	ug/l	62.2	37	
Cd	111	115	He	0.00606	ug/l	52.3	6	
Pb	208	175	He	0.01246	ug/l	3.0	390	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	343571	0.6	288712.11	119	
Sc	45	He	58663	2.4	50756.45	115.58	
Ge	72	He	56262	1.0	49731.27	113.13	
In	115	He	554027	0.6	507235.31	109.22	
Lu	175	He	1400009	0.9	1280861.86	109.3	
Th	232	He	2497474	0.7	2364955.07	105.6	

Sample Report

Sample Name K2409822-042

File Name 095SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:54:32 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	6.58821	ug/l	21.8	627	
Se	78	72	H2	6.35799	ug/l	3.2	1645	
Cu	63	72	He	6.41962	ug/l	3.7	22127	
Cu	65	72	He	6.18793	ug/l	2.6	10619	
Zn	66	72	He	287.45512	ug/l	2.2	118158	
Mo	95	115	He	0.21302	ug/l	10.0	363	
Mo	98	115	He	0.22417	ug/l	11.2	689	
Ag	107	115	He	0.15896	ug/l	6.1	1052	
Ag	109	115	He	0.14392	ug/l	7.9	962	
Cd	111	115	He	0.44921	ug/l	4.6	343	
Pb	208	175	He	0.65865	ug/l	1.6	13605	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	343489	2.4	288712.11	118.97	
Sc	45	He	58696	1.8	50756.45	115.64	
Ge	72	He	54991	2.6	49731.27	110.58	
In	115	He	546467	1.4	507235.31	107.73	
Lu	175	He	1411190	2.2	1280861.86	110.18	
Th	232	He	2527453	1.5	2364955.07	106.87	

Sample Report

Sample Name K2409822-043

File Name 096SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:56:36 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	6.84275	ug/l	9.4	627	
Se	78	72	H2	6.59829	ug/l	7.5	1652	
Cu	63	72	He	7.82251	ug/l	0.7	27066	
Cu	65	72	He	7.63385	ug/l	4.0	13151	
Zn	66	72	He	496.07019	ug/l	2.3	204730	
Mo	95	115	He	0.20834	ug/l	5.0	360	
Mo	98	115	He	0.17754	ug/l	8.2	553	
Ag	107	115	He	0.06718	ug/l	6.4	457	
Ag	109	115	He	0.07066	ug/l	7.9	483	
Cd	111	115	He	0.96501	ug/l	2.7	743	
Pb	208	175	He	0.28955	ug/l	0.2	5981	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	332676	2.0	288712.11	115.23	
Sc	45	He	58526	0.8	50756.45	115.31	
Ge	72	He	55245	1.2	49731.27	111.09	
In	115	He	552620	1.2	507235.31	108.95	
Lu	175	He	1392787	1.3	1280861.86	108.74	
Th	232	He	2487651	2.4	2364955.07	105.19	

Sample Report

Sample Name K2409822-044

File Name 097SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 5:58:39 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	6.59536	ug/l	18.2	613	
Se	78	72	H2	6.46428	ug/l	1.0	1635	
Cu	63	72	He	7.50437	ug/l	2.1	26425	
Cu	65	72	He	7.37104	ug/l	2.6	12926	
Zn	66	72	He	411.35766	ug/l	0.3	172812	
Mo	95	115	He	0.12375	ug/l	12.5	217	
Mo	98	115	He	0.11640	ug/l	13.1	367	
Ag	107	115	He	0.04611	ug/l	8.2	317	
Ag	109	115	He	0.04032	ug/l	8.7	280	
Cd	111	115	He	0.79226	ug/l	3.7	610	
Pb	208	175	He	0.33810	ug/l	2.7	6979	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	335780	0.6	288712.11	116.3	
Sc	45	He	59008	1.0	50756.45	116.26	
Ge	72	He	56212	0.9	49731.27	113.03	
In	115	He	551912	1.6	507235.31	108.81	
Lu	175	He	1396812	2.1	1280861.86	109.05	
Th	232	He	2476839	0.6	2364955.07	104.73	

Sample Report

Sample Name K2409822-045

File Name 098SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 6:00:43 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	7.45019	ug/l	18.6	703	
Se	78	72	H2	6.85342	ug/l	6.7	1792	
Cu	63	72	He	7.36122	ug/l	5.7	25553	
Cu	65	72	He	7.54143	ug/l	3.8	13031	
Zn	66	72	He	519.45690	ug/l	3.2	214957	
Mo	95	115	He	0.17354	ug/l	5.1	302	
Mo	98	115	He	0.17029	ug/l	11.6	533	
Ag	107	115	He	0.05742	ug/l	7.6	393	
Ag	109	115	He	0.05606	ug/l	15.3	387	
Cd	111	115	He	0.93165	ug/l	1.6	720	
Pb	208	175	He	0.16945	ug/l	5.6	3480	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	347351	1.8	288712.11	120.31	
Sc	45	He	59014	3.2	50756.45	116.27	
Ge	72	He	55412	2.4	49731.27	111.42	
In	115	He	554426	0.7	507235.31	109.3	
Lu	175	He	1362224	1.4	1280861.86	106.35	
Th	232	He	2503385	1.8	2364955.07	105.85	

Sample Report

Sample Name K2409822-046

File Name 099SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 6:02:47 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	7.14842	ug/l	16.2	680	
Se	78	72	H2	6.01447	ug/l	1.9	1578	
Cu	63	72	He	5.78293	ug/l	1.7	21176	
Cu	65	72	He	5.75091	ug/l	5.6	10481	
Zn	66	72	He	341.31919	ug/l	1.3	148851	
Mo	95	115	He	0.09503	ug/l	19.4	173	
Mo	98	115	He	0.09626	ug/l	6.8	314	
Ag	107	115	He	0.03726	ug/l	8.1	267	
Ag	109	115	He	0.03449	ug/l	9.3	248	
Cd	111	115	He	0.53610	ug/l	3.1	426	
Pb	208	175	He	0.08538	ug/l	7.3	1922	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	348156	0.9	288712.11	120.59	
Sc	45	He	60684	0.5	50756.45	119.56	
Ge	72	He	58341	0.6	49731.27	117.31	
In	115	He	568955	2.3	507235.31	112.17	
Lu	175	He	1440352	2.2	1280861.86	112.45	
Th	232	He	2529109	0.2	2364955.07	106.94	

Sample Report

Sample Name K2409822-047

File Name 100SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 6:04:51 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	6.47710	ug/l	3.4	617	
Se	78	72	H2	6.28665	ug/l	1.4	1623	
Cu	63	72	He	6.42728	ug/l	2.0	22248	
Cu	65	72	He	6.45618	ug/l	2.5	11123	
Zn	66	72	He	425.57166	ug/l	1.8	175547	
Mo	95	115	He	0.09315	ug/l	13.2	166	
Mo	98	115	He	0.10805	ug/l	8.1	341	
Ag	107	115	He	0.03331	ug/l	22.1	232	
Ag	109	115	He	0.03537	ug/l	5.3	247	
Cd	111	115	He	0.85167	ug/l	3.4	655	
Pb	208	175	He	0.18314	ug/l	1.5	3792	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	342545	1.3	288712.11	118.65	
Sc	45	He	58613	1.3	50756.45	115.48	
Ge	72	He	55195	0.7	49731.27	110.99	
In	115	He	551664	2.1	507235.31	108.76	
Lu	175	He	1378189	1.2	1280861.86	107.6	
Th	232	He	2498940	0.5	2364955.07	105.67	

Sample Report

Sample Name K2409822-048

File Name 101SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 6:06:55 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	5.61698	ug/l	12.2	553	
Se	78	72	H2	6.11101	ug/l	2.0	1589	
Cu	63	72	He	9.72198	ug/l	2.0	34379	
Cu	65	72	He	9.40630	ug/l	0.7	16580	
Zn	66	72	He	421.61726	ug/l	2.4	178095	
Mo	95	115	He	0.12487	ug/l	5.5	223	
Mo	98	115	He	0.11538	ug/l	3.5	371	
Ag	107	115	He	0.05179	ug/l	18.4	362	
Ag	109	115	He	0.05565	ug/l	12.6	390	
Cd	111	115	He	1.09508	ug/l	2.0	860	
Pb	208	175	He	0.05802	ug/l	6.2	1303	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	345228	1.4	288712.11	119.58	
Sc	45	He	58593	2.7	50756.45	115.44	
Ge	72	He	56540	1.9	49731.27	113.69	
In	115	He	563405	1.0	507235.31	111.07	
Lu	175	He	1387714	1.1	1280861.86	108.34	
Th	232	He	2516897	1.2	2364955.07	106.42	

Sample Report

Sample Name K2409822-049

File Name 102SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 6:08:59 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	6.81305	ug/l	5.8	657	
Se	78	72	H2	6.14487	ug/l	4.3	1617	
Cu	63	72	He	6.01833	ug/l	1.1	21964	
Cu	65	72	He	5.83672	ug/l	1.3	10602	
Zn	66	72	He	346.05476	ug/l	2.4	150440	
Mo	95	115	He	0.10302	ug/l	8.0	187	
Mo	98	115	He	0.11037	ug/l	10.3	358	
Ag	107	115	He	0.05934	ug/l	6.0	415	
Ag	109	115	He	0.05869	ug/l	7.4	413	
Cd	111	115	He	0.66508	ug/l	5.2	526	
Pb	208	175	He	0.08955	ug/l	8.6	1990	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	349689	3.8	288712.11	121.12	
Sc	45	He	61123	0.8	50756.45	120.42	
Ge	72	He	58163	0.9	49731.27	116.95	
In	115	He	566509	1.4	507235.31	111.69	
Lu	175	He	1425999	0.6	1280861.86	111.33	
Th	232	He	2528909	0.5	2364955.07	106.93	

Sample Report

Sample Name K2409822-051

File Name 103SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 6:11:02 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	6.88490	ug/l	19.6	673	
Se	78	72	H2	7.06491	ug/l	3.6	1889	
Cu	63	72	He	6.70977	ug/l	4.5	24338	
Cu	65	72	He	6.41931	ug/l	2.4	11591	
Zn	66	72	He	420.12575	ug/l	0.3	181617	
Mo	95	115	He	0.17127	ug/l	16.3	303	
Mo	98	115	He	0.18037	ug/l	3.1	572	
Ag	107	115	He	0.05709	ug/l	1.3	397	
Ag	109	115	He	0.05611	ug/l	16.2	392	
Cd	111	115	He	0.84534	ug/l	1.4	663	
Pb	208	175	He	0.10449	ug/l	0.6	2257	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	354916	1.5	288712.11	122.93	
Sc	45	He	60698	2.1	50756.45	119.59	
Ge	72	He	57845	0.5	49731.27	116.32	
In	115	He	562380	2.6	507235.31	110.87	
Lu	175	He	1399771	1.9	1280861.86	109.28	
Th	232	He	2511008	1.8	2364955.07	106.18	

Sample Report

Sample Name K2409822-052

File Name 104SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 6:13:06 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	6.54345	ug/l	32.3	650	
Se	78	72	H2	6.46024	ug/l	7.3	1748	
Cu	63	72	He	7.67158	ug/l	2.6	27784	
Cu	65	72	He	7.73049	ug/l	0.7	13944	
Zn	66	72	He	395.22137	ug/l	0.4	170811	
Mo	95	115	He	0.14740	ug/l	6.8	267	
Mo	98	115	He	0.13124	ug/l	1.3	428	
Ag	107	115	He	0.04748	ug/l	12.3	338	
Ag	109	115	He	0.04454	ug/l	3.0	320	
Cd	111	115	He	0.92584	ug/l	0.8	740	
Pb	208	175	He	0.11683	ug/l	1.5	2563	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	359683	3.4	288712.11	124.58	
Sc	45	He	61324	2.0	50756.45	120.82	
Ge	72	He	57828	1.3	49731.27	116.28	
In	115	He	573262	0.8	507235.31	113.02	
Lu	175	He	1430980	2.5	1280861.86	111.72	
Th	232	He	2578800	1.5	2364955.07	109.04	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 105_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 6:15:11 PM

Sample Type CCV

Comment ---

ISTD Ref FileName 001CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	24.80026	ug/l	2.7	2187	99.2	
Se	78	72	H2	25.19832	ug/l	1.6	6893	100.79	
Cu	63	72	He	25.09334	ug/l	2.2	92201	100.37	
Cu	65	72	He	24.88011	ug/l	0.5	45618	99.52	
Zn	66	72	He	25.54856	ug/l	3.2	11475	102.19	
Mo	95	115	He	12.66001	ug/l	1.7	22631	101.28	
Mo	98	115	He	12.21964	ug/l	1.0	39516	97.76	
Ag	107	115	He	12.50895	ug/l	2.3	87621	100.07	
Ag	109	115	He	12.23682	ug/l	0.9	86726	97.89	
Cd	111	115	He	24.34063	ug/l	1.0	19826	97.36	
Pb	208	175	He	24.33769	ug/l	1.4	506325	97.35	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	363759	1.2	288712.11	125.99	Flag
Sc	45	He	61307	0.9	50756.45	120.79	
Ge	72	He	58929	1.8	49731.27	118.5	
In	115	He	585493	1.3	507235.31	115.43	
Lu	175	He	1435320	0.8	1280861.86	112.06	
Th	232	He	2584334	1.5	2364955.07	109.28	

see rerun
am 10/28/24

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 106_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 6:32:33 PM

Sample Type CCV

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	25.94972	ug/l	7.5	2140	103.8	
Se	78	72	H2	25.53375	ug/l	2.2	6550	102.14	
Cu	63	72	He	25.22264	ug/l	1.0	86880	100.89	
Cu	65	72	He	24.67761	ug/l	0.1	42410	98.71	
Zn	66	72	He	25.36419	ug/l	1.5	10681	101.46	
Mo	95	115	He	12.96361	ug/l	1.9	21442	103.71	
Mo	98	115	He	12.37834	ug/l	0.9	37040	99.03	
Ag	107	115	He	13.04848	ug/l	0.8	84582	104.39	
Ag	109	115	He	12.72082	ug/l	0.9	83418	101.77	
Cd	111	115	He	24.97609	ug/l	0.8	18824	99.9	
Pb	208	175	He	24.90811	ug/l	1.4	494894	99.63	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	341096	0.6	288712.11	118.14	
Sc	45	He	56213	1.8	50756.45	110.75	
Ge	72	He	55231	0.4	49731.27	111.06	
In	115	He	541760	0.9	507235.31	106.81	
Lu	175	He	1370855	1.2	1280861.86	107.03	
Th	232	He	2479595	1.6	2364955.07	104.85	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 107_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824B1.b

Acq Time 2024-10-28 6:34:37 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 001CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	-0.23612	ug/l	N/A	87	
Se	78	72	H2	0.00710	ug/l	228.0	6	
Cu	63	72	He	-0.01679	ug/l	N/A	110	
Cu	65	72	He	0.01354	ug/l	67.5	72	
Zn	66	72	He	-0.27312	ug/l	N/A	113	
Mo	95	115	He	0.00446	ug/l	146.9	16	
Mo	98	115	He	0.00468	ug/l	37.5	26	
Ag	107	115	He	0.00070	ug/l	128.7	17	
Ag	109	115	He	0.00479	ug/l	81.4	42	
Cd	111	115	He	0.00186	ug/l	1.2	3	
Pb	208	175	He	0.00328	ug/l	14.8	202	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	336393	1.2	288712.11	116.52	
Sc	45	He	57578	0.4	50756.45	113.44	
Ge	72	He	55693	0.3	49731.27	111.99	
In	115	He	538936	0.6	507235.31	106.25	
Lu	175	He	1387993	1.4	1280861.86	108.36	
Th	232	He	2510619	1.1	2364955.07	106.16	

Service Request: K2409822 #53-63; K2410170; K2409565 #1-4
Instrument ID: K-ICPMS-06
Calibration: 102824CICPMS06
ALS LIMS Run# 859128
Pipette IDs: 18010244, 44382947, 43187502
Cal Std: MS34-74-D ICSA: MS34-74-E
ICV Std: MS34-69-C ICSAB: MS34-74-F
LLICV Std: MS34-69-D
I.S. Solution: MS34-49-B
Tune Std: MS34-53-G

ICP-MS Data Review Form

	Yes	No	NA
1. Appropriate standardization completed	X		
2. ICV in control (+/- 10%)	X		
3. CCV's in control (+/- 10%)	X		
4. ICB/CCB's below MRL	X		
5. LLICV standard analyzed and in control	X		
6. ICS standards within 20% of true value	X		
6. All analytes within instrument linear range	X		
7. Adequate rinse out time allowed	X		
8. Internal standards in control	X		
9. Interferences checked	X		
10. Was the run terminated? If so, why.		X	

See Benchsheet exception report for sample batch QC information.
Comments: MRL=2X for Cd, Pb. Report Ag ID9.

Prep Batches: 446926, 446927, 447238, 447237

Primary Review by _____ Date 10/29/24

Secondary Review by _____ Date 10/29/24

R:\ICP\MISC\Document Control\K-ICPMS-06 Review Sheet.doc

Data Review Form

Instrument ID#: **K-ICP-MS-06**
DataFile Name: **R:\ICP\WIP\DATA\K-ICP-MS-06 (Agilent 7800)\102824C.csv**
RUNNO: **859128**

K2409565

No exceptions to report.

K2409822

K2409822-062MS - Metals T -

MS Recovery

6020B/Metals T - 66 Zn [He] - Recovery: 128 Limits: 75 - 125 post spike tserial dilution ok

K2410170

No exceptions to report.

Primary Approver: 10/29/24

Secondary Approver: 10/29/24

	Sample								
		Rjct	Data File	Acq. Date-Time	Type	L	Sample Name	Comm...	Vial N...
1			001SMPL.	2024-10-28 6:43:07 P	Sample		RINSE		1
2			002CALB.	2024-10-28 6:45:12 P	CalBlk		Blank		1
3			003CALS.	2024-10-28 6:47:17 P	CalStd		25ppb		2
4			004_ICV.d	2024-10-28 6:49:22 P	ICV		ICV		2101
5			005_CCV.	2024-10-28 6:51:27 P	CCV		CCV		2
6			006_ICB.d	2024-10-28 6:53:31 P	ICB		ICB		1
7			007_CCB.	2024-10-28 6:55:35 P	CCB		CCB		1
GWN 10/29/24 8			~~008LICV.d~~	~~2024-10-28 6:57:40 P~~	~~LLICV~~		~~LLICVT~~		~~2102~~
9			009LICV.d	2024-10-28 7:00:23 P	LLICV		LLICVT		2102
10			010_QC1.d	2024-10-28 7:03:02 P	QC1		LLICVT 2X		2202
GWN 10/29/24 11			~~011SMPL.~~	~~2024-10-28 7:05:08 P~~	~~Sample~~		~~LRSTD~~	~~+1000~~	~~1102~~
12			012SMPL.	2024-10-28 7:09:34 P	Sample		LRSTD	+1000	1102
13			013SMPL.	2024-10-28 7:11:33 P	Sample		MO STD		2105
14			014ICSA.d	2024-10-28 7:13:37 P	ICSA		ICSA		2103
15			015ICSB.d	2024-10-28 7:15:41 P	ICSB		ICSAB		2104
16			016SMPL.	2024-10-28 7:17:45 P	Sample		MO STD		2105
17			017SMPL.	2024-10-28 7:19:50 P	Sample		K2409822-053	5X	4203
18			018SMPL.	2024-10-28 7:21:53 P	Sample		K2409822-054	5X	4204
19			019SMPL.	2024-10-28 7:23:56 P	Sample		K2409822-055	5X	4205
20			020SMPL.	2024-10-28 7:26:00 P	Sample		K2409822-056	5X	4206
21			021SMPL.	2024-10-28 7:28:03 P	Sample		K2409822-057	5X	4207
22			022SMPL.	2024-10-28 7:30:06 P	Sample		K2409822-058	5X	4208
23			023SMPL.	2024-10-28 7:32:09 P	Sample		K2409822-059	5X	4209
24			024SMPL.	2024-10-28 7:34:13 P	Sample		K2409822-060	5X	4210
25			025_CCV.	2024-10-28 7:36:19 P	CCV		CCV		2
26			026_CCB.	2024-10-28 7:38:23 P	CCB		CCB		1
27			027_PB.d	2024-10-28 7:40:29 P	PB		KQ2416991-01	5X	4211
28			028_LCS.d	2024-10-28 7:42:32 P	LCS		KQ2416991-02	5X	4212
29			029_QC4.d	2024-10-28 7:44:36 P	QC4		KQ2416991-03	5X	4301
30			030_QC5.d	2024-10-28 7:46:39 P	QC5		KQ2416991-04	5X	4302
31			031_ARF.d	2024-10-28 7:48:41 P	AllRef		K2409822-062	5X	4303
32			032_Dup.d	2024-10-28 7:50:44 P	Dup		KQ2416991-05	5X	4304
33			033SMPL.	2024-10-28 7:52:48 P	Sample		K2409822-062L	25X	4305
34			034_PDS.d	2024-10-28 7:54:51 P	PDS		K2409822-062A	5X +5	4306
35			035_SPK.d	2024-10-28 7:56:55 P	Spike		KQ2416991-06	5X	4307

	Sample								
		Rjct	Data File	Acq. Date-Time	Type	L	Sample Name	Comm...	Vial N...
36			036SMPL.	2024-10-28 7:58:58 P	Sample		K2409822-061	5X	4308
37			037_CCV.	2024-10-28 8:01:03 P	CCV		CCV		2
38			038_CCB.	2024-10-28 8:03:08 P	CCB		CCB		1
39			039SMPL.	2024-10-28 8:05:13 P	Sample		K2409822-063	5X	4309
40			040_CCV.	2024-10-28 8:07:18 P	CCV		CCV		2
41			041_CCB.	2024-10-28 8:09:22 P	CCB		CCB		1
42			042_PB.d	2024-10-28 8:11:28 P	PB		KQ2417335-01	5X	4310
43	✓		043_LCS.d	2024-10-28 8:13:31 P	LCS		KQ2417335-02	5X	4311
44			044SMPL.	2024-10-28 8:15:34 P	Sample		KQ2417335-03	5X	4312
45			045SMPL.	2024-10-28 8:17:38 P	Sample		KQ2417335-04	5X	4401
46			046_ARF.d	2024-10-28 8:19:41 P	AllRef		K2410170-004	5X	4402
47	✓		047_Dup.d	2024-10-28 8:21:45 P	Dup		KQ2417335-05	5X	4403
48			048SMPL.	2024-10-28 8:23:48 P	Sample		K2410170-004L	25X	4404
49			049_PDS.d	2024-10-28 8:25:51 P	PDS		K2410170-004A	5X +5	4405
50			050_SPK.d	2024-10-28 8:27:54 P	Spike		KQ2417335-06	5X	4406
51			051_SPK.d	2024-10-28 8:29:58 P	Spike		KQ2417335-07	5X	4407
52			052_CCV.	2024-10-28 8:32:04 P	CCV		CCV		2
53			053_CCB.	2024-10-28 8:34:09 P	CCB		CCB		1
54			054SMPL.	2024-10-28 8:36:14 P	Sample		K2410170-001	5X	4408
55			055SMPL.	2024-10-28 8:38:17 P	Sample		K2410170-002	5X	4409
56			056SMPL.	2024-10-28 8:40:21 P	Sample		K2410170-003	5X	4410
57			057SMPL.	2024-10-28 8:42:25 P	Sample		K2410170-005	5X	4411
58			058SMPL.	2024-10-28 8:44:28 P	Sample		K2410170-006	5X	4412
59			059_CCV.	2024-10-28 8:46:33 P	CCV		CCV		2
60			060_CCB.	2024-10-28 8:48:37 P	CCB		CCB		1
61			061_PB.d	2024-10-28 8:50:42 P	PB		KQ2417334-01	5X	4501
62			062_LCS.d	2024-10-28 8:52:46 P	LCS		KQ2417334-02	5X	4502
63			063_QC4.d	2024-10-28 8:54:49 P	QC4		KQ2417334-03	5X	4503
64			064_QC5.d	2024-10-28 8:56:52 P	QC5		KQ2417334-04	5X	4504
65			065_ARF.d	2024-10-28 8:58:58 P	AllRef		K2409565-004	5X	4505
66	✓		066_Dup.d	2024-10-28 9:01:02 P	Dup		KQ2417334-05	5X	4506
67			067SMPL.	2024-10-28 9:03:05 P	Sample		K2409565-004L	25X	4507
68			068_PDS.d	2024-10-28 9:05:10 P	PDS		K2409565-004A	5X +5	4508
69			069_SPK.d	2024-10-28 9:07:14 P	Spike		KQ2417334-06	5X	4509
70			070SMPL.	2024-10-28 9:09:17 P	Sample		K2409565-001	5X	4510

QM 10/29/24

Sample

	Rjct	Data File	Acq. Date-Time	Type	L	Sample Name	Comm...	Vial N...
71		071_CCV.	2024-10-28 9:11:23 P	CCV		CCV		2
72		~~072_CCB.~~	~~2024-10-28 9:13:27 P~~	~~CCB~~		~~CCB~~		~~1~~
73		073_CCB.	2024-10-28 9:15:31 P	CCB		CCB		1
74		074SMPL.	2024-10-28 9:17:38 P	Sample		K2409565-002	5X	4511
75		075SMPL.	2024-10-28 9:19:40 P	Sample		K2409565-003	5X	4512
76		076_CCV.	2024-10-28 9:21:46 P	CCV		CCV		2
77		077_CCB.	2024-10-28 9:23:50 P	CCB		CCB		1

Analyte

	Name	Mass	ISTD	Tune Mode	Units	Replicate
1	Cu	63	72	He	ug/l	3
2	Cu	65	72	He	ug/l	3
3	Zn	66	72	He	ug/l	3
4	Se	77	72	H2	ug/l	3
5	Se	78	72	H2	ug/l	3
6	Mo	95	115	He	ug/l	3
7	Mo	98	115	He	ug/l	3
8	Ag	107	115	He	ug/l	3
9	Ag	109	115	He	ug/l	3
10	Cd	111	115	He	ug/l	3
11	[Pb]	206	175	He	ug/l	3
12	[Pb]	207	175	He	ug/l	3
13	Pb	208	175	He	ug/l	3
14	Sc	45		He		3
15	Ge	72		H2		3
16	Ge	72		He		3
17	In	115		He		3
18	Lu	175		He		3
19	Th	232		He		3

US EPA Tune Check Report

Operator Name	ALKLS NoUser
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824.b
Acq. Date-Time	2024-10-28 9:55:30 AM
Report Comment	---
Instrument Name	G8421A JP16310358

[No Gas]

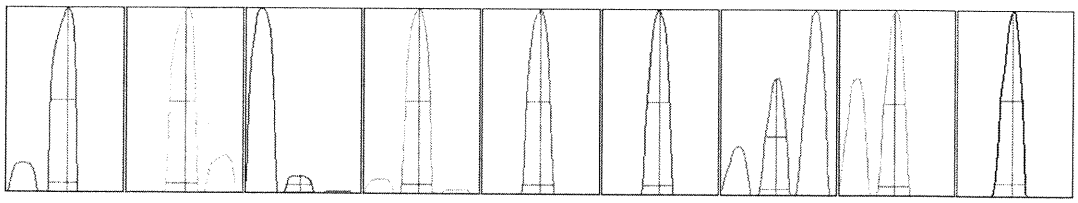
Sensitivity

Mass	CPS	RSD%	RSD% (Required)	RSD% (Flag)
7	86359.28	0.753	5.000	
9	20079.90	0.954	5.000	
24	264370.67	0.887	5.000	
59	138692.97	0.514	5.000	
115	254133.21	0.380	5.000	
140	266069.89	0.711	5.000	
208	136181.04	0.479	5.000	
209	214503.01	0.674	5.000	
238	263953.93	0.844	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
7	8535	8605	8683	8677	8680
9	1999	1988	2038	2013	2001
24	26477	26830	26325	26273	26281
59	13776	13888	13816	13922	13944
115	25384	25519	25319	25513	25332
140	26370	26786	26441	26753	26684
208	13543	13685	13686	13572	13604
209	21260	21574	21615	21387	21415
238	26064	26551	26631	26425	26307

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Flag)	W-5% (Required)
7	14289.42	7.10	6.90 - 7.10		0.741		0.900
9	3269.90	9.05	8.90 - 9.10		0.786		0.900
24	41425.87	23.95	23.90 - 24.10		0.780		0.900

US EPA Tune Check Report

Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Flag)	W-5% (Required)
59	22654.79	58.95	58.90 - 59.10		0.784		0.900
115	44970.23	115.00	114.90 - 115.10		0.780		0.900
140	48761.52	140.00	139.90 - 140.10		0.773		0.900
208	25783.41	207.95	207.90 - 208.10		0.774		0.900
209	40410.30	208.95	208.90 - 209.10		0.808		0.900
238	49339.52	237.95	237.90 - 238.10		0.790		0.900

Integration Time [sec]	0.1
Acquisition Time [sec]	268.4
Y Axis	Linear

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.59 L/min	Dilution Gas	0.42 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.60 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	8.8 V	Deflect	16.2 V
Extract 2	-165.0 V	Cell Entrance	-30 V	Plate Bias	-55 V
Omega Bias	-65 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	200 V		

QP Parameters

Mass Gain	127	Axis Gain	1.0003	QP Bias	-3.0 V
Mass Offset	125	Axis Offset	0.02		

Hardware Settings

Torch

Torch H	-0.3 mm	Torch V	-0.2 mm		

EM

Discriminator	4.1 mV	Analog HV	2465 V	Pulse HV	1620 V

Calibration Blank Report

Sample Name Blank

File Name 002CALB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 6:45:12 PM

Sample Type CalBlk

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	CPS	CPS RSD
Se	77	72	H2	107	37.9
Se	78	72	H2	3	45.8
Cu	63	72	He	103	56.7
Cu	65	72	He	55	27.3
Zn	66	72	He	107	37.9
Mo	95	115	He	4	86.6
Mo	98	115	He	7	86.6
Ag	107	115	He	15	66.7
Ag	109	115	He	12	24.7
Cd	111	115	He	1	34.6
[Pb]	206	175	He	32	33.3
[Pb]	207	175	He	20	44.1
Pb	208	175	He	102	10.5

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Ge	72	H2	327981	1.4
Sc	45	He	54757	1.3
Ge	72	He	52464	3.0
In	115	He	543963	0.7
Lu	175	He	1386582	4.2
Th	232	He	2476539	3.0

qm
10/28/24

Calibration Standard Report

Sample Name 25ppb

File Name 003CALS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 6:47:17 PM

Sample Type CalStd

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	CPS	CPS RSD
Se	77	72	H2	1934	1.1
Se	78	72	H2	6159	1.2
Cu	63	72	He	85020	3.9
Cu	65	72	He	40817	3.2
Zn	66	72	He	10080	7.2
Mo	95	115	He	20688	0.5
Mo	98	115	He	36866	2.8
Ag	107	115	He	82049	3.1
Ag	109	115	He	79959	4.5
Cd	111	115	He	18349	0.7
[Pb]	206	175	He	120552	2.2
[Pb]	207	175	He	106202	0.7
Pb	208	175	He	482035	1.0

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	321249	1.7	327980.96	97.95	
Sc	45	He	56009	1.5	54757.42	102.29	
Ge	72	He	54324	2.4	52464.24	103.54	
In	115	He	520300	1.8	543963.06	95.65	
Lu	175	He	1369624	3.8	1386582.42	98.78	
Th	232	He	2440482	7.1	2476539.08	98.54	

Initial Calibration Verification (ICV) Report

Sample Name ICV

File Name 004_ICV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 6:49:22 PM

Sample Type ICV

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	25.15431	ug/l	4.5	1997	100.62	
Se	78	72	H2	23.27077	ug/l	0.5	5891	93.08	
Cu	63	72	He	12.22527	ug/l	6.4	40739	97.8	
Cu	65	72	He	12.54028	ug/l	9.6	20048	100.32	
Zn	66	72	He	25.50836	ug/l	2.8	10087	102.03	
Mo	95	115	He	25.00264	ug/l	1.9	41452	100.01	
Mo	98	115	He	25.05566	ug/l	7.2	73887	100.22	
Ag	107	115	He	11.68967	ug/l	3.9	76862	93.52	
Ag	109	115	He	12.12801	ug/l	3.5	77645	97.02	
Cd	111	115	He	12.39275	ug/l	4.4	9104	99.14	
Pb	208	175	He	25.79324	ug/l	3.8	482966	103.17	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	329935	1.9	327980.96	100.6	
Sc	45	He	54771	4.9	54757.42	100.03	
Ge	72	He	53287	6.2	52464.24	101.57	
In	115	He	521297	4.1	543963.06	95.83	
Lu	175	He	1329920	3.2	1386582.42	95.91	
Th	232	He	2449760	4.0	2476539.08	98.92	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 005_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 6:51:27 PM

Sample Type CCV

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	26.19974	ug/l	2.0	2034	104.8	
Se	78	72	H2	25.00507	ug/l	2.5	6198	100.02	
Cu	63	72	He	25.57589	ug/l	4.8	84228	102.3	
Cu	65	72	He	26.04041	ug/l	6.8	41174	104.16	
Zn	66	72	He	24.82856	ug/l	5.3	9713	99.31	
Mo	95	115	He	12.36572	ug/l	0.9	20689	98.93	
Mo	98	115	He	12.01987	ug/l	6.8	35786	96.16	
Ag	107	115	He	12.53287	ug/l	1.2	83200	100.26	
Ag	109	115	He	12.22692	ug/l	2.6	79016	97.82	
Cd	111	115	He	24.53766	ug/l	3.1	18197	98.15	
Pb	208	175	He	24.81850	ug/l	2.0	484943	99.27	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	323092	0.7	327980.96	98.51	
Sc	45	He	54182	5.2	54757.42	98.95	
Ge	72	He	52651	3.3	52464.24	100.36	
In	115	He	525925	2.8	543963.06	96.68	
Lu	175	He	1387401	3.3	1386582.42	100.06	
Th	232	He	2371989	1.2	2476539.08	95.78	

Initial Calibration Blank (ICB) Report

Sample Name ICB

File Name 006_ICB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 6:53:31 PM

Sample Type ICB

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.11605	ug/l	218.7	113	
Se	78	72	H2	0.01230	ug/l	72.2	6	
Cu	63	72	He	0.00582	ug/l	1.5	127	
Cu	65	72	He	-0.00144	ug/l	N/A	55	
Zn	66	72	He	-0.04671	ug/l	N/A	90	
Mo	95	115	He	0.01015	ug/l	22.3	21	
Mo	98	115	He	0.00850	ug/l	70.6	31	
Ag	107	115	He	0.00449	ug/l	73.0	43	
Ag	109	115	He	0.00364	ug/l	79.2	35	
Cd	111	115	He	0.00675	ug/l	49.4	6	
Pb	208	175	He	0.00661	ug/l	37.7	224	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	322510	2.1	327980.96	98.33	
Sc	45	He	54567	4.0	54757.42	99.65	
Ge	72	He	53799	4.8	52464.24	102.54	
In	115	He	521200	4.4	543963.06	95.82	
Lu	175	He	1342646	4.8	1386582.42	96.83	
Th	232	He	2449893	2.1	2476539.08	98.92	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 007_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 6:55:35 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.16089	ug/l	162.4	120	
Se	78	72	H2	-0.00137	ug/l	N/A	3	
Cu	63	72	He	0.01924	ug/l	71.9	170	
Cu	65	72	He	-0.00279	ug/l	N/A	52	
Zn	66	72	He	-0.07901	ug/l	N/A	77	
Mo	95	115	He	0.00394	ug/l	120.8	11	
Mo	98	115	He	0.00263	ug/l	24.3	14	
Ag	107	115	He	0.00129	ug/l	184.8	23	
Ag	109	115	He	0.00076	ug/l	403.1	17	
Cd	111	115	He	0.00203	ug/l	76.6	2	
Pb	208	175	He	0.00467	ug/l	53.0	190	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	332476	1.8	327980.96	101.37	
Sc	45	He	54206	1.4	54757.42	98.99	
Ge	72	He	53267	1.5	52464.24	101.53	
In	115	He	531584	3.4	543963.06	97.72	
Lu	175	He	1363760	3.6	1386582.42	98.35	
Th	232	He	2418247	4.4	2476539.08	97.65	

Low Level Initial Calibration Verification (LLICV) Report

Sample Name LLICVT

File Name 008LICV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 6:57:40 PM

Sample Type LLICV

Comment —

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc.RSD	CPS	% Rec	QC Flag
Se	77	72	H2	1.69134	ug/l	14.5	227	-169.13	
Se	78	72	H2	2.05188	ug/l	5.1	505	102.59	
Cu	63	72	He	0.22762	ug/l	12.9	880	113.81	
Cu	65	72	He	0.21507	ug/l	10.0	408	107.54	
Zn	66	72	He	1.14925	ug/l	25.8	570	114.93	
Mo	95	115	He	0.19735	ug/l	3.3	339	98.68	
Mo	98	115	He	0.20862	ug/l	16.6	639	104.31	
Ag	107	115	He	0.03461	ug/l	22.7	247	86.52	
Ag	109	115	He	0.03747	ug/l	7.1	257	93.68	
Cd	111	115	He	0.05130	ug/l	10.6	39	128.25	LLICV Failed
[Pb]	206	175	He	0.05920	ug/l	12.2	314	148	
[Pb]	207	175	He	0.05239	ug/l	3.4	240	130.98	
Pb	208	175	He	0.05425	ug/l	3.5	1136	135.62	LLICV Failed

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	319258	1.3	327980.96	97.34	
Sc	45	He	55818	1.2	54757.42	101.94	
Ge	72	He	54295	2.3	52464.24	103.49	
In	115	He	533227	2.8	543963.06	98.03	
Lu	175	He	1354924	0.6	1386582.42	97.72	
Th	232	He	2441148	6.1	2476539.08	98.57	

see rerun am 10/28/24

Low Level Initial Calibration Verification (LLICV) Report

Sample Name	LLICVT
File Name	009LICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b
Acq Time	2024-10-28 7:00:23 PM
Sample Type	LLICV
Comment	---
ISTD Ref FileName	002CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc.RSD	CPS	% Rec	QC Flag
Se	77	72	H2	1.80965	ug/l	44.7	233	-180.96	
Se	78	72	H2	1.98353	ug/l	5.6	487	99.18	
Cu	63	72	He	0.19578	ug/l	8.7	760	97.89	
Cu	65	72	He	0.18943	ug/l	6.5	360	94.71	
Zn	66	72	He	0.91297	ug/l	3.4	467	91.3	
Mo	95	115	He	0.18654	ug/l	23.7	320	93.27	
Mo	98	115	He	0.21545	ug/l	7.0	657	107.72	
Ag	107	115	He	0.04146	ug/l	30.3	293	103.65	
Ag	109	115	He	0.03981	ug/l	23.6	272	99.52	
~~Cd~~	~~111~~	~~115~~	~~He~~	~~0.05019~~	~~ug/l~~	~~9.9~~	~~39~~	~~125.48~~	~~LLICV Failed~~
[Pb]	206	175	He	0.05261	ug/l	3.2	280	131.52	
[Pb]	207	175	He	0.05407	ug/l	9.2	244	135.18	
~~Pb~~	~~208~~	~~175~~	~~He~~	~~0.05248~~	~~ug/l~~	~~2.4~~	~~1090~~	~~131.2~~	~~LLICV Failed~~

*2X ANN 10/28/24

*

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	317801	2.3	327980.96	96.9	
Sc	45	He	55751	2.6	54757.42	101.82	
Ge	72	He	53441	1.9	52464.24	101.86	
In	115	He	532431	0.6	543963.06	97.88	
Lu	175	He	1340020	2.3	1386582.42	96.64	
Th	232	He	2440359	2.1	2476539.08	98.54	

Low Level Continuing Calibration Verification (LLCCV) Report

Sample Name	LLICVT 2X
File Name	010_QC1.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b
Acq Time	2024-10-28 7:03:02 PM
Sample Type	QC1
Comment	---
ISTD Ref FileName	002CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	4.31252	ug/l	13.3	423	-431.25	
Se	78	72	H2	3.79348	ug/l	4.2	947	94.84	
Cu	63	72	He	0.37318	ug/l	12.5	1360	93.29	
Cu	65	72	He	0.40277	ug/l	5.1	708	100.69	
Zn	66	72	He	1.82439	ug/l	20.7	830	91.22	
Mo	95	115	He	0.40686	ug/l	3.8	701	101.72	
Mo	98	115	He	0.39673	ug/l	6.6	1217	99.18	
Ag	107	115	He	0.07703	ug/l	9.1	538	96.29	
Ag	109	115	He	0.07736	ug/l	8.1	523	96.7	
Cd	111	115	He	0.09131	ug/l	5.2	70	114.14	
[Pb]	206	175	He	0.09608	ug/l	15.9	497	120.1	
[Pb]	207	175	He	0.08304	ug/l	9.1	374	103.8	
Pb	208	175	He	0.09012	ug/l	3.1	1845	112.65	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	324479	2.4	327980.96	98.93	
Sc	45	He	55166	1.7	54757.42	100.75	
Ge	72	He	53823	3.1	52464.24	102.59	
In	115	He	538327	0.5	543963.06	98.96	
Lu	175	He	1373308	2.6	1386582.42	99.04	
Th	232	He	2434337	0.9	2476539.08	98.3	

Sample Report

Sample Name LRSTD

File Name 011SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:05:08 PM

Sample Type Sample

Comment +1000ppb +50ppb Ag

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	48.07223	ug/l	1.3	10905	
Se	78	72	H2	46.53640	ug/l	3.5	34386	
Cu	63	72	He	122.96224	ug/l	70.2	828081	
Cu	65	72	He	128.69253	ug/l	71.7	416543	
Zn	66	72	He	118.41339	ug/l	73.7	94049	
Mo	95	115	He	139.23541	ug/l	74.0	440288	
Mo	98	115	He	137.35447	ug/l	73.8	774500	
Ag	107	115	He	6.72198	ug/l	71.9	84135	
Ag	109	115	He	6.82968	ug/l	71.5	83578	
Cd	111	115	He	127.93633	ug/l	76.5	179830	
Pb	208	175	He	138.28282	ug/l	73.9	5325081	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	967626	19.2	327980.96	295.03	Flag
Sc	45	He	116084	35.0	54757.42	212	Flag
Ge	72	He	116828	35.4	52464.24	222.68	Flag
In	115	He	1105080	38.0	543963.06	203.15	Flag
Lu	175	He	3015595	36.1	1386582.42	217.48	Flag
Th	232	He	5664952	36.1	2476539.08	228.74	Flag

see return on 10/28/24

Sample Report

Sample Name LRSTD

File Name 012SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:09:34 PM

Sample Type Sample

Comment +1000ppb +25ppb Ag

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	1076.87298	ug/l	2.7	74597	
Se	78	72	H2	1032.65475	ug/l	0.8	240464	
Cu	63	72	He	965.68784	ug/l	1.1	3098991	
Cu	65	72	He	981.96965	ug/l	1.2	1513589	
Zn	66	72	He	987.17303	ug/l	1.5	372466	
Mo	95	115	He	981.76675	ug/l	0.4	1611724	
Mo	98	115	He	960.10499	ug/l	0.9	2807927	
Ag	107	115	He	24.30817	ug/l	0.5	158341	
Ag	109	115	He	24.73902	ug/l	1.1	156924	
Cd	111	115	He	967.53337	ug/l	0.7	704463	
Pb	208	175	He	981.08680	ug/l	1.4	18490009	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	303727	1.8	327980.96	92.61	
Sc	45	He	53841	1.4	54757.42	98.33	
Ge	72	He	51323	1.6	52464.24	97.82	
In	115	He	516124	1.3	543963.06	94.88	
Lu	175	He	1338045	1.6	1386582.42	96.5	
Th	232	He	2393379	2.5	2476539.08	96.64	

Sample Report

Sample Name MO STD

File Name 013SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:11:33 PM

Sample Type Sample

Comment ---

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.01791	ug/l	1629.8	103	
Se	78	72	H2	0.19786	ug/l	28.6	51	
Cu	63	72	He	0.25825	ug/l	28.4	947	
Cu	65	72	He	0.28947	ug/l	59.9	510	
Zn	66	72	He	0.29875	ug/l	58.5	220	
Mo	95	115	He	198.47649	ug/l	1.2	334119	
Mo	98	115	He	196.27522	ug/l	0.7	588673	
Ag	107	115	He	0.00799	ug/l	126.2	68	
Ag	109	115	He	0.00772	ug/l	57.3	62	
Cd	111	115	He	0.24967	ug/l	47.6	188	
Pb	208	175	He	0.29759	ug/l	42.4	5713	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	313982	2.0	327980.96	95.73	
Sc	45	He	54229	1.0	54757.42	99.03	
Ge	72	He	52059	2.4	52464.24	99.23	
In	115	He	529266	0.8	543963.06	97.3	
Lu	175	He	1340612	0.4	1386582.42	96.68	
Th	232	He	2466661	1.0	2476539.08	99.6	

Interference Check Solution A (ICS-A) Report

Sample Name ICSA

File Name 014ICSA.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:13:37 PM

Sample Type ICSA

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	ExpValue	CPS	QC Flag
Se	77	72	H2	0.52889	ug/l	66.0	-1	137	
Se	78	72	H2	0.06870	ug/l	55.0	-1	19	
Cu	63	72	He	0.76095	ug/l	18.6	-1	2587	
Cu	65	72	He	0.73316	ug/l	13.0	-1	1203	
Zn	66	72	He	0.52422	ug/l	39.9	-1	307	
Mo	95	115	He	51.37196	ug/l	1.0	50	83147	
Mo	98	115	He	50.40792	ug/l	1.2	50	145350	
Ag	107	115	He	0.01185	ug/l	35.1	-1	90	
Ag	109	115	He	0.01369	ug/l	42.6	-1	97	
Cd	111	115	He	0.60922	ug/l	29.2	-1	438	
[Pb]	206	175	He	0.48665	ug/l	29.5	-1	2315	
[Pb]	207	175	He	0.47628	ug/l	33.7	-1	1988	
Pb	208	175	He	0.47582	ug/l	31.3	-1	9021	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	307122	0.7	327980.96	93.64	
Sc	45	He	54406	1.2	54757.42	99.36	
Ge	72	He	52093	1.6	52464.24	99.29	
In	115	He	508847	1.0	543963.06	93.54	
Lu	175	He	1325826	2.0	1386582.42	95.62	
Th	232	He	2397379	2.1	2476539.08	96.8	

Interference Check Solution AB (ICS-AB) Report

Sample Name ICSAB

File Name 015ICSB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:15:41 PM

Sample Type ICSB

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	ExpValue	CPS	QC Flag
Se	77	72	H2	23.44563	ug/l	2.0	25	1747	
Se	78	72	H2	24.99265	ug/l	1.4	25	5911	
Cu	63	72	He	46.23772	ug/l	0.7	50	151059	
Cu	65	72	He	46.94253	ug/l	1.2	50	73673	
Zn	66	72	He	25.14465	ug/l	2.5	25	9754	
Mo	95	115	He	51.06532	ug/l	1.2	50	82885	
Mo	98	115	He	51.35495	ug/l	1.6	50	148502	
Ag	107	115	He	11.60692	ug/l	1.0	12.5	74759	
Ag	109	115	He	11.87029	ug/l	1.3	12.5	74444	
Cd	111	115	He	24.36120	ug/l	0.6	25	17538	
[Pb]	206	175	He	0.27567	ug/l	13.4	-1	1329	
[Pb]	207	175	He	0.26948	ug/l	5.9	-1	1135	
Pb	208	175	He	0.26521	ug/l	9.5	-1	5085	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	308282	1.8	327980.96	93.99	
Sc	45	He	54015	1.4	54757.42	98.64	
Ge	72	He	52213	1.3	52464.24	99.52	
In	115	He	510282	0.8	543963.06	93.81	
Lu	175	He	1333217	1.9	1386582.42	96.15	
Th	232	He	2428392	2.2	2476539.08	98.06	

Sample Report

Sample Name MO STD

File Name 016SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:17:45 PM

Sample Type Sample

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	-0.16443	ug/l	N/A	90	
Se	78	72	H2	0.03108	ug/l	29.5	11	
Cu	63	72	He	0.16153	ug/l	59.9	640	
Cu	65	72	He	0.15806	ug/l	89.4	307	
Zn	66	72	He	0.20567	ug/l	81.6	187	
Mo	95	115	He	199.35759	ug/l	1.2	337552	
Mo	98	115	He	196.96184	ug/l	2.3	594118	
Ag	107	115	He	0.00925	ug/l	87.1	77	
Ag	109	115	He	0.00846	ug/l	53.9	67	
Cd	111	115	He	0.13700	ug/l	66.8	104	
Pb	208	175	He	0.12452	ug/l	70.8	2508	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	314459	1.1	327980.96	95.88	
Sc	45	He	54798	1.4	54757.42	100.07	
Ge	72	He	52909	2.0	52464.24	100.85	
In	115	He	532328	0.8	543963.06	97.86	
Lu	175	He	1365621	2.6	1386582.42	98.49	
Th	232	He	2439559	1.7	2476539.08	98.51	

Sample Report

Sample Name K2409822-053

File Name 017SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:19:50 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	7.85784	ug/l	7.6	660	
Se	78	72	H2	7.16618	ug/l	1.7	1718	
Cu	63	72	He	5.98488	ug/l	2.8	19904	
Cu	65	72	He	6.13760	ug/l	4.3	9812	
Zn	66	72	He	309.67260	ug/l	2.5	120532	
Mo	95	115	He	0.60636	ug/l	5.1	1032	
Mo	98	115	He	0.59688	ug/l	12.1	1808	
Ag	107	115	He	0.10504	ug/l	3.3	722	
Ag	109	115	He	0.11911	ug/l	3.6	792	
Cd	111	115	He	1.81560	ug/l	1.4	1366	
Pb	208	175	He	0.89263	ug/l	2.5	16997	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	312117	0.2	327980.96	95.16	
Sc	45	He	55263	3.9	54757.42	100.92	
Ge	72	He	52933	3.0	52464.24	100.89	
In	115	He	533128	1.3	543963.06	98.01	
Lu	175	He	1344193	1.8	1386582.42	96.94	
Th	232	He	2491929	2.0	2476539.08	100.62	

Sample Report

Sample Name K2409822-054

File Name 018SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:21:53 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	9.86906	ug/l	8.4	747	
Se	78	72	H2	10.71072	ug/l	4.4	2382	
Cu	63	72	He	5.62326	ug/l	5.5	18409	
Cu	65	72	He	5.88906	ug/l	5.1	9263	
Zn	66	72	He	241.78264	ug/l	2.3	92671	
Mo	95	115	He	0.24434	ug/l	57.7	406	
Mo	98	115	He	0.25450	ug/l	55.7	753	
Ag	107	115	He	0.07760	ug/l	4.1	525	
Ag	109	115	He	0.06841	ug/l	2.4	450	
Cd	111	115	He	1.38719	ug/l	9.0	1019	
Pb	208	175	He	0.28420	ug/l	23.2	5419	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	289990	3.4	327980.96	88.42	
Sc	45	He	53879	3.4	54757.42	98.4	
Ge	72	He	52110	3.5	52464.24	99.33	
In	115	He	521495	6.2	543963.06	95.87	
Lu	175	He	1333289	5.0	1386582.42	96.16	
Th	232	He	2381923	4.4	2476539.08	96.18	

Sample Report

Sample Name K2409822-055

File Name 019SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:23:56 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	9.45245	ug/l	28.8	800	
Se	78	72	H2	8.60445	ug/l	2.8	2128	
Cu	63	72	He	6.46293	ug/l	2.9	21850	
Cu	65	72	He	6.56669	ug/l	0.6	10672	
Zn	66	72	He	319.43670	ug/l	1.1	126466	
Mo	95	115	He	0.14340	ug/l	57.0	250	
Mo	98	115	He	0.14286	ug/l	38.0	442	
Ag	107	115	He	0.10269	ug/l	10.4	708	
Ag	109	115	He	0.09866	ug/l	16.3	660	
Cd	111	115	He	0.79671	ug/l	5.5	603	
Pb	208	175	He	0.59029	ug/l	6.6	11531	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	322229	2.4	327980.96	98.25	
Sc	45	He	55731	1.5	54757.42	101.78	
Ge	72	He	53823	2.2	52464.24	102.59	
In	115	He	535778	2.1	543963.06	98.5	
Lu	175	He	1374344	0.9	1386582.42	99.12	
Th	232	He	2420592	2.1	2476539.08	97.74	

Sample Report

Sample Name K2409822-056

File Name 020SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:26:00 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	9.58557	ug/l	20.8	823	
Se	78	72	H2	8.73798	ug/l	3.2	2202	
Cu	63	72	He	6.49430	ug/l	0.3	22194	
Cu	65	72	He	6.46786	ug/l	2.8	10619	
Zn	66	72	He	277.43799	ug/l	3.4	110971	
Mo	95	115	He	0.16109	ug/l	26.6	284	
Mo	98	115	He	0.16204	ug/l	9.1	508	
Ag	107	115	He	0.06196	ug/l	7.6	442	
Ag	109	115	He	0.05987	ug/l	15.4	413	
Cd	111	115	He	1.27220	ug/l	1.3	980	
Pb	208	175	He	0.21276	ug/l	3.7	4247	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	328075	1.1	327980.96	100.03	
Sc	45	He	56307	0.9	54757.42	102.83	
Ge	72	He	54388	2.5	52464.24	103.67	
In	115	He	545379	1.2	543963.06	100.26	
Lu	175	He	1382984	0.3	1386582.42	99.74	
Th	232	He	2521786	1.9	2476539.08	101.83	

Sample Report

Sample Name K2409822-057

File Name 021SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:28:03 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	6.00249	ug/l	15.2	560	
Se	78	72	H2	6.68290	ug/l	4.5	1697	
Cu	63	72	He	5.25419	ug/l	3.3	18085	
Cu	65	72	He	5.33022	ug/l	4.3	8819	
Zn	66	72	He	313.33457	ug/l	1.0	126139	
Mo	95	115	He	0.11980	ug/l	8.4	212	
Mo	98	115	He	0.10369	ug/l	6.7	328	
Ag	107	115	He	0.03345	ug/l	15.6	245	
Ag	109	115	He	0.02888	ug/l	26.3	205	
Cd	111	115	He	0.72941	ug/l	1.1	563	
Pb	208	175	He	0.37991	ug/l	4.4	7630	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	330722	1.5	327980.96	100.84	
Sc	45	He	57522	1.3	54757.42	105.05	
Ge	72	He	54726	1.4	52464.24	104.31	
In	115	He	545872	2.3	543963.06	100.35	
Lu	175	He	1406155	0.3	1386582.42	101.41	
Th	232	He	2483417	0.4	2476539.08	100.28	

Sample Report

Sample Name K2409822-058

File Name 022SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:30:06 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	10.62619	ug/l	12.7	913	
Se	78	72	H2	8.98281	ug/l	3.6	2298	
Cu	63	72	He	7.88173	ug/l	1.7	26866	
Cu	65	72	He	7.96218	ug/l	0.2	13044	
Zn	66	72	He	332.36569	ug/l	1.4	132753	
Mo	95	115	He	0.19165	ug/l	23.9	334	
Mo	98	115	He	0.20640	ug/l	13.8	640	
Ag	107	115	He	0.07948	ug/l	0.6	558	
Ag	109	115	He	0.07664	ug/l	8.8	522	
Cd	111	115	He	1.57540	ug/l	3.8	1205	
Pb	208	175	He	0.68311	ug/l	3.3	13551	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	333296	2.7	327980.96	101.62	
Sc	45	He	56561	0.8	54757.42	103.29	
Ge	72	He	54304	2.3	52464.24	103.51	
In	115	He	541731	0.8	543963.06	99.59	
Lu	175	He	1397518	0.4	1386582.42	100.79	
Th	232	He	2456849	0.6	2476539.08	99.2	

Sample Report

Sample Name K2409822-059

File Name 023SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:32:09 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	11.49397	ug/l	10.7	963	
Se	78	72	H2	10.10423	ug/l	2.0	2538	
Cu	63	72	He	6.32014	ug/l	2.7	22274	
Cu	65	72	He	6.47736	ug/l	1.3	10971	
Zn	66	72	He	264.82284	ug/l	1.2	109302	
Mo	95	115	He	0.25712	ug/l	14.0	453	
Mo	98	115	He	0.24646	ug/l	11.4	773	
Ag	107	115	He	0.11670	ug/l	16.3	825	
Ag	109	115	He	0.12344	ug/l	7.6	845	
Cd	111	115	He	2.02952	ug/l	0.7	1574	
Pb	208	175	He	0.31573	ug/l	4.8	6344	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	327228	3.0	327980.96	99.77	
Sc	45	He	57087	1.4	54757.42	104.25	
Ge	72	He	56094	1.5	52464.24	106.92	
In	115	He	549533	1.5	543963.06	101.02	
Lu	175	He	1403025	0.7	1386582.42	101.19	
Th	232	He	2515575	2.8	2476539.08	101.58	

Sample Report

Sample Name K2409822-060

File Name 024SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:34:13 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	9.48348	ug/l	8.1	827	
Se	78	72	H2	8.98402	ug/l	5.3	2293	
Cu	63	72	He	10.75448	ug/l	1.8	36691	
Cu	65	72	He	11.24902	ug/l	2.8	18435	
Zn	66	72	He	418.85232	ug/l	0.5	167592	
Mo	95	115	He	0.25499	ug/l	8.7	456	
Mo	98	115	He	0.24678	ug/l	6.4	784	
Ag	107	115	He	0.06408	ug/l	4.1	465	
Ag	109	115	He	0.06046	ug/l	2.5	425	
Cd	111	115	He	2.37169	ug/l	1.1	1861	
Pb	208	175	He	1.15845	ug/l	4.8	23083	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	332543	1.5	327980.96	101.39	
Sc	45	He	57552	2.5	54757.42	105.1	
Ge	72	He	54401	0.8	52464.24	103.69	
In	115	He	556020	0.2	543963.06	102.22	
Lu	175	He	1409293	2.7	1386582.42	101.64	
Th	232	He	2542921	2.0	2476539.08	102.68	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 025_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:36:19 PM

Sample Type CCV

Comment ---

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	27.97869	ug/l	4.2	2250	111.91	
Se	78	72	H2	25.12282	ug/l	2.7	6475	100.49	
Cu	63	72	He	25.15812	ug/l	0.8	89091	100.63	
Cu	65	72	He	25.73295	ug/l	1.7	43774	102.93	
Zn	66	72	He	25.62476	ug/l	5.3	10768	102.5	
Mo	95	115	He	12.38206	ug/l	1.2	21893	99.06	
Mo	98	115	He	12.07822	ug/l	0.9	38046	96.63	
Ag	107	115	He	12.10439	ug/l	1.3	84911	96.84	
Ag	109	115	He	12.23822	ug/l	1.3	83596	97.91	
Cd	111	115	He	24.46857	ug/l	0.8	19186	97.87	
Pb	208	175	He	25.00604	ug/l	0.4	496339	100.02	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	335957	0.7	327980.96	102.43	
Sc	45	He	57612	0.4	54757.42	105.21	
Ge	72	He	56560	0.3	52464.24	107.81	
In	115	He	555796	1.2	543963.06	102.18	
Lu	175	He	1408765	0.5	1386582.42	101.6	
Th	232	He	2517586	2.1	2476539.08	101.66	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 026_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:38:23 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.50898	ug/l	127.0	150	
Se	78	72	H2	0.00093	ug/l	889.5	4	
Cu	63	72	He	0.07164	ug/l	8.2	370	
Cu	65	72	He	0.06974	ug/l	29.0	180	
Zn	66	72	He	0.62931	ug/l	12.1	380	
Mo	95	115	He	0.05836	ug/l	23.0	109	
Mo	98	115	He	0.06856	ug/l	8.0	226	
Ag	107	115	He	0.01472	ug/l	14.7	120	
Ag	109	115	He	0.01295	ug/l	34.4	102	
Cd	111	115	He	0.05013	ug/l	8.3	41	
Pb	208	175	He	0.05985	ug/l	10.2	1281	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	339566	1.9	327980.96	103.53	
Sc	45	He	58931	1.2	54757.42	107.62	
Ge	72	He	57209	1.1	52464.24	109.04	
In	115	He	563312	1.9	543963.06	103.56	
Lu	175	He	1398339	1.6	1386582.42	100.85	
Th	232	He	2548421	0.4	2476539.08	102.9	

Prep Blank (PB) Report

Sample Name KQ2416991-01

File Name 027_PB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:40:29 PM

Sample Type PB

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.29638	ug/l	165.0	133	
Se	78	72	H2	-0.00302	ug/l	N/A	3	
Cu	63	72	He	-0.00510	ug/l	N/A	93	
Cu	65	72	He	0.01449	ug/l	43.3	83	
Zn	66	72	He	-0.08049	ug/l	N/A	80	
Mo	95	115	He	0.00494	ug/l	39.3	13	
Mo	98	115	He	0.00414	ug/l	110.0	20	
Ag	107	115	He	0.00017	ug/l	232.1	17	
Ag	109	115	He	0.00020	ug/l	426.8	13	
Cd	111	115	He	0.00398	ug/l	30.9	4	
[Pb]	206	175	He	0.00304	ug/l	12.1	49	
[Pb]	207	175	He	0.00434	ug/l	34.7	40	
Pb	208	175	He	0.00551	ug/l	13.8	217	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	340431	0.1	327980.96	103.8	
Sc	45	He	59138	0.6	54757.42	108	
Ge	72	He	56072	1.2	52464.24	106.88	
In	115	He	558687	0.9	543963.06	102.71	
Lu	175	He	1429216	0.4	1386582.42	103.07	
Th	232	He	2522864	2.7	2476539.08	101.87	

Laboratory Control Sample (LCS) Report

Sample Name KQ2416991-02

File Name 028_LCS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:42:32 PM

Sample Type LCS

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	36.43577	ug/l	3.1	2934	33.3	109.42	
Se	78	72	H2	33.82086	ug/l	2.3	8822	33.3	101.56	
Cu	63	72	He	49.57826	ug/l	1.4	172400	50	99.16	
Cu	65	72	He	51.55349	ug/l	1.3	86110	50	103.11	
Zn	66	72	He	101.42752	ug/l	2.9	41538	100	101.43	
Mo	95	115	He	33.87282	ug/l	1.0	59025	33.3	101.72	
Mo	98	115	He	33.21560	ug/l	1.0	103118	33.3	99.75	
Ag	107	115	He	9.58364	ug/l	1.0	66270	10	95.84	
Ag	109	115	He	9.85390	ug/l	1.0	66347	10	98.54	
Cd	111	115	He	9.71614	ug/l	1.5	7510	10	97.16	
[Pb]	206	175	He	103.02947	ug/l	1.5	499249	100	103.03	
[Pb]	207	175	He	99.57544	ug/l	1.7	424796	100	99.58	
Pb	208	175	He	102.30802	ug/l	1.4	1980952	100	102.31	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	340075	1.4	327980.96	103.69	
Sc	45	He	56314	0.5	54757.42	102.84	
Ge	72	He	55579	1.3	52464.24	105.94	
In	115	He	547853	1.7	543963.06	100.72	
Lu	175	He	1374603	1.5	1386582.42	99.14	
Th	232	He	2498363	1.2	2476539.08	100.88	

Laboratory Control Sample (LCS) Report

Sample Name KQ2416991-03

File Name 029_QC4.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:44:36 PM

Sample Type QC4

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	4.22112	ug/l	6.9	433	4.8	87.94	
Se	78	72	H2	4.58137	ug/l	0.8	1186	4.8	95.45	
Cu	63	72	He	5.95260	ug/l	4.1	20642	6.6	90.19	
Cu	65	72	He	6.16553	ug/l	1.5	10272	6.6	93.42	
Zn	66	72	He	53.54516	ug/l	1.5	21820	57.4	93.28	
Mo	95	115	He	0.25783	ug/l	9.4	456	-1	-25.78	
Mo	98	115	He	0.22773	ug/l	8.4	717	-1	-22.77	
Ag	107	115	He	0.22909	ug/l	6.1	1603	0.27	84.85	
Ag	109	115	He	0.24514	ug/l	5.3	1668	0.27	90.79	
Cd	111	115	He	0.27257	ug/l	9.5	212	0.296	92.08	
Pb	208	175	He	0.13978	ug/l	4.8	2862	0.116	120.5	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	336776	1.9	327980.96	102.68	
Sc	45	He	57923	1.7	54757.42	105.78	
Ge	72	He	55161	0.9	52464.24	105.14	
In	115	He	549771	1.9	543963.06	101.07	
Lu	175	He	1400689	0.9	1386582.42	101.02	
Th	232	He	2572156	1.6	2476539.08	103.86	

Laboratory Control Sample (LCS) Report

Sample Name KQ2416991-04

File Name 030_QC5.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:46:39 PM

Sample Type QC5

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	19.72850	ug/l	13.3	1630	21.8	90.5	
Se	78	72	H2	19.68917	ug/l	4.7	5110	21.8	90.32	
Cu	63	72	He	832.35215	ug/l	2.1	2973365	994	83.74	
Cu	65	72	He	854.78305	ug/l	2.9	1466599	994	85.99	
Zn	66	72	He	247.22037	ug/l	3.3	103902	272	90.89	
Mo	95	115	He	6.49840	ug/l	2.3	11295	6.88	94.45	
Mo	98	115	He	6.26943	ug/l	1.8	19412	6.88	91.13	
Ag	107	115	He	2.53374	ug/l	3.0	17481	-1	-253.37	
Ag	109	115	He	2.53163	ug/l	1.5	17006	-1	-253.16	
Cd	111	115	He	74.93672	ug/l	0.6	57747	84.6	88.58	
Pb	208	175	He	0.38409	ug/l	3.8	7798	0.45	85.35	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	338187	0.9	327980.96	103.11	
Sc	45	He	57926	1.9	54757.42	105.79	
Ge	72	He	57149	3.0	52464.24	108.93	
In	115	He	546215	0.2	543963.06	100.41	
Lu	175	He	1422091	0.9	1386582.42	102.56	
Th	232	He	2582256	0.5	2476539.08	104.27	

Reference Sample Report

Sample Name	K2409822-062
File Name	031_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b
Acq Time	2024-10-28 7:48:41 PM
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	002CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	9.13181	ug/l	3.0	817	
Se	78	72	H2	9.05279	ug/l	2.2	2360	
Cu	63	72	He	6.66197	ug/l	3.0	23446	
Cu	65	72	He	6.91639	ug/l	1.4	11697	
Zn	66	72	He	294.86770	ug/l	1.0	121533	
Mo	95	115	He	0.16318	ug/l	22.4	294	
Mo	98	115	He	0.14494	ug/l	4.5	466	
Ag	107	115	He	0.13331	ug/l	2.6	955	
Ag	109	115	He	0.12624	ug/l	1.2	878	
Cd	111	115	He	2.11934	ug/l	2.4	1671	
Pb	208	175	He	0.63258	ug/l	2.4	12783	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	339522	1.8	327980.96	103.52	
Sc	45	He	58111	2.2	54757.42	106.12	
Ge	72	He	56024	0.9	52464.24	106.79	
In	115	He	558466	0.1	543963.06	102.67	
Lu	175	He	1422529	0.5	1386582.42	102.59	
Th	232	He	2589979	1.5	2476539.08	104.58	

Duplicate Sample Report

Sample Name	KQ2416991-05
File Name	032_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b
Acq Time	2024-10-28 7:50:44 PM
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	002CALB.d
Sample QC Pass/Fial	Pass
ISTD Ref FileName	Pass
QC Ref File Name	031_
Default Text	ARF ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	RPD	Flag
Se	77	72	H2	9.30957	ug/l	12.2	840		<5x MRL
Se	78	72	H2	9.20914	ug/l	3.2	2429		<5x MRL
Cu	63	72	He	5.98898	ug/l	1.8	20846	10.64	
Cu	65	72	He	6.25582	ug/l	1.4	10459	10.03	
Zn	66	72	He	302.31924	ug/l	0.8	123123	2.5	
Mo	95	115	He	0.13086	ug/l	18.3	233		<5x MRL
Mo	98	115	He	0.13467	ug/l	4.6	427		<5x MRL
Ag	107	115	He	0.14030	ug/l	8.0	990		<5x MRL
Ag	109	115	He	0.14983	ug/l	10.5	1023		<5x MRL
Cd	111	115	He	2.24582	ug/l	0.9	1744	5.8	
[Pb]	206	175	He	0.70415	ug/l	0.7	3470	9.5	
[Pb]	207	175	He	0.66043	ug/l	5.7	2860	5.96	
Pb	208	175	He	0.69430	ug/l	1.9	13650	9.3	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	343535	0.1	327980.96	104.74	
Sc	45	He	58027	2.8	54757.42	105.97	
Ge	72	He	55362	1.8	52464.24	105.52	
In	115	He	550109	1.9	543963.06	101.13	
Lu	175	He	1384905	1.4	1386582.42	99.88	
Th	232	He	2544787	1.9	2476539.08	102.76	

Sample Report

Sample Name K2409822-062L

File Name 033SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:52:48 PM

Sample Type Sample

Comment 25X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	1.86481	ug/l	11.5	253	
Se	78	72	H2	1.80882	ug/l	2.7	473	
Cu	63	72	He	1.29406	ug/l	9.8	4614	
Cu	65	72	He	1.35249	ug/l	5.9	2320	
Zn	66	72	He	60.26024	ug/l	2.6	24775	
Mo	95	115	He	0.03281	ug/l	25.8	62	
Mo	98	115	He	0.02149	ug/l	18.7	74	
Ag	107	115	He	0.02551	ug/l	20.2	193	
Ag	109	115	He	0.02540	ug/l	17.2	185	
Cd	111	115	He	0.44576	ug/l	1.6	350	
Pb	208	175	He	0.12320	ug/l	1.6	2547	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	338298	1.3	327980.96	103.15	
Sc	45	He	58971	2.7	54757.42	107.69	
Ge	72	He	55693	1.5	52464.24	106.15	
In	115	He	554369	1.9	543963.06	101.91	
Lu	175	He	1407481	1.3	1386582.42	101.51	
Th	232	He	2517719	0.5	2476539.08	101.66	

Post Digestion Spike Sample (PDS) Report

Sample Name K2409822-062A

File Name 034_PDS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:54:51 PM

Sample Type PDS

Comment 5X +50ppb +5ppb Ag

ISTD Ref FileName 002CALB.d

QC Ref File Name 031_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Se	77	H2	61.59190	ug/l	5.9	4978	50	104.92	
Se	78	H2	58.60645	ug/l	1.6	15580	50	99.11	
Cu	63	He	54.28886	ug/l	1.2	191450	50	95.25	
Cu	65	He	56.08914	ug/l	2.7	95002	50	98.35	
Zn	66	He	336.89896	ug/l	2.7	139672	50	84.06	
Mo	95	He	49.14608	ug/l	0.9	86686	50	97.97	
Mo	98	He	48.41405	ug/l	0.6	152133	50	96.54	
Ag	107	He	4.83756	ug/l	1.2	33867	5	94.08	
Ag	109	He	4.88334	ug/l	1.2	33288	5	95.14	
Cd	111	He	49.72069	ug/l	0.5	38895	50	95.2	
[Pb]	206	He	49.46724	ug/l	2.9	250039	50	97.65	
[Pb]	207	He	47.41310	ug/l	3.0	210992	50	93.58	
Pb	208	He	48.91049	ug/l	2.7	987898	50	96.56	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	346692	1.4	327980.96	105.7	
Sc	45	He	59078	0.9	54757.42	107.89	
Ge	72	He	56363	0.6	52464.24	107.43	
In	115	He	554496	0.6	543963.06	101.94	
Lu	175	He	1434414	3.0	1386582.42	103.45	
Th	232	He	2595768	2.7	2476539.08	104.81	

Matrix Spike Sample (MS) Report

Sample Name KQ2416991-06

File Name 035_SPK.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:56:55 PM

Sample Type Spike

Comment 5X

ISTD Ref FileName 002CALB.d

QC Ref File Name 031_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Se	77	H2	46.01701	ug/l	2.8	3667	33.3	110.77	
Se	78	H2	43.64056	ug/l	1.7	11358	33.3	103.87	
Cu	63	He	54.30581	ug/l	2.0	188516	50	95.29	
Cu	65	He	55.82898	ug/l	2.2	93096	50	97.83	
Zn	66	He	422.41560	ug/l	1.5	172387	100	127.55	Spike Failed
Mo	95	He	33.71188	ug/l	0.9	58235	33.3	100.75	
Mo	98	He	33.16435	ug/l	1.6	102056	33.3	99.16	
Ag	107	He	9.42511	ug/l	2.1	64600	10	92.92	
Ag	109	He	9.57419	ug/l	0.8	63905	10	94.48	
Cd	111	He	11.95915	ug/l	1.7	9162	10	98.4	
[Pb]	206	He	98.20721	ug/l	1.8	484081	100	97.57	
[Pb]	207	He	96.94886	ug/l	0.9	420742	100	96.33	
Pb	208	He	98.55604	ug/l	1.0	1941186	100	97.92	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	339326	0.8	327980.96	103.46	
Sc	45	He	58372	1.6	54757.42	106.6	
Ge	72	He	55492	1.4	52464.24	105.77	
In	115	He	543093	1.7	543963.06	99.84	
Lu	175	He	1398173	0.4	1386582.42	100.84	
Th	232	He	2541798	2.8	2476539.08	102.64	

Sample Report

Sample Name K2409822-061

File Name 036SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 7:58:58 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	5.54840	ug/l	10.8	530	
Se	78	72	H2	5.14731	ug/l	4.4	1320	
Cu	63	72	He	5.15870	ug/l	2.3	17912	
Cu	65	72	He	5.24929	ug/l	1.2	8761	
Zn	66	72	He	306.11248	ug/l	2.5	124276	
Mo	95	115	He	0.17166	ug/l	7.5	297	
Mo	98	115	He	0.17215	ug/l	4.5	529	
Ag	107	115	He	0.03551	ug/l	13.7	255	
Ag	109	115	He	0.02637	ug/l	3.6	185	
Cd	111	115	He	0.62123	ug/l	4.3	470	
Pb	208	175	He	0.26673	ug/l	5.4	5275	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	333690	0.5	327980.96	101.74	
Sc	45	He	57796	1.1	54757.42	105.55	
Ge	72	He	55195	1.2	52464.24	105.2	
In	115	He	535581	1.2	543963.06	98.46	
Lu	175	He	1376622	0.6	1386582.42	99.28	
Th	232	He	2472772	2.1	2476539.08	99.85	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 037_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:01:03 PM

Sample Type CCV

Comment —

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	25.31478	ug/l	9.0	2067	101.26	
Se	78	72	H2	25.08235	ug/l	2.6	6524	100.33	
Cu	63	72	He	25.17346	ug/l	3.0	88270	100.69	
Cu	65	72	He	26.13158	ug/l	2.0	44021	104.53	
Zn	66	72	He	26.64008	ug/l	2.3	11085	106.56	
Mo	95	115	He	12.33638	ug/l	0.5	21779	98.69	
Mo	98	115	He	11.93094	ug/l	0.4	37527	95.45	
Ag	107	115	He	11.99876	ug/l	1.5	84047	95.99	
Ag	109	115	He	12.34681	ug/l	0.7	84209	98.77	
Cd	111	115	He	24.39249	ug/l	1.0	19097	97.57	
Pb	208	175	He	25.41153	ug/l	1.9	496512	101.65	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	339053	1.4	327980.96	103.38	
Sc	45	He	57963	2.0	54757.42	105.85	
Ge	72	He	56024	1.8	52464.24	106.79	
In	115	He	554931	1.0	543963.06	102.02	
Lu	175	He	1387063	2.3	1386582.42	100.03	
Th	232	He	2475739	1.0	2476539.08	99.97	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 038_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:03:08 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.30059	ug/l	136.9	133	
Se	78	72	H2	0.00726	ug/l	132.9	5	
Cu	63	72	He	0.04130	ug/l	90.3	253	
Cu	65	72	He	0.02114	ug/l	99.3	93	
Zn	66	72	He	0.14321	ug/l	60.5	170	
Mo	95	115	He	0.01610	ug/l	102.4	32	
Mo	98	115	He	0.01000	ug/l	35.8	38	
Ag	107	115	He	0.00336	ug/l	47.4	38	
Ag	109	115	He	0.00244	ug/l	43.4	28	
Cd	111	115	He	0.01023	ug/l	79.9	9	
Pb	208	175	He	0.01882	ug/l	48.3	463	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	339438	0.3	327980.96	103.49	
Sc	45	He	57625	1.3	54757.42	105.24	
Ge	72	He	55301	0.5	52464.24	105.41	
In	115	He	548883	2.3	543963.06	100.9	
Lu	175	He	1366608	0.6	1386582.42	98.56	
Th	232	He	2491407	1.9	2476539.08	100.6	

Sample Report

Sample Name K2409822-063

File Name 039SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:05:13 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	5.85221	ug/l	19.8	557	
Se	78	72	H2	5.67457	ug/l	4.5	1466	
Cu	63	72	He	5.90338	ug/l	4.2	20341	
Cu	65	72	He	5.96451	ug/l	4.7	9875	
Zn	66	72	He	253.14548	ug/l	2.4	102132	
Mo	95	115	He	0.15715	ug/l	10.5	271	
Mo	98	115	He	0.16002	ug/l	15.3	490	
Ag	107	115	He	0.09148	ug/l	12.2	630	
Ag	109	115	He	0.10239	ug/l	9.9	682	
Cd	111	115	He	1.53290	ug/l	0.8	1154	
Pb	208	175	He	0.36872	ug/l	2.4	7204	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	336199	1.0	327980.96	102.51	
Sc	45	He	56481	2.0	54757.42	103.15	
Ge	72	He	54850	3.0	52464.24	104.55	
In	115	He	533108	2.0	543963.06	98	
Lu	175	He	1367628	0.8	1386582.42	98.63	
Th	232	He	2452571	1.4	2476539.08	99.03	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 040_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:07:18 PM

Sample Type CCV

Comment ---

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	26.64646	ug/l	9.8	2107	106.59	
Se	78	72	H2	25.35315	ug/l	2.5	6404	101.41	
Cu	63	72	He	25.57151	ug/l	2.0	89024	102.29	
Cu	65	72	He	25.51383	ug/l	2.7	42657	102.06	
Zn	66	72	He	25.09947	ug/l	3.1	10367	100.4	
Mo	95	115	He	12.42890	ug/l	1.4	21707	99.43	
Mo	98	115	He	12.06368	ug/l	0.8	37537	96.51	
Ag	107	115	He	12.06986	ug/l	1.5	83636	96.56	
Ag	109	115	He	12.20372	ug/l	1.7	82337	97.63	
Cd	111	115	He	24.53131	ug/l	1.1	19000	98.13	
Pb	208	175	He	25.25041	ug/l	2.2	491829	101	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	329194	1.2	327980.96	100.37	
Sc	45	He	57009	1.6	54757.42	104.11	
Ge	72	He	55599	1.3	52464.24	105.98	
In	115	He	549016	1.3	543963.06	100.93	
Lu	175	He	1382917	2.3	1386582.42	99.74	
Th	232	He	2408946	1.6	2476539.08	97.27	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 041_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:09:22 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.19005	ug/l	114.8	123	
Se	78	72	H2	-0.00030	ug/l	N/A	3	
Cu	63	72	He	0.00854	ug/l	156.8	140	
Cu	65	72	He	0.01990	ug/l	64.0	92	
Zn	66	72	He	0.04384	ug/l	222.8	130	
Mo	95	115	He	0.00974	ug/l	23.4	21	
Mo	98	115	He	0.00802	ug/l	47.7	31	
Ag	107	115	He	0.00271	ug/l	42.5	33	
Ag	109	115	He	0.00228	ug/l	69.1	27	
Cd	111	115	He	0.00857	ug/l	55.1	7	
Pb	208	175	He	0.01039	ug/l	49.1	303	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	336038	2.2	327980.96	102.46	
Sc	45	He	56441	1.1	54757.42	103.07	
Ge	72	He	55479	1.7	52464.24	105.75	
In	115	He	539032	0.8	543963.06	99.09	
Lu	175	He	1376394	1.1	1386582.42	99.27	
Th	232	He	2476317	1.1	2476539.08	99.99	

Prep Blank (PB) Report

Sample Name KQ2417335-01

File Name 042_PB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:11:28 PM

Sample Type PB

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.20506	ug/l	7.8	120	
Se	78	72	H2	-0.00112	ug/l	N/A	3	
Cu	63	72	He	0.04756	ug/l	20.0	273	
Cu	65	72	He	0.04562	ug/l	14.4	133	
Zn	66	72	He	0.09650	ug/l	137.6	150	
Mo	95	115	He	0.02726	ug/l	45.3	51	
Mo	98	115	He	0.02227	ug/l	17.8	74	
Ag	107	115	He	0.01055	ug/l	50.1	87	
Ag	109	115	He	0.01108	ug/l	25.7	85	
Cd	111	115	He	0.02237	ug/l	11.0	18	
[Pb]	206	175	He	0.02564	ug/l	14.7	154	
[Pb]	207	175	He	0.03329	ug/l	13.6	160	
Pb	208	175	He	0.02755	ug/l	12.2	627	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	323560	1.0	327980.96	98.65	
Sc	45	He	56852	2.1	54757.42	103.83	
Ge	72	He	55074	0.9	52464.24	104.97	
In	115	He	538495	2.2	543963.06	98.99	
Lu	175	He	1358228	2.3	1386582.42	97.96	
Th	232	He	2461638	0.4	2476539.08	99.4	

Laboratory Control Sample (LCS) Report

Sample Name KQ2417335-02

File Name 043_LCS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:13:31 PM

Sample Type LCS

Comment 5X

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	34.61687	ug/l	4.1	2747	33.3	103.95	
Se	78	72	H2	32.48866	ug/l	2.0	8339	33.3	97.56	
Cu	63	72	He	47.05924	ug/l	1.9	163575	50	94.12	
Cu	65	72	He	47.90075	ug/l	1.0	79987	50	95.8	
Zn	66	72	He	93.74551	ug/l	0.8	38399	100	93.75	
Mo	95	115	He	33.07377	ug/l	0.7	56676	33.3	99.32	
Mo	98	115	He	32.32423	ug/l	2.8	98653	33.3	97.07	
Ag	107	115	He	7.93678	ug/l	2.2	53958	10	79.37	LCS Failed
Ag	109	115	He	8.08437	ug/l	0.6	53528	10	80.84	
Cd	111	115	He	9.34137	ug/l	2.5	7098	10	93.41	
[Pb]	206	175	He	96.68642	ug/l	1.2	471664	100	96.69	
[Pb]	207	175	He	95.25294	ug/l	2.0	409066	100	95.25	
Pb	208	175	He	97.14345	ug/l	1.5	1893538	100	97.14	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	334544	1.8	327980.96	102	
Sc	45	He	55323	1.4	54757.42	101.03	
Ge	72	He	55559	1.6	52464.24	105.9	
In	115	He	538714	2.0	543963.06	99.04	
Lu	175	He	1383906	2.0	1386582.42	99.81	
Th	232	He	2476461	2.3	2476539.08	100	

Sample Report

Sample Name KQ2417335-03

File Name 044SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:15:34 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.37949	ug/l	135.2	133	
Se	78	72	H2	0.12833	ug/l	12.2	35	
Cu	63	72	He	7.89643	ug/l	3.2	27437	
Cu	65	72	He	8.47831	ug/l	3.6	14150	
Zn	66	72	He	52.97609	ug/l	1.9	21664	
Mo	95	115	He	0.74586	ug/l	4.2	1293	
Mo	98	115	He	0.73360	ug/l	2.3	2267	
Ag	107	115	He	0.03157	ug/l	24.6	232	
Ag	109	115	He	0.04002	ug/l	21.5	278	
Cd	111	115	He	2.57646	ug/l	2.6	1976	
Pb	208	175	He	1.14600	ug/l	3.3	22076	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	326009	2.1	327980.96	99.4	
Sc	45	He	56461	0.8	54757.42	103.11	
Ge	72	He	55358	1.8	52464.24	105.52	
In	115	He	543541	1.6	543963.06	99.92	
Lu	175	He	1361230	0.3	1386582.42	98.17	
Th	232	He	2482895	1.9	2476539.08	100.26	

Sample Report

Sample Name KQ2417335-04

File Name 045SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:17:38 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	13.45388	ug/l	12.4	1100	
Se	78	72	H2	12.74212	ug/l	2.6	3173	
Cu	63	72	He	23.08624	ug/l	4.7	81077	
Cu	65	72	He	23.89370	ug/l	3.5	40320	
Zn	66	72	He	49.69035	ug/l	3.5	20609	
Mo	95	115	He	13.09325	ug/l	1.2	22702	
Mo	98	115	He	12.94606	ug/l	1.8	39989	
Ag	107	115	He	0.01089	ug/l	65.7	90	
Ag	109	115	He	0.01020	ug/l	26.3	80	
Cd	111	115	He	0.32450	ug/l	6.8	250	
Pb	208	175	He	0.94821	ug/l	2.3	18852	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	324415	0.9	327980.96	98.91	
Sc	45	He	56909	1.4	54757.42	103.93	
Ge	72	He	56142	3.3	52464.24	107.01	
In	115	He	544991	0.1	543963.06	100.19	
Lu	175	He	1403259	1.7	1386582.42	101.2	
Th	232	He	2487317	0.8	2476539.08	100.44	

Reference Sample Report

Sample Name K2410170-004

File Name 046_ARF.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:19:41 PM

Sample Type AllRef

Comment 5X

ISTD Ref FileName 002CALB.d

Sample QC Pass/Fial Pass

ISTD QC Pass/Fail Pass

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.06720	ug/l	977.7	113	
Se	78	72	H2	0.37940	ug/l	9.3	100	
Cu	63	72	He	11.75435	ug/l	2.4	41237	
Cu	65	72	He	12.14370	ug/l	6.1	20458	
Zn	66	72	He	33.10450	ug/l	0.8	13730	
Mo	95	115	He	13.74669	ug/l	0.5	24394	
Mo	98	115	He	13.46155	ug/l	1.5	42555	
Ag	107	115	He	0.00894	ug/l	17.1	78	
Ag	109	115	He	0.01236	ug/l	12.6	97	
Cd	111	115	He	0.25480	ug/l	5.0	201	
Pb	208	175	He	0.13933	ug/l	5.3	2801	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	333382	0.5	327980.96	101.65	
Sc	45	He	57853	2.7	54757.42	105.65	
Ge	72	He	55967	1.8	52464.24	106.68	
In	115	He	557769	0.5	543963.06	102.54	
Lu	175	He	1376043	1.4	1386582.42	99.24	
Th	232	He	2478906	3.2	2476539.08	100.1	

Duplicate Sample Report

Sample Name	KQ2417335-05
File Name	047_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b
Acq Time	2024-10-28 8:21:45 PM
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	002CALB.d
Sample QC Pass/Fial	Pass
ISTD Ref FileName	Pass
QC Ref File Name	046_
Default Text	ARF ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	RPD	Flag
Se	77	72	H2	0.67541	ug/l	121.5	160		<5x MRL
Se	78	72	H2	0.36336	ug/l	7.5	97		<5x MRL
Cu	63	72	He	11.31715	ug/l	2.7	39977	3.79	
Cu	65	72	He	11.57071	ug/l	2.6	19635	4.83	
Zn	66	72	He	32.27320	ug/l	3.6	13477	2.54	
Mo	95	115	He	14.42652	ug/l	1.5	25254	4.83	
Mo	98	115	He	14.11785	ug/l	0.9	44026	4.76	
Ag	107	115	He	0.00764	ug/l	56.0	68		<5x MRL
Ag	109	115	He	0.00712	ug/l	36.6	60		<5x MRL
Cd	111	115	He	0.26259	ug/l	3.2	205		<5x MRL
[Pb]	206	175	He	0.09650	ug/l	14.2	506		<5x MRL
[Pb]	207	175	He	0.09651	ug/l	12.2	437		<5x MRL
Pb	208	175	He	0.09618	ug/l	11.1	1987		<5x MRL

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	334763	0.1	327980.96	102.07	
Sc	45	He	57639	1.8	54757.42	105.26	
Ge	72	He	56336	0.8	52464.24	107.38	
In	115	He	550233	0.8	543963.06	101.15	
Lu	175	He	1392985	2.7	1386582.42	100.46	
Th	232	He	2493573	0.9	2476539.08	100.69	

Sample Report

Sample Name K2410170-004L

File Name 048SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:23:48 PM

Sample Type Sample

Comment 25X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.40641	ug/l	130.7	143	
Se	78	72	H2	0.07232	ug/l	49.2	23	
Cu	63	72	He	2.34907	ug/l	5.5	8469	
Cu	65	72	He	2.47301	ug/l	3.3	4287	
Zn	66	72	He	7.11685	ug/l	3.3	3090	
Mo	95	115	He	2.76136	ug/l	0.7	4924	
Mo	98	115	He	2.75193	ug/l	1.3	8742	
Ag	107	115	He	0.00700	ug/l	36.4	65	
Ag	109	115	He	0.00431	ug/l	35.2	42	
Cd	111	115	He	0.06114	ug/l	10.0	49	
Pb	208	175	He	0.05066	ug/l	1.4	1101	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	344110	2.0	327980.96	104.92	
Sc	45	He	58800	3.3	54757.42	107.38	
Ge	72	He	56895	1.8	52464.24	108.44	
In	115	He	560110	0.2	543963.06	102.97	
Lu	175	He	1397801	1.8	1386582.42	100.81	
Th	232	He	2493929	2.2	2476539.08	100.7	

Post Digestion Spike Sample (PDS) Report

Sample Name K2410170-004A

File Name 049_PDS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:25:51 PM

Sample Type PDS

Comment 5X +50ppb +5ppb Ag

ISTD Ref FileName 002CALB.d

QC Ref File Name 046_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Se	77	H2	50.51704	ug/l	0.9	4011	50	100.9	
Se	78	H2	49.80010	ug/l	2.1	12944	50	98.84	
Cu	63	He	59.28550	ug/l	0.6	205501	50	95.06	
Cu	65	He	61.15002	ug/l	1.0	101824	50	98.01	
Zn	66	He	84.65466	ug/l	0.7	34586	50	103.1	
Mo	95	He	62.63726	ug/l	0.3	109369	50	97.78	
Mo	98	He	61.84902	ug/l	1.6	192378	50	96.77	
Ag	107	He	4.63844	ug/l	1.0	32147	5	92.59	
Ag	109	He	4.65438	ug/l	1.4	31407	5	92.84	
Cd	111	He	47.53929	ug/l	0.7	36815	50	94.57	
[Pb]	206	He	50.09030	ug/l	1.0	242291	50	99.89	
[Pb]	207	He	48.16492	ug/l	0.2	205126	50	96.06	
Pb	208	He	49.54966	ug/l	0.5	957716	50	98.82	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	338897	0.7	327980.96	103.33	
Sc	45	He	57425	1.4	54757.42	104.87	
Ge	72	He	55405	1.4	52464.24	105.61	
In	115	He	548922	1.4	543963.06	100.91	
Lu	175	He	1371969	0.7	1386582.42	98.95	
Th	232	He	2461172	1.4	2476539.08	99.38	

Matrix Spike Sample (MS) Report

Sample Name KQ2417335-06

File Name 050_SPK.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:27:54 PM

Sample Type Spike

Comment 5X

ISTD Ref FileName 002CALB.d

QC Ref File Name 046_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Se	77	H2	32.95861	ug/l	4.0	2627	33.3	98.77	
Se	78	H2	32.37365	ug/l	1.6	8329	33.3	96.08	
Cu	63	He	57.17883	ug/l	1.3	201339	50	90.85	
Cu	65	He	58.27440	ug/l	0.3	98569	50	92.26	
Zn	66	He	129.04368	ug/l	0.5	53497	100	95.94	
Mo	95	He	45.76496	ug/l	1.9	81744	33.3	96.15	
Mo	98	He	45.33636	ug/l	0.9	144268	33.3	95.72	
Ag	107	He	8.64584	ug/l	1.2	61290	10	86.37	
Ag	109	He	8.80437	ug/l	2.0	60761	10	87.92	
Cd	111	He	9.26762	ug/l	1.6	7342	10	90.13	
[Pb]	206	He	91.14138	ug/l	3.1	461624	100	91	
[Pb]	207	He	90.32005	ug/l	3.0	402778	100	90.19	
Pb	208	He	91.34180	ug/l	3.2	1848549	100	91.2	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	335450	1.3	327980.96	102.28	
Sc	45	He	58693	2.1	54757.42	107.19	
Ge	72	He	56282	0.5	52464.24	107.28	
In	115	He	561558	1.5	543963.06	103.23	
Lu	175	He	1437866	4.2	1386582.42	103.7	
Th	232	He	2538031	0.9	2476539.08	102.48	

Matrix Spike Sample (MS) Report

Sample Name KQ2417335-07

File Name 051_SPK.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:29:58 PM

Sample Type Spike

Comment 5X

ISTD Ref FileName 002CALB.d

QC Ref File Name 046_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Se	77	H2	32.89439	ug/l	1.7	2670	33.3	98.58	
Se	78	H2	32.26597	ug/l	3.2	8452	33.3	95.76	
Cu	63	He	56.79271	ug/l	1.8	200632	50	90.08	
Cu	65	He	58.06637	ug/l	0.9	98546	50	91.85	
Zn	66	He	124.94756	ug/l	0.1	51979	100	91.84	
Mo	95	He	45.61839	ug/l	1.0	80265	33.3	95.71	
Mo	98	He	45.08979	ug/l	1.9	141330	33.3	94.98	
Ag	107	He	8.89785	ug/l	1.1	62126	10	88.89	
Ag	109	He	8.91774	ug/l	1.8	60626	10	89.05	
Cd	111	He	9.38028	ug/l	1.7	7320	10	91.25	
[Pb]	206	He	93.07509	ug/l	1.5	463128	100	92.93	
[Pb]	207	He	92.17489	ug/l	2.6	403763	100	92.04	
Pb	208	He	93.75616	ug/l	1.6	1864092	100	93.62	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	341511	1.5	327980.96	104.13	
Sc	45	He	59054	0.7	54757.42	107.85	
Ge	72	He	56473	1.7	52464.24	107.64	
In	115	He	553159	1.2	543963.06	101.69	
Lu	175	He	1411652	2.1	1386582.42	101.81	
Th	232	He	2490273	2.4	2476539.08	100.55	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 052_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:32:04 PM

Sample Type CCV

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	24.32279	ug/l	7.5	1987	97.29	
Se	78	72	H2	24.70759	ug/l	1.9	6422	98.83	
Cu	63	72	He	24.84494	ug/l	0.5	86674	99.38	
Cu	65	72	He	25.69707	ug/l	0.9	43062	102.79	
Zn	66	72	He	25.98351	ug/l	5.3	10754	103.93	
Mo	95	115	He	12.03723	ug/l	1.7	21332	96.3	
Mo	98	115	He	11.93695	ug/l	1.3	37683	95.5	
Ag	107	115	He	12.02199	ug/l	1.1	84522	96.18	
Ag	109	115	He	12.02688	ug/l	0.8	82337	96.22	
Cd	111	115	He	24.23729	ug/l	0.3	19047	96.95	
Pb	208	175	He	25.17331	ug/l	0.5	499451	100.69	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	338847	1.3	327980.96	103.31	
Sc	45	He	57746	1.1	54757.42	105.46	
Ge	72	He	55716	1.4	52464.24	106.2	
In	115	He	556990	0.5	543963.06	102.39	
Lu	175	He	1408159	0.9	1386582.42	101.56	
Th	232	He	2490384	2.0	2476539.08	100.56	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 053_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:34:09 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.03636	ug/l	715.6	113	
Se	78	72	H2	0.02882	ug/l	59.8	11	
Cu	63	72	He	0.01666	ug/l	92.0	170	
Cu	65	72	He	0.03141	ug/l	69.5	112	
Zn	66	72	He	0.01569	ug/l	541.2	120	
Mo	95	115	He	0.02983	ug/l	39.0	58	
Mo	98	115	He	0.02530	ug/l	9.5	88	
Ag	107	115	He	0.00511	ug/l	45.4	52	
Ag	109	115	He	0.00642	ug/l	10.3	57	
Cd	111	115	He	0.01191	ug/l	29.1	10	
Pb	208	175	He	0.03678	ug/l	28.2	841	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	340663	0.7	327980.96	103.87	
Sc	45	He	57813	2.2	54757.42	105.58	
Ge	72	He	56158	1.6	52464.24	107.04	
In	115	He	563769	2.6	543963.06	103.64	
Lu	175	He	1418857	1.5	1386582.42	102.33	
Th	232	He	2546210	1.1	2476539.08	102.81	

Sample Report

Sample Name K2410170-001

File Name 054SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:36:14 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.61359	ug/l	168.1	163	
Se	78	72	H2	0.33648	ug/l	1.8	94	
Cu	63	72	He	8.68414	ug/l	0.8	31371	
Cu	65	72	He	9.07154	ug/l	0.7	15747	
Zn	66	72	He	22.42817	ug/l	3.4	9607	
Mo	95	115	He	12.40159	ug/l	1.7	21980	
Mo	98	115	He	12.46482	ug/l	2.8	39354	
Ag	107	115	He	0.01062	ug/l	61.4	90	
Ag	109	115	He	0.00972	ug/l	46.8	78	
Cd	111	115	He	0.25788	ug/l	5.1	204	
Pb	208	175	He	0.07699	ug/l	19.9	1642	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	350631	1.8	327980.96	106.91	
Sc	45	He	58382	1.1	54757.42	106.62	
Ge	72	He	57567	2.4	52464.24	109.73	
In	115	He	557122	0.9	543963.06	102.42	
Lu	175	He	1416702	2.3	1386582.42	102.17	
Th	232	He	2537231	1.4	2476539.08	102.45	

Sample Report

Sample Name K2410170-002

File Name 055SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:38:17 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.89300	ug/l	62.0	180	
Se	78	72	H2	0.20119	ug/l	9.1	56	
Cu	63	72	He	8.97739	ug/l	3.0	31983	
Cu	65	72	He	9.44109	ug/l	2.9	16158	
Zn	66	72	He	24.77912	ug/l	2.4	10457	
Mo	95	115	He	7.04306	ug/l	2.0	12295	
Mo	98	115	He	7.05820	ug/l	1.5	21953	
Ag	107	115	He	0.00791	ug/l	32.4	70	
Ag	109	115	He	0.00715	ug/l	9.0	60	
Cd	111	115	He	0.35399	ug/l	7.8	275	
Pb	208	175	He	0.08139	ug/l	1.8	1727	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	341029	2.1	327980.96	103.98	
Sc	45	He	57793	1.8	54757.42	105.54	
Ge	72	He	56777	1.0	52464.24	108.22	
In	115	He	548696	1.2	543963.06	100.87	
Lu	175	He	1414765	0.5	1386582.42	102.03	
Th	232	He	2517130	0.7	2476539.08	101.64	

Sample Report

Sample Name K2410170-003

File Name 056SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:40:21 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	-0.30617	ug/l	N/A	87	
Se	78	72	H2	0.17119	ug/l	9.4	48	
Cu	63	72	He	11.13968	ug/l	2.1	39953	
Cu	65	72	He	11.92055	ug/l	3.6	20533	
Zn	66	72	He	28.77489	ug/l	3.7	12219	
Mo	95	115	He	20.55954	ug/l	1.3	36324	
Mo	98	115	He	20.49126	ug/l	1.2	64502	
Ag	107	115	He	0.00992	ug/l	20.5	85	
Ag	109	115	He	0.00830	ug/l	67.5	68	
Cd	111	115	He	0.10807	ug/l	8.2	86	
Pb	208	175	He	0.06625	ug/l	7.0	1441	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	342038	2.4	327980.96	104.29	
Sc	45	He	58422	1.4	54757.42	106.69	
Ge	72	He	57213	2.6	52464.24	109.05	
In	115	He	555410	0.9	543963.06	102.1	
Lu	175	He	1431188	0.8	1386582.42	103.22	
Th	232	He	2516264	1.4	2476539.08	101.6	

Sample Report

Sample Name K2410170-005

File Name 057SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:42:25 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.16643	ug/l	124.8	127	
Se	78	72	H2	0.34224	ug/l	12.3	95	
Cu	63	72	He	9.18876	ug/l	1.2	32651	
Cu	65	72	He	9.49010	ug/l	1.3	16199	
Zn	66	72	He	35.92456	ug/l	4.3	15065	
Mo	95	115	He	12.44493	ug/l	1.7	22070	
Mo	98	115	He	12.43047	ug/l	1.9	39261	
Ag	107	115	He	0.00519	ug/l	64.7	52	
Ag	109	115	He	0.00723	ug/l	33.6	62	
Cd	111	115	He	0.26181	ug/l	6.1	207	
Pb	208	175	He	0.11603	ug/l	3.9	2465	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	350127	1.3	327980.96	106.75	
Sc	45	He	59192	0.8	54757.42	108.1	
Ge	72	He	56627	0.9	52464.24	107.93	
In	115	He	557387	1.9	543963.06	102.47	
Lu	175	He	1442726	0.5	1386582.42	104.05	
Th	232	He	2546221	0.9	2476539.08	102.81	

Sample Report

Sample Name K2410170-006

File Name 058SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:44:28 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.24928	ug/l	122.0	133	
Se	78	72	H2	0.23414	ug/l	1.7	66	
Cu	63	72	He	8.38605	ug/l	1.3	30834	
Cu	65	72	He	8.60286	ug/l	1.8	15197	
Zn	66	72	He	23.99486	ug/l	6.6	10457	
Mo	95	115	He	5.42050	ug/l	2.6	9759	
Mo	98	115	He	5.36273	ug/l	2.2	17200	
Ag	107	115	He	0.00598	ug/l	6.7	58	
Ag	109	115	He	0.00568	ug/l	6.6	52	
Cd	111	115	He	0.10876	ug/l	6.8	88	
Pb	208	175	He	0.07314	ug/l	2.2	1582	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	349702	0.7	327980.96	106.62	
Sc	45	He	60484	3.0	54757.42	110.46	
Ge	72	He	58584	1.6	52464.24	111.67	
In	115	He	565765	0.6	543963.06	104.01	
Lu	175	He	1432856	0.5	1386582.42	103.34	
Th	232	He	2560044	0.5	2476539.08	103.37	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 059_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:46:33 PM

Sample Type CCV

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	25.01596	ug/l	7.9	2080	100.06	
Se	78	72	H2	24.48303	ug/l	2.5	6486	97.93	
Cu	63	72	He	24.48722	ug/l	1.7	88850	97.95	
Cu	65	72	He	25.12786	ug/l	2.2	43796	100.51	
Zn	66	72	He	24.92071	ug/l	2.2	10734	99.68	
Mo	95	115	He	12.02009	ug/l	1.0	21795	96.16	
Mo	98	115	He	11.78019	ug/l	1.9	38056	94.24	
Ag	107	115	He	11.80452	ug/l	0.6	84921	94.44	
Ag	109	115	He	12.05764	ug/l	0.9	84465	96.46	
Cd	111	115	He	23.99031	ug/l	0.2	19290	95.96	
Pb	208	175	He	24.60742	ug/l	1.3	502415	98.43	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	345365	0.9	327980.96	105.3	
Sc	45	He	60336	4.1	54757.42	110.19	
Ge	72	He	57962	1.9	52464.24	110.48	
In	115	He	569935	0.5	543963.06	104.77	
Lu	175	He	1449195	0.9	1386582.42	104.52	
Th	232	He	2530909	0.3	2476539.08	102.2	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 060_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:48:37 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.00927	ug/l	1221.0	110	
Se	78	72	H2	0.03192	ug/l	17.9	12	
Cu	63	72	He	0.02507	ug/l	129.7	203	
Cu	65	72	He	0.02329	ug/l	148.0	100	
Zn	66	72	He	0.09651	ug/l	140.9	157	
Mo	95	115	He	0.02018	ug/l	84.6	40	
Mo	98	115	He	0.03056	ug/l	120.7	102	
Ag	107	115	He	0.01024	ug/l	97.8	87	
Ag	109	115	He	0.00805	ug/l	69.4	67	
Cd	111	115	He	0.01990	ug/l	110.9	16	
Pb	208	175	He	0.02745	ug/l	100.7	659	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	336914	1.2	327980.96	102.72	
Sc	45	He	58465	1.2	54757.42	106.77	
Ge	72	He	57276	1.1	52464.24	109.17	
In	115	He	554407	1.3	543963.06	101.92	
Lu	175	He	1421864	1.1	1386582.42	102.54	
Th	232	He	2510397	0.9	2476539.08	101.37	

Prep Blank (PB) Report

Sample Name KQ2417334-01

File Name 061_PB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:50:42 PM

Sample Type PB

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.44007	ug/l	31.6	147	
Se	78	72	H2	-0.00572	ug/l	N/A	2	
Cu	63	72	He	0.06870	ug/l	33.3	360	
Cu	65	72	He	0.07710	ug/l	56.1	193	
Zn	66	72	He	-0.03781	ug/l	N/A	100	
Mo	95	115	He	0.02258	ug/l	97.5	44	
Mo	98	115	He	0.01689	ug/l	104.8	60	
Ag	107	115	He	0.00210	ug/l	265.7	30	
Ag	109	115	He	0.00266	ug/l	119.8	30	
Cd	111	115	He	0.00891	ug/l	146.4	8	
[Pb]	206	175	He	0.01455	ug/l	111.3	103	
[Pb]	207	175	He	0.02567	ug/l	86.2	130	
Pb	208	175	He	0.01953	ug/l	87.1	482	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	345493	0.8	327980.96	105.34	
Sc	45	He	57883	2.2	54757.42	105.71	
Ge	72	He	57146	1.9	52464.24	108.92	
In	115	He	553601	1.0	543963.06	101.77	
Lu	175	He	1384943	2.7	1386582.42	99.88	
Th	232	He	2523864	1.9	2476539.08	101.91	

Laboratory Control Sample (LCS) Report

Sample Name KQ2417334-02

File Name 062_LCS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:52:46 PM

Sample Type LCS

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	34.37572	ug/l	6.9	2730	33.3	103.23	
Se	78	72	H2	34.10243	ug/l	0.2	8750	33.3	102.41	
Cu	63	72	He	47.58553	ug/l	0.8	166775	50	95.17	
Cu	65	72	He	49.27663	ug/l	0.6	82955	50	98.55	
Zn	66	72	He	97.52405	ug/l	1.9	40264	100	97.52	
Mo	95	115	He	32.80706	ug/l	0.9	57728	33.3	98.52	
Mo	98	115	He	32.37450	ug/l	1.8	101487	33.3	97.22	
Ag	107	115	He	9.06412	ug/l	1.9	63287	10	90.64	
Ag	109	115	He	9.38114	ug/l	0.7	63783	10	93.81	
Cd	111	115	He	9.40754	ug/l	1.2	7342	10	94.08	
[Pb]	206	175	He	98.82249	ug/l	2.1	486171	100	98.82	
[Pb]	207	175	He	96.29387	ug/l	2.0	417097	100	96.29	
Pb	208	175	He	98.84228	ug/l	1.2	1943196	100	98.84	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	334530	1.8	327980.96	102	
Sc	45	He	57200	0.9	54757.42	104.46	
Ge	72	He	56011	0.9	52464.24	106.76	
In	115	He	553186	1.1	543963.06	101.7	
Lu	175	He	1395673	1.3	1386582.42	100.66	
Th	232	He	2550010	1.3	2476539.08	102.97	

Laboratory Control Sample (LCS) Report

Sample Name	KQ2417334-03
File Name	063_QC4.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b
Acq Time	2024-10-28 8:54:49 PM
Sample Type	QC4
Comment	5X
ISTD Ref FileName	002CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	4.62977	ug/l	4.7	460	4.8	96.45	
Se	78	72	H2	4.57082	ug/l	1.3	1172	4.8	95.23	
Cu	63	72	He	5.85418	ug/l	1.9	20138	6.6	88.7	
Cu	65	72	He	6.18072	ug/l	0.6	10214	6.6	93.65	
Zn	66	72	He	54.05948	ug/l	2.8	21847	57.4	94.18	
Mo	95	115	He	0.24980	ug/l	1.7	426	-1	-24.98	
Mo	98	115	He	0.25483	ug/l	6.3	772	-1	-25.48	
Ag	107	115	He	0.24303	ug/l	3.7	1640	0.27	90.01	
Ag	109	115	He	0.24044	ug/l	5.0	1577	0.27	89.05	
Cd	111	115	He	0.28351	ug/l	2.9	213	0.296	95.78	
Pb	208	175	He	0.14643	ug/l	4.1	2933	0.116	126.23	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	333567	0.3	327980.96	101.7	
Sc	45	He	56949	0.8	54757.42	104	
Ge	72	He	54709	0.6	52464.24	104.28	
In	115	He	530029	1.5	543963.06	97.44	
Lu	175	He	1373202	2.1	1386582.42	99.04	
Th	232	He	2435381	2.7	2476539.08	98.34	

Laboratory Control Sample (LCS) Report

Sample Name KQ2417334-04

File Name 064_QC5.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 8:56:52 PM

Sample Type QC5

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Se	77	72	H2	21.34895	ug/l	4.5	1700	21.8	97.93	
Se	78	72	H2	19.62062	ug/l	2.3	4933	21.8	90	
Cu	63	72	He	854.33378	ug/l	2.1	2865357	994	85.95	
Cu	65	72	He	889.70928	ug/l	4.1	1432910	994	89.51	
Zn	66	72	He	256.99408	ug/l	1.5	101431	272	94.48	
Mo	95	115	He	6.46026	ug/l	2.1	10864	6.88	93.9	
Mo	98	115	He	6.26078	ug/l	3.9	18756	6.88	91	
Ag	107	115	He	11.30527	ug/l	2.5	75415	-1	-1130.53	
Ag	109	115	He	11.49174	ug/l	1.2	74649	-1	-1149.17	
Cd	111	115	He	75.16684	ug/l	1.2	56047	84.6	88.85	
Pb	208	175	He	0.40376	ug/l	3.3	7824	0.45	89.72	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	327655	0.7	327980.96	99.9	
Sc	45	He	55624	0.8	54757.42	101.58	
Ge	72	He	53648	2.0	52464.24	102.26	
In	115	He	528538	0.7	543963.06	97.16	
Lu	175	He	1358624	2.1	1386582.42	97.98	
Th	232	He	2442682	0.6	2476539.08	98.63	

Reference Sample Report

Sample Name	K2409565-004
File Name	065_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b
Acq Time	2024-10-28 8:58:58 PM
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	002CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	22.34820	ug/l	7.3	1740	
Se	78	72	H2	19.19859	ug/l	2.4	4732	
Cu	63	72	He	7.30828	ug/l	1.0	25032	
Cu	65	72	He	7.29640	ug/l	0.3	12010	
Zn	66	72	He	166.61599	ug/l	0.4	66907	
Mo	95	115	He	0.14442	ug/l	10.5	252	
Mo	98	115	He	0.14447	ug/l	15.3	448	
Ag	107	115	He	0.04382	ug/l	18.3	313	
Ag	109	115	He	0.04562	ug/l	30.8	313	
Cd	111	115	He	0.67663	ug/l	0.2	516	
Pb	208	175	He	0.14183	ug/l	4.0	2873	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	321262	0.8	327980.96	97.95	
Sc	45	He	55815	0.8	54757.42	101.93	
Ge	72	He	54542	1.7	52464.24	103.96	
In	115	He	539353	1.0	543963.06	99.15	
Lu	175	He	1386824	1.4	1386582.42	100.02	
Th	232	He	2503052	1.0	2476539.08	101.07	

Duplicate Sample Report

Sample Name	KQ2417334-05
File Name	066_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b
Acq Time	2024-10-28 9:01:02 PM
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	002CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	065_
Default Text	ARF ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	RPD	Flag
Se	77	72	H2	18.01394	ug/l	4.5	1457	21.48	Dup Failed
Se	78	72	H2	18.54091	ug/l	4.7	4680	3.49	
Cu	63	72	He	6.91058	ug/l	4.4	23920	5.59	
Cu	65	72	He	6.96748	ug/l	1.7	11596	4.61	
Zn	66	72	He	170.38537	ug/l	2.0	69148	2.24	
Mo	95	115	He	0.14453	ug/l	18.1	252		<5x MRL
Mo	98	115	He	0.12620	ug/l	9.6	392		<5x MRL
Ag	107	115	He	0.03799	ug/l	13.0	273		<5x MRL
Ag	109	115	He	0.03777	ug/l	9.6	262		<5x MRL
Cd	111	115	He	0.63725	ug/l	3.5	486	5.99	
[Pb]	206	175	He	0.12927	ug/l	11.0	666		<5x MRL
[Pb]	207	175	He	0.12285	ug/l	13.2	550		<5x MRL
Pb	208	175	He	0.12697	ug/l	12.1	2587		<5x MRL

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	328977	0.3	327980.96	100.3	
Sc	45	He	56966	1.7	54757.42	104.03	
Ge	72	He	55134	2.2	52464.24	105.09	
In	115	He	539052	0.6	543963.06	99.1	
Lu	175	He	1390257	1.4	1386582.42	100.26	
Th	232	He	2463638	2.1	2476539.08	99.48	

Sample Report

Sample Name K2409565-004L

File Name 067SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 9:03:05 PM

Sample Type Sample

Comment 25X

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	3.74740	ug/l	17.6	407	
Se	78	72	H2	3.50660	ug/l	2.9	931	
Cu	63	72	He	1.46894	ug/l	8.5	5158	
Cu	65	72	He	1.54733	ug/l	5.6	2614	
Zn	66	72	He	34.17727	ug/l	2.5	13924	
Mo	95	115	He	0.02645	ug/l	22.3	51	
Mo	98	115	He	0.02860	ug/l	15.2	97	
Ag	107	115	He	0.00993	ug/l	49.5	85	
Ag	109	115	He	0.00755	ug/l	19.7	63	
Cd	111	115	He	0.11535	ug/l	12.3	91	
Pb	208	175	He	0.02962	ug/l	16.3	696	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	344898	1.3	327980.96	105.16	
Sc	45	He	59071	0.9	54757.42	107.88	
Ge	72	He	54997	4.0	52464.24	104.83	
In	115	He	553898	1.1	543963.06	101.83	
Lu	175	He	1416323	0.5	1386582.42	102.14	
Th	232	He	2507841	0.4	2476539.08	101.26	

Post Digestion Spike Sample (PDS) Report

Sample Name K2409565-004A

File Name 068_PDS.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 9:05:10 PM

Sample Type PDS

Comment 5X +50ppb +5ppb Ag

ISTD Ref FileName 002CALB.d

QC Ref File Name 065_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Se	77	H2	73.48388	ug/l	6.1	5471	50	102.27	
Se	78	H2	68.60935	ug/l	2.9	16865	50	98.82	
Cu	63	He	54.37633	ug/l	2.5	185006	50	94.14	
Cu	65	He	56.10103	ug/l	1.9	91694	50	97.61	
Zn	66	He	217.32349	ug/l	1.5	87002	50	101.42	
Mo	95	He	48.74129	ug/l	0.0	83777	50	97.19	
Mo	98	He	47.97359	ug/l	0.5	146903	50	95.66	
Ag	107	He	4.59159	ug/l	0.6	31325	5	90.96	
Ag	109	He	4.72235	ug/l	0.6	31369	5	93.53	
Cd	111	He	47.82879	ug/l	0.5	36460	50	94.3	
[Pb]	206	He	49.94600	ug/l	2.2	239378	50	99.59	
[Pb]	207	He	48.09091	ug/l	2.8	202907	50	95.91	
Pb	208	He	49.57437	ug/l	2.0	949399	50	98.87	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	320661	2.0	327980.96	97.77	
Sc	45	He	56685	2.0	54757.42	103.52	
Ge	72	He	54391	1.5	52464.24	103.67	
In	115	He	540333	0.2	543963.06	99.33	
Lu	175	He	1359745	2.1	1386582.42	98.06	
Th	232	He	2508841	1.5	2476539.08	101.3	

Matrix Spike Sample (MS) Report

Sample Name KQ2417334-06

File Name 069_SPK.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 9:07:14 PM

Sample Type Spike

Comment 5X

ISTD Ref FileName 002CALB.d

QC Ref File Name 065_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Se	77	H2	54.35827	ug/l	3.0	4177	33.3	96.13	
Se	78	H2	52.43199	ug/l	3.2	13215	33.3	99.8	
Cu	63	He	53.04009	ug/l	0.2	179836	50	91.46	
Cu	65	He	55.29807	ug/l	1.3	90048	50	96	
Zn	66	He	264.24262	ug/l	2.4	105328	100	97.63	
Mo	95	He	32.53110	ug/l	2.4	56169	33.3	97.26	
Mo	98	He	32.25453	ug/l	1.4	99224	33.3	96.43	
Ag	107	He	8.91489	ug/l	2.8	61084	10	88.71	
Ag	109	He	9.06308	ug/l	2.2	60467	10	90.17	
Cd	111	He	9.81952	ug/l	2.1	7520	10	91.43	
[Pb]	206	He	96.91735	ug/l	0.9	466013	100	96.77	
[Pb]	207	He	94.50052	ug/l	1.3	400065	100	94.36	
Pb	208	He	96.89309	ug/l	0.7	1861686	100	96.75	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	328615	1.2	327980.96	100.19	
Sc	45	He	57033	1.3	54757.42	104.16	
Ge	72	He	54191	2.0	52464.24	103.29	
In	115	He	542882	1.4	543963.06	99.8	
Lu	175	He	1363937	0.9	1386582.42	98.37	
Th	232	He	2502496	0.8	2476539.08	101.05	

Sample Report

Sample Name K2409565-001

File Name 070SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 9:09:17 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	12.16484	ug/l	15.5	1013	
Se	78	72	H2	12.45870	ug/l	1.5	3135	
Cu	63	72	He	7.81645	ug/l	1.4	26401	
Cu	65	72	He	8.11035	ug/l	1.4	13161	
Zn	66	72	He	258.90906	ug/l	1.8	102467	
Mo	95	115	He	0.16842	ug/l	8.8	299	
Mo	98	115	He	0.16592	ug/l	10.8	523	
Ag	107	115	He	0.02927	ug/l	4.5	218	
Ag	109	115	He	0.02806	ug/l	21.0	202	
Cd	111	115	He	0.28271	ug/l	5.0	220	
Pb	208	175	He	0.15708	ug/l	2.4	3160	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	327832	1.7	327980.96	99.95	
Sc	45	He	57394	1.2	54757.42	104.82	
Ge	72	He	53796	2.1	52464.24	102.54	
In	115	He	549883	1.2	543963.06	101.09	
Lu	175	He	1381763	1.2	1386582.42	99.65	
Th	232	He	2517453	0.8	2476539.08	101.65	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 071_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 9:11:23 PM

Sample Type CCV

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	24.59464	ug/l	0.4	1977	98.38	
Se	78	72	H2	24.60148	ug/l	1.2	6294	98.41	
Cu	63	72	He	24.91523	ug/l	2.7	87793	99.66	
Cu	65	72	He	25.47123	ug/l	1.6	43115	101.88	
Zn	66	72	He	24.90723	ug/l	1.2	10417	99.63	
Mo	95	115	He	12.05842	ug/l	1.6	21363	96.47	
Mo	98	115	He	11.72796	ug/l	3.3	37009	93.82	
Ag	107	115	He	11.88787	ug/l	1.8	83556	95.1	
Ag	109	115	He	12.02554	ug/l	1.6	82304	96.2	
Cd	111	115	He	24.11026	ug/l	1.7	18941	96.44	
Pb	208	175	He	25.44299	ug/l	1.7	490434	101.77	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	333487	0.4	327980.96	101.68	
Sc	45	He	57348	1.5	54757.42	104.73	
Ge	72	He	56285	1.1	52464.24	107.28	
In	115	He	556931	1.5	543963.06	102.38	
Lu	175	He	1368263	1.4	1386582.42	98.68	
Th	232	He	2436204	1.4	2476539.08	98.37	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 072_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 9:13:27 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.21835	ug/l	76.8	123	
Se	78	72	H2	0.00929	ug/l	153.2	6	
Cu	63	72	He	0.13864	ug/l	22.0	590	
Cu	65	72	He	0.14436	ug/l	19.9	298	
Zn	66	72	He	0.37181	ug/l	35.2	263	
Mo	95	115	He	0.04827	ug/l	39.1	90	
Mo	98	115	He	0.04295	ug/l	14.3	142	
Ag	107	115	He	0.01895	ug/l	1.3	148	
Ag	109	115	He	0.01921	ug/l	28.6	143	
Cd	111	115	He	0.04524	ug/l	7.2	36	
Pb	208	175	He	0.08022	ug/l	3.5	1659	CCB Failed

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	330055	1.6	327980.96	100.63	
Sc	45	He	58592	0.5	54757.42	107	
Ge	72	He	55355	0.8	52464.24	105.51	
In	115	He	556019	0.9	543963.06	102.22	
Lu	175	He	1377877	1.5	1386582.42	99.37	
Th	232	He	2495896	0.5	2476539.08	100.78	

see rerun
QW 10/29/24

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 073_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 9:15:31 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	-0.10944	ug/l	N/A	100	
Se	78	72	H2	0.05823	ug/l	6.0	18	
Cu	63	72	He	0.06408	ug/l	20.8	317	
Cu	65	72	He	0.06851	ug/l	23.0	162	
Zn	66	72	He	0.12518	ug/l	90.7	153	
Mo	95	115	He	0.02306	ug/l	16.1	42	
Mo	98	115	He	0.02364	ug/l	21.2	74	
Ag	107	115	He	0.00881	ug/l	3.6	72	
Ag	109	115	He	0.00931	ug/l	55.1	72	
Cd	111	115	He	0.02186	ug/l	26.7	17	
Pb	208	175	He	0.04506	ug/l	24.7	898	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	334787	2.0	327980.96	102.08	
Sc	45	He	53653	10.8	54757.42	97.98	
Ge	72	He	52375	9.2	52464.24	99.83	
In	115	He	516731	11.8	543963.06	94.99	
Lu	175	He	1283380	10.4	1386582.42	92.56	
Th	232	He	2323542	11.5	2476539.08	93.82	

Sample Report

Sample Name K2409565-002

File Name 074SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 9:17:38 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	65.32202	ug/l	2.0	5058	
Se	78	72	H2	64.54235	ug/l	4.1	16459	
Cu	63	72	He	5.91757	ug/l	2.0	20452	
Cu	65	72	He	6.11059	ug/l	3.7	10144	
Zn	66	72	He	296.61274	ug/l	2.6	119930	
Mo	95	115	He	0.13954	ug/l	6.1	250	
Mo	98	115	He	0.13853	ug/l	9.8	441	
Ag	107	115	He	0.13582	ug/l	6.9	963	
Ag	109	115	He	0.13570	ug/l	7.4	933	
Cd	111	115	He	0.17135	ug/l	1.7	135	
Pb	208	175	He	0.15930	ug/l	2.2	3258	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	332672	1.9	327980.96	101.43	
Sc	45	He	58646	1.4	54757.42	107.1	
Ge	72	He	54984	2.7	52464.24	104.8	
In	115	He	552834	1.3	543963.06	101.63	
Lu	175	He	1405787	1.9	1386582.42	101.39	
Th	232	He	2545154	1.7	2476539.08	102.77	

Sample Report

Sample Name K2409565-003

File Name 075SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 9:19:40 PM

Sample Type Sample

Comment 5X

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	51.25821	ug/l	4.0	4024	
Se	78	72	H2	49.24278	ug/l	2.9	12659	
Cu	63	72	He	5.99372	ug/l	2.2	21072	
Cu	65	72	He	6.27109	ug/l	1.9	10594	
Zn	66	72	He	230.53721	ug/l	3.4	94866	
Mo	95	115	He	0.14841	ug/l	5.0	267	
Mo	98	115	He	0.14514	ug/l	10.1	463	
Ag	107	115	He	0.02277	ug/l	5.2	175	
Ag	109	115	He	0.02511	ug/l	5.4	183	
Cd	111	115	He	0.16697	ug/l	8.8	132	
Pb	208	175	He	0.30865	ug/l	4.2	6260	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	335241	0.8	327980.96	102.21	
Sc	45	He	58107	1.4	54757.42	106.12	
Ge	72	He	55947	2.5	52464.24	106.64	
In	115	He	555533	1.6	543963.06	102.13	
Lu	175	He	1416264	1.9	1386582.42	102.14	
Th	232	He	2491373	1.8	2476539.08	100.6	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 076_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 9:21:46 PM

Sample Type CCV

Comment ---

ISTD Ref FileName 002CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Se	77	72	H2	27.35910	ug/l	7.2	2210	109.44	
Se	78	72	H2	24.74393	ug/l	1.5	6399	98.98	
Cu	63	72	He	24.98901	ug/l	1.0	88219	99.96	
Cu	65	72	He	25.88430	ug/l	3.4	43884	103.54	
Zn	66	72	He	26.26055	ug/l	0.5	10998	105.04	
Mo	95	115	He	12.01243	ug/l	1.7	21468	96.1	
Mo	98	115	He	11.91756	ug/l	0.6	37942	95.34	
Ag	107	115	He	11.93867	ug/l	0.7	84646	95.51	
Ag	109	115	He	12.20567	ug/l	2.4	84260	97.65	
Cd	111	115	He	24.29861	ug/l	1.8	19254	97.19	
Pb	208	175	He	25.04058	ug/l	1.3	499252	100.16	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	337130	0.7	327980.96	102.79	
Sc	45	He	58817	1.2	54757.42	107.41	
Ge	72	He	56389	1.6	52464.24	107.48	
In	115	He	561718	1.3	543963.06	103.26	
Lu	175	He	1415200	1.2	1386582.42	102.06	
Th	232	He	2508252	1.4	2476539.08	101.28	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 077_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\BatchTemplate\Experiments\102824C.b

Acq Time 2024-10-28 9:23:50 PM

Sample Type CCB

Comment ---

ISTD Ref FileName 002CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Se	77	72	H2	0.61791	ug/l	90.2	160	
Se	78	72	H2	0.08405	ug/l	21.5	26	
Cu	63	72	He	0.02309	ug/l	16.8	197	
Cu	65	72	He	-0.00014	ug/l	N/A	60	
Zn	66	72	He	0.06586	ug/l	233.2	143	
Mo	95	115	He	0.00363	ug/l	28.9	11	
Mo	98	115	He	0.00446	ug/l	59.7	21	
Ag	107	115	He	0.00392	ug/l	68.8	43	
Ag	109	115	He	0.00477	ug/l	69.9	45	
Cd	111	115	He	0.00731	ug/l	28.2	7	
Pb	208	175	He	0.00998	ug/l	8.6	301	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Ge	72	H2	344184	0.7	327980.96	104.94	
Sc	45	He	59262	1.1	54757.42	108.23	
Ge	72	He	57243	0.8	52464.24	109.11	
In	115	He	562776	0.4	543963.06	103.46	
Lu	175	He	1403036	0.4	1386582.42	101.19	
Th	232	He	2522086	1.2	2476539.08	101.84	

Benchsheet

Service Request #: K2409822
Test: Frz Dry
Method: Frz Dry

Run #: 856244
Balance ID: K-Balance-53

Matrix	Lab Code	Tare (g)	Wet Wt. (g)	Tare + Dry Wt. (g)	Dry Weight (g)	% Total Solids	RPD
Animal Tissue	K2409822-001	86.062	19.262	90.130	4.07	21.1	
Animal Tissue	K2409822-002	84.313	16.414	88.225	3.91	23.8	
Animal Tissue	K2409822-003	84.779	9.197	86.835	2.06	22.4	
Animal Tissue	K2409822-004	84.401	12.347	86.938	2.54	20.5	
Animal Tissue	K2409822-005	85.065	7.302	86.692	1.63	22.3	
Animal Tissue	K2409822-006	85.147	8.111	86.735	1.59	19.6	
Animal Tissue	K2409822-007	83.469	7.576	85.084	1.62	21.3	
Animal Tissue	K2409822-008	83.817	6.037	85.106	1.29	21.4	
Animal Tissue	K2409822-009	84.326	6.906	85.863	1.54	22.3	
Animal Tissue	K2409822-010	85.813	8.460	87.741	1.93	22.8	
Animal Tissue	K2409822-011	85.137	5.407	86.206	1.07	19.8	
Animal Tissue	K2409822-012	85.811	4.462	86.753	0.942	21.1	
Animal Tissue	K2409822-013	86.053	16.283	89.888	3.84	23.6	
Animal Tissue	K2409822-014	85.995	7.920	87.751	1.76	22.2	
Animal Tissue	K2409822-015	85.086	7.333	86.688	1.60	21.8	
Animal Tissue	K2409822-016	84.394	7.798	85.986	1.59	20.4	
Animal Tissue	K2409822-017	86.073	8.679	87.847	1.77	20.4	
Animal Tissue	K2409822-018	84.281	6.780	85.800	1.52	22.4	
Animal Tissue	K2409822-019	84.904	7.449	86.581	1.68	22.5	
Animal Tissue	K2409822-020	85.913	11.997	88.557	2.64	22.0	

	FreezeDryer ID	Date In	Time In	Date Out	Time Out	Thermometer ID
FreezeDry		10/4/2024	15:38	10/7/2024	08:51	

Cal EQID	Cal Start Value	Cal End Value	Start Date	Start Time	End Date	End Time

Comments: CCL 10/3/24, Reviewed 10/8/24 KL

Benchsheet

Service Request #: K2409822 **Run #:** 856245
Test: Frz Dry **Balance ID:** K-Balance-53
Method: Frz Dry

Matrix	Lab Code	Tare (g)	Wet Wt. (g)	Tare + Dry Wt. (g)	Dry Weight (g)	% Total Solids	RPD
Animal Tissue	K2409822-021	84.381	11.828	86.957	2.58	21.8	
Animal Tissue	K2409822-022	84.137	17.281	87.768	3.63	21.0	
Animal Tissue	K2409822-023	84.362	7.088	86.005	1.64	23.2	
Animal Tissue	K2409822-024	84.150	11.331	86.820	2.67	23.6	
Animal Tissue	K2409822-025	84.322	6.706	85.809	1.49	22.2	
Animal Tissue	K2409822-026	86.026	7.988	87.872	1.85	23.1	
Animal Tissue	K2409822-027	84.806	7.250	86.566	1.76	24.3	
Animal Tissue	K2409822-028	86.130	9.288	88.097	1.97	21.2	
Animal Tissue	K2409822-029	84.380	5.226	85.473	1.09	20.9	
Animal Tissue	K2409822-030	84.716	5.609	85.963	1.25	22.2	
Animal Tissue	K2409822-031	84.540	5.251	85.620	1.08	20.6	
Animal Tissue	K2409822-032	84.170	4.487	85.209	1.04	23.2	
Animal Tissue	K2409822-033	84.008	6.044	85.299	1.29	21.4	
Animal Tissue	K2409822-034	84.467	6.197	85.914	1.45	23.4	
Animal Tissue	K2409822-035	84.140	5.242	85.289	1.15	21.9	
Animal Tissue	K2409822-036	84.091	5.963	85.459	1.37	22.9	
Animal Tissue	K2409822-037	85.142	6.316	86.519	1.38	21.8	
Animal Tissue	K2409822-038	84.130	4.423	85.057	0.927	21.0	
Animal Tissue	K2409822-039	83.521	5.396	84.675	1.15	21.4	
Animal Tissue	K2409822-040	85.946	4.838	87.044	1.10	22.7	

	FreezeDryer ID	Date In	Time In	Date Out	Time Out	Thermometer ID
FreezeDry		10/4/2024	15:38	10/7/2024	08:51	

Cal EQID	Cal Start Value	Cal End Value	Start Date	Start Time	End Date	End Time

Comments: CCL 10/3/24, Reviewed 10/8/24 KL

Benchsheet

Service Request #: K2409822 **Run #:** 856246
Test: Frz Dry **Balance ID:** K-Balance-53
Method: Frz Dry

Matrix	Lab Code	Tare (g)	Wet Wt. (g)	Tare + Dry Wt. (g)	Dry Weight (g)	% Total Solids	RPD
Animal Tissue	K2409822-041	85.972	5.531	87.188	1.22	22.0	
Animal Tissue	K2409822-042	84.166	4.737	85.227	1.06	22.4	
Animal Tissue	K2409822-043	85.037	14.855	88.175	3.14	21.1	
Animal Tissue	K2409822-044	85.291	9.561	87.477	2.19	22.9	
Animal Tissue	K2409822-045	85.767	12.959	88.660	2.89	22.3	
Animal Tissue	K2409822-046	85.590	14.682	88.955	3.36	22.9	
Animal Tissue	K2409822-047	85.981	14.167	89.091	3.11	22.0	
Animal Tissue	K2409822-048	85.815	9.225	88.032	2.22	24.0	
Animal Tissue	K2409822-049	85.871	15.325	89.148	3.28	21.4	
Animal Tissue	K2409822-050	85.271	15.884	88.771	3.50	22.0	
Animal Tissue	K2409822-051	85.450	10.403	87.618	2.17	20.8	
Animal Tissue	K2409822-052	85.185	8.757	87.135	1.95	22.3	
Animal Tissue	K2409822-053	84.849	7.406	86.362	1.51	20.4	
Animal Tissue	K2409822-054	86.012	7.146	87.591	1.58	22.1	
Animal Tissue	K2409822-055	85.449	7.636	87.121	1.67	21.9	
Animal Tissue	K2409822-056	85.867	7.973	87.550	1.68	21.1	
Animal Tissue	K2409822-057	85.343	9.581	87.316	1.97	20.6	
Animal Tissue	K2409822-058	85.916	7.664	87.598	1.68	21.9	
Animal Tissue	K2409822-059	85.302	7.282	86.675	1.37	18.9	
Animal Tissue	K2409822-060	86.060	6.748	87.483	1.42	21.1	

	FreezeDryer ID	Date In	Time In	Date Out	Time Out	Thermometer ID
FreezeDry		10/4/2024	15:38	10/7/2024	08:51	

Cal EQID	Cal Start Value	Cal End Value	Start Date	Start Time	End Date	End Time

Comments: CCL 10/3/24, Reviewed 10/8/24 KL

Benchsheet

Service Request #:	**K2409822**	**Run #:**	**856247**
Test:	**Frz Dry**	**Balance ID:**	**K-Balance-53**
Method:	**Frz Dry**		

Matrix	Lab Code	Tare (g)	Wet Wt. (g)	Tare + Dry Wt. (g)	Dry Weight (g)	% Total Solids	RPD
Animal Tissue	K2409822-061	85.794	9.502	87.948	2.15	22.7	
Animal Tissue	K2409822-062	85.822	10.139	88.002	2.18	21.5	
Animal Tissue	K2409822-063	85.292	6.803	86.862	1.57	23.1	

	FreezeDryer ID	Date In	Time In	Date Out	Time Out	Thermometer ID
FreezeDry		10/4/2024	15:38	10/7/2024	08:51	

Cal EQID	Cal Start Value	Cal End Value	Start Date	Start Time	End Date	End Time

Comments: CCL 10/3/24, Reviewed 10/8/24 KL

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November 05, 2024

Analytical Report for Service Request No: K2407397
Revised Service Request No: K2407397.01

Erika King
Alaska Department of Fish and Game
Division of Habitat
802 3rd Street
P.O. Box 110024
Douglas, AK 99811-0024

RE: 2024 Greens Creek Biomonitoring

Dear Erika,

Enclosed is the revised report for the sample(s) submitted to our laboratory July 17, 2024
For your reference, these analyses have been assigned our service request number **K2407397.**

The report was revised to include the TS and TVS results for all samples.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3376. You may also contact me via email at Mark.Harris@alsglobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Mark Harris
Project Manager

REVISED
4:31 pm, Nov 05, 2024

APPENDIX E: SEDIMENT DATA AND LAB REPORT

Appendix E.1.–Greens Creek Site 63 sediment compositions, 2024.

Sample Date	Particle Size Data				% Total Solids	Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
7/9/2024	0	0	31	69	65.4	1.5	<1.4	0.52
7/9/2024	0	0	15	85	73.8	1.3	<1.4	0.39
7/9/2024	0	0	8	92	77.8	1.0	<1.2	0.25

Appendix E.2.–Cannery Creek Site 37 sediment compositions, 2024.

Sample Date	Particle Size Data				% Total Solids	Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
7/10/2024	0	1	34	65	70.8	3.6	<1.4	0.94
7/10/2024	0	1	31	69	75.8	3.1	<1.3	0.61
7/10/2024	0	1	37	62	70.3	4	<1.4	0.62

Appendix E.3.–Fowler Creek sediment compositions, 2024.

Sample Date	Particle Size Data				% Total Solids	Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
7/10/2024	0	0	74	25	74	2.1	<1.3	0.52
7/10/2024	0	0	60	40	75.2	2.1	<1.3	0.47
7/10/2024	0	0	89	10	72.3	2.6	<1.4	0.5

Appendix E.4.–Tributary Creek Site 808 sediment compositions, 2024.

Sample Date	Particle Size Data				% Total Solids	Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
7/10/2024	0	8	91	0	53.9	6.7	<1.9	2.12
7/10/2024	0	8	90	1	51.8	1.1	4.7	3.52
7/10/2024	0	6	82	12	47.6	10.8	<2.1	2.76
7/10/2024	1	12	86	1	45.8	10.3	<2.1	2.1
7/10/2024	1	20	78	0	41.4	12	<2.3	4.06

Appendix E.5.–Tributary Creek Site 9 sediment compositions, 2024.

Sample Date	Particle Size Data				% Total Solids	Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
7/10/2024	1	15	75	9	65.4	5.7	<1.5	1.29
7/10/2024	1	9	86	5	65.2	4.2	<1.4	1.87
7/10/2024	1	10	82	7	67.2	5.1	<1.4	1.6

Appendix E.6.–Tributary Creek Site 1847 sediment compositions, 20, 2024.

Sample Date	Particle Size Data				% Total Solids	Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
7/10/2024	0	6	59	35	73.5	2.9	<1.3	1.02
7/10/2024	0	1	55	43	75.2	2.2	<1.2	0.73
7/10/2024	0	0	37	62	80.4	3.3	<1.2	0.39

Appendix E.7.–Zinc Creek Site 371 sediment compositions, 2024.

Sample Date	Particle Size Data				% Total Solids	Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
7/8/2024	0	1	55	44	72.6	3.3	<1.3	0.64
7/8/2024	0	1	67	32	70.4	2.6	<1.3	0.79
7/8/2024	0	1	87	12	68	2.3	<1.4	0.65

Appendix E.8.–Zinc Creek Site 10 sediment compositions, 2024.

Sample Date	Particle Size Data				% Total Solids	Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
7/8/2024	0	0	70	30	70.6	2.8	<1.4	0.72
7/8/2024	0	1	77	22	73.3	2.5	<1.3	0.83
7/8/2024	0	1	82	17	72.9	2.2	<1.3	0.67

Appendix E.9.–Greens Creek Delta site sediment compositions, 2024.

Sample Date	Particle Size Data				% Total Solids	Total Volatile Solids	Total Sulfide (mg/kg)	% Total Organic Carbon
	% Clay	% Silt	% Sand	% Coarse material (>2mm)				
7/8/2024	0	1	59	40	83.8	2.4	<1.1	0.53
7/8/2024	0	1	95	4	66.3	3.3	<1.5	1.04
7/8/2024	0	1	68	31	70.7	7.9	<1.4	0.62

Appendix E.10.–Greens Creek Site 63 sediment element concentrations, 2021, 2024.

Sample Date	Concentration (mg/kg dry weight)										
	Al	As	Ag	Cd	Cr	Cu	Hg	Pb	Ni	Se	Zn
7/12/2021	12,800	22.2	0.436	2.33	24.8	54	0.168	18.5	45.4	3.1	293
	12,200	20.1	0.41	2.02	26.7	50.8	0.216	14.6	45.6	3.2	272
	11,100	17.3	1.02	2.02	22.7	43.7	0.17	17	38.6	2.8	275
	10,800	15.2	0.305	1.5	21.4	40.9	0.173	10.8	35.7	2.4	209
	11,400	18	0.324	1.87	23.4	43.3	0.147	14.1	42.3	3.1	231
7/9/2024	10,300	10.6	0.293	1.19	18.2	33	0.058	9.22	28.9	1.8	177
	3,340	10.2	0.594	0.851	7.21	32.6	0.064	6.86	17.6	1.6	128
	7,320	4.54	0.105	0.57	11.4	30.6	0.024	7.51	21.1	<1.2	134

Appendix E.11.–Cannery Creek Site 37 sediment element concentrations, 2024.

Sample Date	Concentration (mg/kg dry weight)										
	Al	As	Ag	Cd	Cr	Cu	Hg	Pb	Ni	Se	Zn
7/10/2024	11,000	32.3	0.069	0.734	28.7	24.7	<0.028	13.3	28.7	<1.2	122
7/10/2024	10,100	45.3	0.066	0.35	16.4	25.1	<.023	13.1	16.5	<1.1	102
7/10/2024	9,150	65.1	<.026	0.635	9.36	10.8	<.026	11.9	17.3	<1.3	114

Appendix E.12.–Fowler Creek sediment element concentrations, 2024.

Sample Date	Concentration (mg/kg dry weight)										
	Al	As	Ag	Cd	Cr	Cu	Hg	Pb	Ni	Se	Zn
7/10/2024	10,900	22.7	0.04	0.134	28.3	15.8	<.023	8.88	21.2	<1.2	62.5
7/10/2024	13,600	11.9	<.023	0.0136	22.1	13	<0.024	5.91	23.5	<1.2	68.4
7/10/2024	10,700	19.6	<.024	0.117	24.8	14	<.027	7.02	18	<1.2	60

Appendix E.13.–Tributary Creek Site 808 sediment element concentrations, 2021, 2024.

	Concentration (mg/kg dry weight)										
Sample Date	Al	As	Ag	Cd	Cr	Cu	Hg	Pb	Ni	Se	Zn
7/13/2021	11,900	17.7	0.106	0.502	33.8	17.6	0.063	6.98	32.6	<1.9	6020
	12,000	38	0.15	0.497	27.9	19.8	0.133	7.02	28	<1.9	71.3
	12,900	20	0.037	0.174	49.7	11.7	<0.027	4.96	29.9	<1.1	73.3
	13,900	19.4	0.811	1.42	44.9	71.7	0.185	94.1	55.2	<2.1	227
	22,200	32.1	0.154	1.26	58.6	61.5	0.052	16	110	<1.9	177
7/10/2024	11,000	23.8	0.137	0.344	44.7	15.1	0.039	24.4	30.8	<1.7	104
	10,700	20.2	0.201	0.435	39.5	16.9	0.048	25.6	29.2	<1.7	104
	12,400	28.4	0.229	0.544	46.8	19.4	0.042	31.3	35.8	<1.6	131
	14,300	31.9	0.231	0.552	58.4	18.7	0.07	32.2	41.2	<1.9	137
	11,300	21.3	0.349	0.62	41.7	23.3	0.07	32.1	32	<2.2	115

Appendix E.14.–Tributary Creek Site 9 sediment element concentrations, 2013, 2018, 2021, 2022, 2023, 2024.

	Concentration (mg/kg dry weight)										
Sample Date	Al	As	Ag	Cd	Cr	Cu	Hg	Pb	Ni	Se	Zn
7/23/2013	NA	NA	<0.091	0.39	NA	15.5	<0.0357	11.8	NA	0.309	68.9
7/12/2018	NA	NA	NA	0.437	NA	51.6	0.03	13.2	NA	<0.84	97.7
	NA	NA	NA	0.701	NA	26	0.112	31.7	NA	<2	113
	NA	NA	NA	0.253	NA	14.7	0.054	8.9	NA	<0.77	59.6
7/13/2021	10,300	9.07	0.071	0.307	42.2	14.5	0.058	11.6	23.9	<1.4	69
	10,100	12.6	0.226	0.479	38.4	21.7	0.108	18.7	24.8	<2.8	75.5
	9,710	14	0.046	0.312	84	16.1	0.046	10.8	34.2	<1.1	72.2
	9,850	11.4	0.271	0.513	38.5	21.8	0.202	22.4	23.2	<2.8	78.2
	10,800	17.2	0.415	0.897	39	29	0.495	33.1	31.2	<3.4	117
7/11/2022	14,000	10.4	0.134	0.357	51.3	19.2	0.052	14.4	25.6	<2.1	76.6
	11,200	13.4	0.082	0.555	42.9	19.3	<0.029	12.9	38.8	<1.2	87
	10,200	8.9	0.039	0.355	29.7	15.6	<0.026	7.47	28.6	<1	65.5
	10,000	5.76	0.057	0.187	48.9	10.8	<0.023	7.58	24.2	<1.1	49.4
	6,810	8.8	0.062	0.234	28.4	10.5	<0.027	8.81	17.3	<1	47.5
7/11/2023	13,000	18.5	0.05	0.221	43.6	14.5	0.035	6.73	28.4	<1.2	75.1
	11,600	8.84	0.026	0.329	39.8	14.6	0.025	7.6	30.5	<0.93	71.3
	13,600	19.6	0.048	0.392	43.8	17.3	0.036	8.27	32.8	<1.3	86.8
	11,000	10.9	<0.021	0.221	80.1	9.39	0.026	5.81	35.5	<1	54.4
	12,400	11	0.093	0.333	46.3	17.9	0.064	8.94	26.8	<1.5	78.6
7/10/2024	12,500	8.92	0.072	0.759	42.7	21.5	0.037	8.41	53.1	<1.1	96.1
	15,100	11.1	0.047	0.321	54	23.2	<0.026	7.86	37.3	<1.3	90.5
	14,500	11.1	0.094	0.379	63.8	22.7	0.041	10.8	38.2	<1.3	93.9

Appendix E.15.–Tributary Creek Site 1847 sediment element concentrations, 20, 2024.

Sample Date	Concentration (mg/kg dry weight)										
	Al	As	Ag	Cd	Cr	Cu	Hg	Pb	Ni	Se	Zn
7/12/2018	NA	NA	NA	0.41	NA	14.6	0.024	17.3	NA	<0.84	94.8
	NA	NA	NA	0.343	NA	17.5	0.023	14.7	NA	<0.89	83.1
	NA	NA	NA	0.358	NA	12.7	<0.02	14.6	NA	<0.76	79.7
7/10/2024	9,700	9.41	0.075	0.339	35.1	14.1	0.027	8.89	27.8	<0.98	76.3
	10,400	21.9	0.03	0.326	42.7	12.3	<0.023	7.78	29.5	<1.2	77.5
	9,070	8.66	<0.023	0.388	40.4	7.66	<0.023	7.37	23.5	<1.1	57.8

Appendix E.16.–Zinc Creek Site 371 sediment element concentrations, 2021, 2018, 2024.

Sample Date	Concentration (mg/kg dry weight)										
	Al	As	Ag	Cd	Cr	Cu	Hg	Pb	Ni	Se	Zn
7/12/2021	12,400	42.1	0.16	2.01	163	44.7	0.041	13.5	143	1.4	331
	11,200	40.6	0.18	1.55	104	41	0.088	13.5	106	1.6	273
	11,700	42.4	0.178	1.69	145	37.7	0.058	17.8	129	1.5	286
	10,900	34.2	0.218	1.66	116	38.6	0.092	13.2	109	1.6	265
	11,300	30	0.132	1.08	124	43.2	0.059	10.3	100	<1.2	209
5/16/2018	NA	NA	NA	2.13	NA	31.1	0.03	11.5	NA	1.5	325
	NA	NA	NA	6.08	NA	62.3	0.054	248	NA	2.3	663
	NA	NA	NA	1.53	NA	26.2	0.03	15.9	NA	3.8	286
7/8/2024	10,400	38.2	0.083	1.79	196	32.2	<0.026	9.76	133	<1.2	274
	11,300	51.6	0.673	2.16	174	86.9	0.05	12.7	162	1.8	321
	14,100	36.6	0.147	2.43	233	37.3	0.068	11.9	169	1.3	366

Appendix E.17.–Zinc Creek Site 10 sediment element concentrations, 2021, 2024.

Sample Date	Concentration (mg/kg dry weight)										
	Al	As	Ag	Cd	Cr	Cu	Hg	Pb	Ni	Se	Zn
7/12/2021	11,200	41.1	0.179	1.66	124	31.7	0.069	17.2	119	<1.2	289
	11,900	38.7	0.236	1.66	132	36.1	0.118	18.9	112	1.4	306
	10,300	35.6	0.253	1.6	94	32.9	0.082	18	96.6	<1.3	285
	11,300	42	0.295	1.89	110	40.5	0.113	22	108	1.6	326
	12,600	39.8	0.291	1.72	118	44.9	0.086	20.4	112	<1.6	315
7/8/2024	11,300	22.4	0.088	1.18	90.1	21	0.028	9.71	97	<1.2	222
	13,200	33.2	0.085	1.37	109	31.4	0.025	14.2	124	<1.2	272
	10,900	24.7	0.079	1.26	97.8	24.1	0.037	9.64	91.5	<1.3	235

Appendix E.18.–Greens Creek Delta Site sediment element concentrations, 2024.

	Concentration (mg/kg dry weight)										
Sample Date	Al	As	Ag	Cd	Cr	Cu	Hg	Pb	Ni	Se	Zn
7/10/2024	10,900	22.7	0.04	0.134	28.3	15.8	<.023	8.88	21.2	<1.2	62.5
7/10/2024	13,600	11.9	<.023	0.0136	22.1	13	<0.024	5.91	23.5	<1.2	68.4
7/10/2024	10,700	19.6	<.024	0.117	24.8	14	<.027	7.02	18	<1.2	60

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General Chemistry
Metals
Raw Data
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    General Chemistry
    Metals

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Case Narrative

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

ALS Environmental

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Service Request: K2407397
Date Received: 07/17/2024

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples for the Tier level IV requested by the client.

Sample Receipt:

Twenty nine sediment samples were received for analysis at ALS Environmental on 07/17/2024. Any discrepancies upon initial sample inspection are annotated on the sample receipt and preservation form included within this report. The samples were stored at minimum in accordance with the analytical method requirements.

Metals:

Method 200.8, 08/06/2024: The Relative Percent Difference (RPD) for the replicate analysis of Chromium in sample 2024GCMGCDS1 was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Method 200.8, 08/06/2024: The Relative Percent Difference (RPD) for the replicate analysis of Arsenic and Chromium in sample 2024GCMCCDS1 was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Method 200.8, 08/06/2024: The Relative Percent Difference (RPD) for the replicate analysis of Arsenic in sample 2024GCMTC808S1 was outside the normal ALS control limits. The variability in the results was attributed to the heterogeneous character of the sample. Standard mixing techniques were used, but were not sufficient for complete homogenization of this sample.

Method 200.8, 08/06/2024: The matrix spike recovery of Chromium and Zinc for sample 2024GCMCCDS1 was outside control criteria. Recovery in the Laboratory Control Sample (LCS) was acceptable, which indicated the analytical batch was in control. No further corrective action was appropriate.

General Chemistry:

Method PSEP Sulfide, 07/23/2024: Samples in this delivery group were received past or with insufficient holding time remaining. The analysis was performed as soon as possible after receipt by the laboratory. The data was flagged to indicate the holding time violation.

Approved by Noe D. Diaz Date 08/29/2024

Chain of Custody

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ALS Environmental

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CHAIN OF CUSTODY 138275

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SR#_____

COC Set_____of_____

COC#_____

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Page 1 of 1
1 of 4

K24073917

Project Name	2024 Greens Creek Biomonitoring
Project Number	
Project Manager	Erika King
Company	ADF&G
Address City State	802 3rd St Douglas, AK 99824
Phone #	907 465 6979
email	erika.king@alaska.gov
Sampler Signature	
Sampler Printed Name	Erika King

* Samples sent in multiple coolers.

CLIENT SAMPLE ID	LABID	SAMPLING Date Time State	Matrix	NUMBER OF CONTAINERS	7D 160.4 Modified / TVS	7D PSEP Sulfide / PSEP Sulfide	14D PSEP TOC / PSEP TOC	28D 7471B / Hg	180D 200.8 / Metals T	180D ASTM D422M / Particle	999D 160.3 Modified / TS	Remarks
1. 2024GCMCCS1		7/10/24 1400 AK	soil	3	X	X	X	X	X	X	X	
2. 2024GCMCCS2		7/10/24 1400 AK	Soil	3	X	X	X	X	X	X	X	
3. 2024GCMCCS3		7/10/24 1400 AK	Soil	3	X	X	X	X	X	X	X	
4. 2024GCMFCS1		7/10/24 1445 AK	soil	3	X	X	X	X	X	X	X	
5. 2024GCMFCS2		7/10/24 1445 AK	soil	3	X	X	X	X	X	X	X	
6. 2024GCMFCS3		7/10/24 1445 AK	soil	3	X	X	X	X	X	X	X	
7. 2024GCMZC37S1		7/8/24 1445 AK	soil	3	X	X	X	X	X	X	X	
8. 2024GCMZC37S2		7/8/24 1445 AK	soil	3	X	X	X	X	X	X	X	
9. 2024GCMZC37S3		7/8/24 1445 AK	soil	3	X	X	X	X	X	X	X	
10.												

Report Requirements

- ___ I. Routine Report: Method Blank, Surrogate, as required
- ✓ II. Report Dup., MS, MSD as required
- ___ III. CLP Like Summary (no raw data)
- ___ IV. Data Validation Report
- ___ V. EDD

Invoice Information

P.O.#_____

Bill To: Hecla Greens Creek Mining Company

plillesve@hecla.com

Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
✓ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: (Al) (As) Sb Ba Be B Ca (Cd) Co (Cr) (Cu) Fe (Pb) Mg Mn Mo (Ni) K (Ag) Na (Se) Sr Tl Sn V (Zn) (Hg)

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

* 9 sites (29 samples - each with 3 jars) sent in multiple coolers.
Please send billing to Paula Lillesve: plillesve@hecla.com
Please send lab report to Erika King: erika.king@alaska.gov

***Indicate State Hydrocarbon Procedure:** AK CA WI Northwest Other_____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: Randy Jones	Printed Name: AG	Printed Name	Printed Name	Printed Name	Printed Name
Firm: HGCMC	Firm: 7/17/24 0935	Firm	Firm	Firm	Firm
Date/Time: 7/14/24 18:00	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

CHAIN OF CUSTODY

~~124481~~

001

SR#_____

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

K24O7397

Project Name	2024 Green Creek Biomonitoring
Project Manager	Erika King
Company	ADF&G
Address	802 3rd St Douglas, AK 99824
Phone	907 465 6979
email	erika.king@alaska.gov
Sampler Signature	
Sampler Printed Name	Erika King

CLIENT SAMPLE ID	LABID	SAMPLING Date	Time	Matrix	NUMBER OF CONTAINERS	7D: 160.4 Modified / TVS	7D: PSEP Sulfide / PSEP Sulfide	14D: PSEP TOC / PSEP TOC	14D: PSEP TOC / PSEP TOC T	28D: 7471B / Hg	180D: 200.8 / Metals T	180D: ASTM D422M / Particle	999D: 160.3 Modified / TS	F	G	R	V	S	Remarks
1. 2024GCMTC80851		7/10/24	1000 AK	Soil	3	X	X	X	X	X	X	X	X						
2. 2024GCMTC80852		7/10/24	1000 AK	Soil	3	X	X	X	X	X	X	X	X						
3. 2024GCMTC80853		7/10/24	1000 AK	Soil	3	X	X	X	X	X	X	X	X						
4. 2024GCMTC80854		7/10/24	1000 AK	Soil	3	X	X	X	X	X	X	X	X						
5. 2024GCMTC80855		7/10/24	1000 AK	Soil	3	X	X	X	X	X	X	X	X						
6. 2024GCMTC951		7/10/24	900 AK	Soil	3	X	X	X	X	X	X	X	X						
7. 2024GCMTC952		7/10/24	900 AK	Soil	3	X	X	X	X	X	X	X	X						
8. 2024GCMTC953		7/10/24	900 AK	Soil	3	X	X	X	X	X	X	X	X						
9.																			
10																			

★ samples sent in multiple coolers

Report Requirements

- ___ I Routine Report: Method Blank, Surrogate, as required
- ✓ II Report Dup., MS, MSD as required
- ___ III CLP Like Summary (no raw data)
- ___ IV Data Validation Report
- ___ V EDD

Invoice Information

P.O.#_____

Bill To: Hecla Brooms Creek Mining Company

plillesve@hecla.com

Turnaround Requirements

___ 24 hr ___ 48 hr
___ 5 Day
✓ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: (Al) (As) Sb Ba Be B Ca (Cd) Co (Cr) (Cu) Fe (Pb) Mg Mn Mo (Ni) K (Ag) Na (Se) Sr Tl Sn V (Zn) (Hg)

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

★ 9 sites (29 samples - each with 3 jars) sent in multiple coolers.
please send billing to paula Lillesve: plillesve@hecla.com
please send lab report to Erika King: erika.king@alaska.gov.

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: Randy Jones	Printed Name: AHS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: HGCMC	Firm: 7/17/24 0935	Firm	Firm	Firm	Firm
Date/Time: 7/19/24 18:00	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

CHAIN OF CUSTODY

~~124481~~

001

SR#_____

COC Set____of____

COC#_____

ALS
1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

K2407317

Project Name: 2024 Greens Creek Biomonitoring	Project Number:
Project Manager: Erika King	
Company: ADF&G	
Address: 802 3rd St Douglas, AK 99824	
Phone: 907 465 6979	email: erika.king@alaska.gov
Sampler Signature:	Sampler Printed Name: Erika King

* samples sent in multiple coolers

CLIENT SAMPLE ID	LABID	SAMPLING Date	Time	Matrix	NUMBER OF CONTAINERS	7D: 160.4 Modified / TVS	7D: PSEP Sulfide / PSEP Sulfide	14D: PSEP TOC / PSEP TOC	14D: PSEP TOC / PSEP TOC T	28D: 7471B / Hg	180D: 200.8 / Metals T	180D: ASTM D422M / Partsize	999D: 160.3 Modified / TS	Remarks
1. 2024GCMGC63S1		7/9/24	1400 AK	soil	3	X	X	X	X	X	X	X	X	
2. 2024GCMGC63S2		7/9/24	1400 AK	soil	3	X	X	X	X	X	X	X	X	
3. 2024GCMGC63S3		7/9/24	1400 AK	soil	3	X	X	X	X	X	X	X	X	
4. 2024GCMTC184751		7/10/24	1230 AK	soil	3	X	X	X	X	X	X	X	X	
5. 2024GCMTC184752		7/10/24	1230 AK	soil	3	X	X	X	X	X	X	X	X	
6. 2024GCMTC184753		7/10/24	1230 AK	soil	3	X	X	X	X	X	X	X	X	
7. 2024GCMGCDS1		7/8/24	1400 AK	soil	3	X	X	X	X	X	X	X	X	
8. 2024GCMGCDS2		7/8/24	1400 AK	soil	3	X	X	X	X	X	X	X	X	
9. 2024GCMGCDS3		7/8/24	1400 AK	soil	3	X	X	X	X	X	X	X	X	
10.														

Report Requirements

- ___ I Routine Report: Method Blank, Surrogate, as required
- ✓ II Report Dup., MS, MSD as required
- ___ III CLP Like Summary (no raw data)
- ___ IV Data Validation Report
- ___ V EDD

Invoice Information

P.O.#_____

Bill To: Hecla Greens Creek Mining Company

plillesve@hecla.com

Turnaround Requirements

- ___ 24 hr ___ 48 hr
- ___ 5 Day
- ✓ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: (Al) (As) Sb Ba Be B Ca (Cd) Co (Cr) (Cu) Fe (Pb) Mg Mn Mo (Ni) K (Ag) Na (Se) Sr Tl Sn V (Zn) (Hg)

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments:

* 9 sites (29 samples - each with 3 jars) sent in multiple coolers.
Please send billing to Paula Lillesve: plillesve@hecla.com
Please send lab report to Erika King: erika.king@alaska.gov.

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: Randy Jones	Printed Name: AK	Printed Name	Printed Name	Printed Name	Printed Name
Firm: HG(MC	Firm: 7/9/24 0935	Firm	Firm	Firm	Firm
Date/Time: 7/9/24 18:00	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

CHAIN OF CUSTODY

~~124481~~

001

SR#_____

COC Set____of____

COC#_____

ALS
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www.alsglobal.com

K2407397

Project Name: 2024 Grave Creek Biomonitoring
Project Number:
Project Manager: Erika King
Address: 320 3rd St Douglas, AK 99824
Phone:
email: erika.king@alaska.gov
Sampler Signature:
Sampler Printed Name: Erika King

CLIENT SAMPLE ID	LABID	SAMPLING Date	Time	Matrix	NUMBER OF CONTAINERS	7D 160.4 Modified / TVS	7D PSEP Sulfide / PSEP Sulfide	14D PSEP TOC / PSEP TOC	14D PSEP TOC / PSEP TOC T	28D 7471B / Hg	180D 200.8 / Metals T	180D ASTM D422M / Particle size	999D 160.3 Modified / TS	Remarks
1. 2024GCMZC1051		7/8/24	1400 AK	Soil	3	X	X	X	X	X	X	X	X	
2. 2024GCMZC1052		7/8/24	1400 AK	Soil	3	X	X	X	X	X	X	X	X	
3. 2024GCMZC1053		7/8/24	1400 AK	Soil	3	X	X	X	X	X	X	X	X	
4.														
5.														
6.														
7.														
8.														
9.														
10.														

★ samples sent in multiple coolers

Report Requirements

- ___ I Routine Report: Method Blank, Surrogate, as required
- ✓ II Report Dup., MS, MSD as required
- ___ III CLP Like Summary (no raw data)
- ___ IV Data Validation Report
- ___ V EDD

Invoice Information

P.O.#_____

Bill To: Hecla Greens Creek mining company
plillesve@hecla.com

Turnaround Requirements

___ 24 hr ___ 48 hr.
___ 5 Day
✓ Standard

Requested Report Date:

Circle which metals are to be analyzed

Total Metals: Al (As) Sb Ba Be B Ca (Cd) Co (Cr) (Cu) Fe (Pb) Mg Mn Mo (Ni) K (Ag) Na (Se) Sr Tl Sn V (Zn) (Hg)

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Special Instructions/Comments: *Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

★ 9 sites (29 samples - each with 3 jars) sent in multiple coolers.
please send billing to paula Lillesve: plillesve@hecla.com
please send lab report to Erika King: erika.king@alaska.gov

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature	Signature	Signature	Signature	Signature	Signature
Printed Name: Randy Jones	Printed Name: Niconi Pedersen	Printed Name	Printed Name	Printed Name	Printed Name
Firm: HGMC	Firm: ALS	Firm	Firm	Firm	Firm
Date/Time: 7/14/24 18:00	Date/Time: 7/17/24 0935	Date/Time	Date/Time	Date/Time	Date/Time

PM MH

Cooler Receipt and Preservation Form

Client ADFG Service Request K24 07397

Received: 7/17/24 Opened: 7/17/24 By: AP Unloaded: 7/17/24 By: AP

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? _____
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Temp Blank	Sample Temp	IR Gun	Cooler #/COC ID / NA	Out of temp indicate with "X"	PM Notified if out of temp	Tracking Number NA	Filed
18.8	19.1	1R01	1 of 4	X		773 8262 6612	
17.3	13.8	↓	2 of 4	X		" " 6623	
6.8	13.0	↓	3 of 4	X		" " 6634	
13.0	16.0	↓	4 of 4	X		" " 6695	
			138275				

4. Was a Temperature Blank present in cooler? NA Y N If yes, notate the temperature in the appropriate column above:
   If no, take the temperature of a representative sample bottle contained within the cooler; notate in the column "Sample Temp":
5. Were samples received within the method specified temperature ranges? NA Y N
   If no, were they received on ice and same day as collected? If not, notate the cooler # above and notify the PM. NA Y N

If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*

6. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
7. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
8. Were samples received in good condition (unbroken) NA Y N
9. Were all sample labels complete (ie, analysis, preservation, etc.)? NA Y N
10. Did all sample labels and tags agree with custody papers? NA Y N
11. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
12. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
13. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
14. Was C12/Res negative? NA Y N
15. Were samples received within the method specified time limit? If not, notate the error below and notify the PM NA Y N
16. Were 100ml sterile microbiology bottles filled exactly to the 100ml mark? NA Y N Underfilled Overfilled

Sample ID on Bottle	Sample ID on COC	Identified by:

SHORT HOLD TIME SHORT HOLD TIME

Sample ID	Bottle Count Bottle Type	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
CCS3	4oz jar		X						
GCDS1	4oz & 16oz		X						
GCDS2	16oz jar		X						
1052	16oz jar		X						

Notes, Discrepancies, Resolutions: Broken jars transfered in Lab

Total Solids

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 - 07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Solids, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
2024GCMCCS1	K2407397-001	**70.8**	-	-	1	07/17/24 16:00	
2024GCMCCS2	K2407397-002	**75.8**	-	-	1	07/17/24 16:00	
2024GCMCCS3	K2407397-003	**70.3**	-	-	1	07/17/24 16:00	
2024GCMFCS1	K2407397-004	**74.0**	-	-	1	07/17/24 16:00	
2024GCMFCS2	K2407397-005	**75.2**	-	-	1	07/17/24 16:00	
2024GCMFCS3	K2407397-006	**72.3**	-	-	1	07/17/24 16:00	
2024GCMZC371S1	K2407397-007	**72.6**	-	-	1	07/17/24 16:00	
2024GCMZC371S2	K2407397-008	**70.4**	-	-	1	07/17/24 16:00	
2024GCMZC371S3	K2407397-009	**68.0**	-	-	1	07/17/24 16:00	
2024GCMTC808S1	K2407397-010	**53.9**	-	-	1	07/17/24 16:00	
2024GCMTC808S2	K2407397-011	**51.8**	-	-	1	07/17/24 16:00	
2024GCMTC808S3	K2407397-012	**47.6**	-	-	1	07/17/24 16:00	
2024GCMTC808S4	K2407397-013	**45.8**	-	-	1	07/17/24 16:00	
2024GCMTC808S5	K2407397-014	**41.4**	-	-	1	07/17/24 16:00	
2024GCMTC9S1	K2407397-015	**65.4**	-	-	1	07/17/24 16:00	
2024GCMTC9S2	K2407397-016	**65.2**	-	-	1	07/17/24 16:00	
2024GCMTC9S3	K2407397-017	**67.2**	-	-	1	07/17/24 16:00	
2024GCMGC63S1	K2407397-018	**65.4**	-	-	1	07/17/24 16:00	
2024GCMGC63S2	K2407397-019	**73.8**	-	-	1	07/17/24 16:00	
2024GCMGC63S3	K2407397-020	**77.8**	-	-	1	07/17/24 16:00	
2024GCMTC1847S1	K2407397-021	**73.5**	-	-	1	07/18/24 09:53	
2024GCMTC1847S2	K2407397-022	**75.2**	-	-	1	07/18/24 09:53	
2024GCMTC1847S3	K2407397-023	**80.4**	-	-	1	07/18/24 09:53	
2024GCMGCDS1	K2407397-024	**83.8**	-	-	1	07/18/24 09:53	
2024GCMGCDS2	K2407397-025	**66.3**	-	-	1	07/18/24 09:53	
2024GCMGCDS3	K2407397-026	**70.7**	-	-	1	07/18/24 09:53	
2024GCMZC10S1	K2407397-027	**70.6**	-	-	1	07/18/24 09:53	
2024GCMZC10S2	K2407397-028	**73.3**	-	-	1	07/18/24 09:53	
2024GCMZC10S3	K2407397-029	**72.9**	-	-	1	07/18/24 09:53	

ALS Group USA, Corp.

dba ALS Environmental

QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24 - 07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
Analysis Method:	160.3 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	As Received

Replicate Sample Summary
Inorganic Parameters

Sample Name:	Lab Code:	MRL	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
2024GCMCCS1	K2407397-001DUP	-	-	70.8	72.6	71.7	3	20	07/17/24
2024GCMGC63S3	K2407397-020DUP	-	-	77.8	78.7	78.3	1	20	07/17/24
2024GCMTC1847S1	K2407397-021DUP	-	-	73.5	76.5	75.0	4	20	07/18/24

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 - 07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
Analysis Method:	160.4 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	Dry, per Method

Solids, Total Volatile

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Q
2024GCMCCS1	K2407397-001	**3.60**	0.10	-	1	07/17/24 16:00	
2024GCMCCS2	K2407397-002	**3.10**	0.10	-	1	07/17/24 16:00	
2024GCMCCS3	K2407397-003	**4.00**	0.10	-	1	07/17/24 16:00	
2024GCMFCS1	K2407397-004	**2.10**	0.10	-	1	07/17/24 16:00	
2024GCMFCS2	K2407397-005	**2.10**	0.10	-	1	07/17/24 16:00	
2024GCMFCS3	K2407397-006	**2.60**	0.10	-	1	07/17/24 16:00	
2024GCMZC371S1	K2407397-007	**3.30**	0.10	-	1	07/17/24 16:00	*
2024GCMZC371S2	K2407397-008	**2.60**	0.10	-	1	07/17/24 16:00	*
2024GCMZC371S3	K2407397-009	**2.30**	0.10	-	1	07/17/24 16:00	*
2024GCMTC808S1	K2407397-010	**6.70**	0.10	-	1	07/17/24 16:00	
2024GCMTC808S2	K2407397-011	**1.10**	0.10	-	1	07/17/24 16:00	
2024GCMTC808S3	K2407397-012	**10.8**	0.10	-	1	07/17/24 16:00	
2024GCMTC808S4	K2407397-013	**10.3**	0.10	-	1	07/17/24 16:00	
2024GCMTC808S5	K2407397-014	**12.0**	0.10	-	1	07/17/24 16:00	
2024GCMTC9S1	K2407397-015	**5.70**	0.10	-	1	07/17/24 16:00	
2024GCMTC9S2	K2407397-016	**4.20**	0.10	-	1	07/17/24 16:00	
2024GCMTC9S3	K2407397-017	**5.10**	0.10	-	1	07/17/24 16:00	
2024GCMGC63S1	K2407397-018	**1.50**	0.10	-	1	07/17/24 16:00	*
2024GCMGC63S2	K2407397-019	**1.30**	0.10	-	1	07/17/24 16:00	*
2024GCMGC63S3	K2407397-020	**1.00**	0.10	-	1	07/17/24 16:00	*
2024GCMTC1847S1	K2407397-021	**2.90**	0.10	-	1	07/18/24 08:46	*
2024GCMTC1847S2	K2407397-022	**2.20**	0.10	-	1	07/18/24 08:46	*
2024GCMTC1847S3	K2407397-023	**3.30**	0.10	-	1	07/18/24 08:46	*
2024GCMGCDS1	K2407397-024	**2.40**	0.10	-	1	07/18/24 08:46	*
2024GCMGCDS2	K2407397-025	**3.30**	0.10	-	1	07/18/24 08:46	*
2024GCMGCDS3	K2407397-026	**7.90**	0.10	-	1	07/18/24 08:46	*
2024GCMZC10S1	K2407397-027	**2.80**	0.10	-	1	07/18/24 08:46	*
2024GCMZC10S2	K2407397-028	**2.50**	0.10	-	1	07/18/24 08:46	*
2024GCMZC10S3	K2407397-029	**2.20**	0.10	-	1	07/18/24 08:46	*
Method Blank	K2407397-MB1	ND U	0.10	-	1	07/17/24 16:00	
Method Blank	K2407397-MB2	ND U	0.10	-	1	07/18/24 08:46	

ALS Group USA, Corp.
dba ALS Environmental

QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24 - 07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
Analysis Method:	160.4 Modified	**Units:**	Percent
Prep Method:	None	**Basis:**	Dry, per Method

Replicate Sample Summary
Solids, Total Volatile

Sample Name:	Lab Code:	MRL	MDL	Sample Result	Duplicate Result	Average	RPD	RPD Limit	Date Analyzed
2024GCMCCS1	K2407397-001DUP	0.10	-	3.60	3.50	3.55	3	20	07/17/24
2024GCMGC63S3	K2407397-020DUP	0.10	-	1.00	1.00	1.00	<1	20	07/17/24
2024GCMTC1847S1	K2407397-021DUP	0.10	-	2.90	2.90	2.90	<1	20	07/18/24

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 - 07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
Analysis Method:	PSEP Sulfide	**Units:**	mg/Kg
Prep Method:	Method	**Basis:**	Dry

Sulfide, Total

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2024GCMCCS1	K2407397-001	ND U	1.4	0.5	1	07/19/24 19:50	7/19/24	*
2024GCMCCS2	K2407397-002	ND U	1.3	0.4	1	07/19/24 19:50	7/19/24	*
2024GCMCCS3	K2407397-003	ND U	1.4	0.5	1	07/19/24 19:50	7/19/24	*
2024GCMFCS1	K2407397-004	ND U	1.3	0.4	1	07/19/24 19:50	7/19/24	*
2024GCMFCS2	K2407397-005	ND U	1.3	0.4	1	07/19/24 19:50	7/19/24	*
2024GCMFCS3	K2407397-006	ND U	1.4	0.5	1	07/19/24 19:50	7/19/24	*
2024GCMZC371S1	K2407397-007	ND U	1.3	0.4	1	07/19/24 19:50	7/19/24	*
2024GCMZC371S2	K2407397-008	ND U	1.3	0.4	1	07/19/24 19:50	7/19/24	*
2024GCMZC371S3	K2407397-009	ND U	1.4	0.5	1	07/19/24 19:50	7/19/24	*
2024GCMTC808S1	K2407397-010	**0.8 J**	1.9	0.6	1	07/19/24 19:50	7/19/24	*
2024GCMTC808S2	K2407397-011	**4.7**	1.9	0.6	1	07/19/24 19:50	7/19/24	*
2024GCMTC808S3	K2407397-012	ND U	2.1	0.7	1	07/19/24 19:50	7/19/24	*
2024GCMTC808S4	K2407397-013	**1.0 J**	2.1	0.7	1	07/19/24 19:50	7/19/24	*
2024GCMTC808S5	K2407397-014	**0.9 J**	2.3	0.7	1	07/19/24 19:50	7/19/24	*
2024GCMTC9S1	K2407397-015	**0.6 J**	1.5	0.5	1	07/19/24 19:50	7/19/24	*
2024GCMTC9S2	K2407397-016	ND U	1.4	0.5	1	07/19/24 19:50	7/19/24	*
2024GCMTC9S3	K2407397-017	ND U	1.4	0.5	1	07/19/24 19:50	7/19/24	*
2024GCMGC63S1	K2407397-018	ND U	1.4	0.5	1	07/19/24 19:50	7/19/24	*
2024GCMGC63S2	K2407397-019	ND U	1.3	0.4	1	07/19/24 19:50	7/19/24	*
2024GCMGC63S3	K2407397-020	**0.4 J**	1.2	0.4	1	07/19/24 19:50	7/19/24	*
2024GCMTC1847S1	K2407397-021	ND U	1.3	0.5	1	07/23/24 17:10	7/23/24	*
2024GCMTC1847S2	K2407397-022	ND U	1.2	0.4	1	07/23/24 17:10	7/23/24	*
2024GCMTC1847S3	K2407397-023	ND U	1.2	0.4	1	07/23/24 17:10	7/23/24	*
2024GCMGCDS1	K2407397-024	ND U	1.1	0.4	1	07/23/24 17:10	7/23/24	*
2024GCMGCDS2	K2407397-025	**0.8 J**	1.5	0.5	1	07/23/24 17:10	7/23/24	*
2024GCMGCDS3	K2407397-026	ND U	1.4	0.5	1	07/23/24 17:10	7/23/24	*
2024GCMZC10S1	K2407397-027	ND U	1.4	0.5	1	07/23/24 17:10	7/23/24	*
2024GCMZC10S2	K2407397-028	ND U	1.3	0.4	1	07/23/24 17:10	7/23/24	*
2024GCMZC10S3	K2407397-029	ND U	1.3	0.4	1	07/23/24 17:10	7/23/24	*
Method Blank	K2407397-MB1	ND U	1.0	0.3	1	07/19/24 19:50	7/19/24	
Method Blank	K2407397-MB2	ND U	1.0	0.3	1	07/23/24 17:10	7/23/24	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	07/19/24

Triplicate Sample Summary
General Chemistry Parameters

Sample Name:	2024GCMTC9S3	**Units:**	mg/Kg
Lab Code:	K2407397-017	**Basis:**	Dry
Analysis Method:	PSEP Sulfide		
Prep Method:	Method		

Analyte Name	MRL	MDL	Sample Result	Duplicate K2407397-017DUP Result	Triplicate K2407397-017TRP Result	Average	RSD	RSD Limit
Sulfide, Total	1.4	0.5	ND	ND	ND	NC	NC	20

Results flagged with an asterisk (*) indicate values outside control criteria.

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

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SuperSet Reference:24-0000703281 rev 00

QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	07/23/24

Triplicate Sample Summary
General Chemistry Parameters

Sample Name:	2024GCMTC1847S1	**Units:**	mg/Kg
Lab Code:	K2407397-021	**Basis:**	Dry
Analysis Method:	PSEP Sulfide		
Prep Method:	Method		

Analyte Name	MRL	MDL	Sample Result	Duplicate K2407397-021DUP Result	Triplicate K2407397-021TRP Result	Average	RSD	RSD Limit
Sulfide, Total	1.4	0.5	ND	0.4	0.8	NC	NC	20

Results flagged with an asterisk (*) indicate values outside control criteria.

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Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	07/19/24
		Date Extracted:	07/19/24

Duplicate Matrix Spike Summary
Sulfide, Total

Sample Name:	2024GCMTC9S3	**Units:**	mg/Kg
Lab Code:	K2407397-017	**Basis:**	Dry
Analysis Method:	PSEP Sulfide		
Prep Method:	Method		

		Matrix Spike			Duplicate Matrix Spike					
		K2407397-017MS			K2407397-017DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfide, Total	ND U	570	580	100	570	600	96	28-175	<1	20

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Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	07/23/24
		Date Extracted:	07/23/24

Duplicate Matrix Spike Summary
Sulfide, Total

Sample Name:	2024GCMTC1847S1	**Units:**	mg/Kg
Lab Code:	K2407397-021	**Basis:**	Dry
Analysis Method:	PSEP Sulfide		
Prep Method:	Method		

		Matrix Spike			Duplicate Matrix Spike					
		K2407397-021MS			K2407397-021DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Sulfide, Total	ND U	500	510	99	470	490	95	28-175	7	20

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Analyzed:**	07/19/24
Sample Matrix:	Sediment	**Date Extracted:**	07/19/24

Lab Control Sample Summary
Sulfide, Total

Analysis Method:	PSEP Sulfide	**Units:**	mg/Kg
Prep Method:	Method	**Basis:**	Dry
		Analysis Lot:	847982

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2407397-LCS1	391	410	96	39-166

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Analyzed:**	07/23/24
Sample Matrix:	Sediment	**Date Extracted:**	07/23/24

Lab Control Sample Summary
Sulfide, Total

Analysis Method:	PSEP Sulfide	**Units:**	mg/Kg
Prep Method:	Method	**Basis:**	Dry
		Analysis Lot:	848303

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2407397-LCS2	407	400	102	39-166

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring

Continuing Calibration Verification (CCV) Summary

Sulfide, Total

Analysis Method: PSEP Sulfide **Units:** mg/L

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	847982	KQ2411234-01	07/19/24 19:50	0.614	0.605	99	90-110
CCV2	847982	KQ2411234-02	07/19/24 19:50	0.614	0.604	98	90-110
CCV3	847982	KQ2411234-03	07/19/24 19:50	0.614	0.605	99	90-110
CCV4	847982	KQ2411234-04	07/19/24 19:50	0.614	0.604	98	90-110
CCV5	848303	KQ2411575-01	07/23/24 17:10	0.597	0.603	101	90-110
CCV6	848303	KQ2411575-02	07/23/24 17:10	0.597	0.602	101	90-110
CCV7	848303	KQ2411575-03	07/23/24 17:10	0.597	0.601	101	90-110

Client: Alaska Department of Fish and Game **Service Request:**K2407397
Project: 2024 Greens Creek Biomonitoring

Continuing Calibration Blank (CCB) Summary
Sulfide, Total

Analysis Method: PSEP Sulfide **Units:**mg/Kg

	Analysis Lot	Lab Code	Date Analyzed	MRL	MDL	Result	Q
CCB1	847982	KQ2411234-05	07/19/24 19:50	1.0	0.3	ND	U
CCB2	847982	KQ2411234-06	07/19/24 19:50	1.0	0.3	ND	U
CCB3	847982	KQ2411234-07	07/19/24 19:50	1.0	0.3	ND	U
CCB4	847982	KQ2411234-08	07/19/24 19:50	1.0	0.3	ND	U
CCB5	848303	KQ2411575-04	07/23/24 17:10	1.0	0.3	ND	U
CCB6	848303	KQ2411575-05	07/23/24 17:10	1.0	0.3	ND	U
CCB7	848303	KQ2411575-06	07/23/24 17:10	1.0	0.3	ND	U

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 - 07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
Analysis Method:	PSEP TOC	**Units:**	Percent
Prep Method:	ALS SOP	**Basis:**	Dry, per Method

Carbon, Total Organic (TOC)

Sample Name	Lab Code	Result	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
2024GCMCCS1	K2407397-001	**0.94**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMCCS2	K2407397-002	**0.61**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMCCS3	K2407397-003	**0.65**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMFCS1	K2407397-004	**0.52**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMFCS2	K2407397-005	**0.47**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMFCS3	K2407397-006	**0.50**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMZC371S1	K2407397-007	**0.64**	0.10	0.005	1	07/22/24 10:34	7/22/24	
2024GCMZC371S2	K2407397-008	**0.79**	0.10	0.005	1	07/22/24 10:34	7/22/24	
2024GCMZC371S3	K2407397-009	**0.65**	0.10	0.005	1	07/22/24 10:34	7/22/24	
2024GCMTC808S1	K2407397-010	**2.12**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMTC808S2	K2407397-011	**3.52**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMTC808S3	K2407397-012	**2.76**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMTC808S4	K2407397-013	**2.10**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMTC808S5	K2407397-014	**4.06**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMTC9S1	K2407397-015	**1.29**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMTC9S2	K2407397-016	**1.87**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMTC9S3	K2407397-017	**1.60**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMGC63S1	K2407397-018	**0.52**	0.10	0.005	1	07/22/24 10:34	7/22/24	
2024GCMGC63S2	K2407397-019	**0.39**	0.10	0.005	1	07/22/24 10:34	7/22/24	
2024GCMGC63S3	K2407397-020	**0.25**	0.10	0.005	1	07/22/24 10:34	7/22/24	
2024GCMTC1847S1	K2407397-021	**1.02**	0.10	0.005	1	07/22/24 10:34	7/22/24	
2024GCMTC1847S2	K2407397-022	**0.73**	0.10	0.005	1	07/22/24 10:34	7/22/24	
2024GCMTC1847S3	K2407397-023	**0.39**	0.10	0.005	1	07/23/24 10:23	7/23/24	
2024GCMGCDS1	K2407397-024	**0.53**	0.10	0.005	1	07/22/24 10:34	7/22/24	
2024GCMGCDS2	K2407397-025	**1.04**	0.10	0.005	1	07/22/24 10:34	7/22/24	
2024GCMGCDS3	K2407397-026	**0.62**	0.10	0.005	1	07/22/24 10:34	7/22/24	
2024GCMZC10S1	K2407397-027	**0.72**	0.10	0.005	1	07/22/24 10:34	7/22/24	
2024GCMZC10S2	K2407397-028	**0.83**	0.10	0.005	1	07/22/24 10:34	7/22/24	
2024GCMZC10S3	K2407397-029	**0.67**	0.10	0.005	1	07/22/24 10:34	7/22/24	
Method Blank	K2407397-MB1	ND U	0.10	0.005	1	07/22/24 10:34	7/22/24	
Method Blank	K2407397-MB2	ND U	0.10	0.005	1	07/23/24 10:23	7/23/24	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	07/23/24

Triplicate Sample Summary
General Chemistry Parameters

Sample Name:	2024GCMCCS1	**Units:**	Percent
Lab Code:	K2407397-001	**Basis:**	Dry, per Method
Analysis Method:	PSEP TOC		
Prep Method:	ALS SOP		

Analyte Name	MRL	MDL	Sample Result	Duplicate K2407397-001DUP Result	Triplicate K2407397-001TRP Result	Average	RSD	RSD Limit
Carbon, Total Organic (TOC)	0.10	0.005	0.94	0.93	0.93	0.933	<1	27

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SuperSet Reference:24-0000703281 rev 00

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	07/22/24

Triplicate Sample Summary
General Chemistry Parameters

Sample Name:	2024GCMZC371S1	**Units:**	Percent
Lab Code:	K2407397-007	**Basis:**	Dry, per Method
Analysis Method:	PSEP TOC		
Prep Method:	ALS SOP		

Analyte Name	MRL	MDL	Sample Result	Duplicate K2407397-007DUP Result	Triplicate K2407397-007TRP Result	Average	RSD	RSD Limit
Carbon, Total Organic (TOC)	0.10	0.005	0.64	0.63	0.65	0.640	2	27

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SuperSet Reference:24-0000703281 rev 00

ALS Group USA, Corp.
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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	07/23/24
		Date Extracted:	07/23/24

Duplicate Matrix Spike Summary
Carbon, Total Organic (TOC)

Sample Name:	2024GCMCCS1	**Units:**	Percent
Lab Code:	K2407397-001	**Basis:**	Dry, per Method
Analysis Method:	PSEP TOC		
Prep Method:	ALS SOP		

		Matrix Spike			**Duplicate Matrix Spike**					
		K2407397-001MS			K2407397-001DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Carbon, Total Organic (TOC)	0.94	3.22	2.40	95	3.33	2.43	98	69-123	3	27

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Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	07/22/24
		Date Extracted:	07/22/24

Duplicate Matrix Spike Summary
Carbon, Total Organic (TOC)

Sample Name:	2024GCMZC371S1	**Units:**	Percent
Lab Code:	K2407397-007	**Basis:**	Dry, per Method
Analysis Method:	PSEP TOC		
Prep Method:	ALS SOP		

		Matrix Spike			Duplicate Matrix Spike					
		K2407397-007MS			K2407397-007DMS					
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Carbon, Total Organic (TOC)	0.64	2.98	2.39	98	3.00	2.46	96	69-123	2	27

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Analyzed:**	07/22/24
Sample Matrix:	Sediment	**Date Extracted:**	07/22/24

Lab Control Sample Summary
Carbon, Total Organic (TOC)

Analysis Method:	PSEP TOC	**Units:**	Percent
Prep Method:	ALS SOP	**Basis:**	Dry, per Method
		Analysis Lot:	848223

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2407397-LCS1	3.22	2.99	108	74-118

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Analyzed:**	07/23/24
Sample Matrix:	Sediment	**Date Extracted:**	07/23/24

Lab Control Sample Summary
Carbon, Total Organic (TOC)

Analysis Method:	PSEP TOC	**Units:**	Percent
Prep Method:	ALS SOP	**Basis:**	Dry, per Method
		Analysis Lot:	848167

Sample Name	Lab Code	Result	Spike Amount	% Rec	% Rec Limits
Lab Control Sample	K2407397-LCS2	3.17	2.99	106	74-118

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring

Continuing Calibration Verification (CCV) Summary

Carbon, Total Organic (TOC)

Analysis Method: PSEP TOC **Units:** Percent

	Analysis Lot	Lab Code	Date Analyzed	True Value	Measured Value	Percent Recovery	Acceptance Limits
CCV1	848223	KQ2411570-01	07/22/24 10:34	12.0	12.2	101	90-110
CCV2	848223	KQ2411570-02	07/22/24 10:34	12.0	12.1	100	90-110
CCV3	848223	KQ2411570-03	07/22/24 10:34	12.0	11.8	99	90-110
CCV4	848167	KQ2411572-01	07/23/24 10:23	12.0	12.0	100	90-110
CCV5	848167	KQ2411572-02	07/23/24 10:23	12.0	11.8	98	90-110
CCV6	848167	KQ2411572-03	07/23/24 10:23	12.0	11.8	98	90-110
CCV7	848167	KQ2411572-04	07/23/24 10:23	12.0	12.0	100	90-110

Client: Alaska Department of Fish and Game **Service Request:**K2407397
Project: 2024 Greens Creek Biomonitoring

Continuing Calibration Blank (CCB) Summary
Carbon, Total Organic (TOC)

Analysis Method: PSEP TOC **Units:**Percent

	Analysis Lot	Lab Code	Date Analyzed	MRL	MDL	Result	Q
CCB1	848223	KQ2411570-04	07/22/24 10:34	0.10	0.005	ND	U
CCB2	848223	KQ2411570-05	07/22/24 10:34	0.10	0.005	ND	U
CCB3	848223	KQ2411570-06	07/22/24 10:34	0.10	0.005	ND	U
CCB4	848167	KQ2411572-05	07/23/24 10:23	0.10	0.005	ND	U
CCB5	848167	KQ2411572-06	07/23/24 10:23	0.10	0.005	ND	U
CCB6	848167	KQ2411572-07	07/23/24 10:23	0.10	0.005	ND	U
CCB7	848167	KQ2411572-08	07/23/24 10:23	0.10	0.005	ND	U

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMCCS1
Lab Code: K2407397-001

Sand Fraction: Weight (Grams)	29.6200
Sand Fraction: Weight Recovered (Grams)	29.5474
Sand Fraction: Percent Recovery	99.75

Weight as received (Grams)	39.461
Percent Solids	70.8
Weight Oven-Dried (Grams)	27.9384

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	7.1954	25.75
Gravel, Fine	2.00 mm	10	9.4884	33.96
Sand, Very Coarse	0.850 mm	20	8.4504	30.25
Sand, Coarse	0.425 mm	40	2.9723	10.64
Sand, Medium	0.250 mm	60	0.7787	2.79
Sand, Fine	0.106 mm	140	0.4861	1.74
Sand, Very Fine	0.075 mm	200	0.1051	0.38
Silt			0.3750	1.34
Clay			0.0300	0.11
		Total	29.8814	106.96

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMCCS1
Lab Code: K2407397-001DUP

Sand Fraction: Weight (Grams)	29.3730
Sand Fraction: Weight Recovered (Grams)	29.3389
Sand Fraction: Percent Recovery	99.88

Weight as received (Grams)	38.129
Percent Solids	70.8
Weight Oven-Dried (Grams)	26.9953

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	9.9021	36.68
Gravel, Fine	2.00 mm	10	9.2216	34.16
Sand, Very Coarse	0.850 mm	20	6.5970	24.44
Sand, Coarse	0.425 mm	40	2.3499	8.70
Sand, Medium	0.250 mm	60	0.6394	2.37
Sand, Fine	0.106 mm	140	0.4619	1.71
Sand, Very Fine	0.075 mm	200	0.0995	0.37
Silt			0.2400	0.89
Clay			0.0200	0.07
		Total	29.5314	109.39

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMCCS2
Lab Code: K2407397-002

Sand Fraction: Weight (Grams)	26.2324
Sand Fraction: Weight Recovered (Grams)	26.2238
Sand Fraction: Percent Recovery	99.97

Weight as received (Grams)	34.555
Percent Solids	75.8
Weight Oven-Dried (Grams)	26.1927

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	4.7326	18.07
Gravel, Fine	2.00 mm	10	13.3767	51.07
Sand, Very Coarse	0.850 mm	20	6.1121	23.34
Sand, Coarse	0.425 mm	40	1.4494	5.53
Sand, Medium	0.250 mm	60	0.2482	0.95
Sand, Fine	0.106 mm	140	0.1797	0.69
Sand, Very Fine	0.075 mm	200	0.0548	0.21
Silt			0.1600	0.61
Clay			0.0000	0.00
		Total	26.3135	100.47

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMCCS3
Lab Code: K2407397-003

Sand Fraction: Weight (Grams)	21.7047
Sand Fraction: Weight Recovered (Grams)	21.6894
Sand Fraction: Percent Recovery	99.93

Weight as received (Grams)	32.749
Percent Solids	70.3
Weight Oven-Dried (Grams)	23.0225

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	5.4497	23.67
Gravel, Fine	2.00 mm	10	8.1459	35.38
Sand, Very Coarse	0.850 mm	20	5.4630	23.73
Sand, Coarse	0.425 mm	40	1.6717	7.26
Sand, Medium	0.250 mm	60	0.4727	2.05
Sand, Fine	0.106 mm	140	0.3401	1.48
Sand, Very Fine	0.075 mm	200	0.0755	0.33
Silt			0.1350	0.59
Clay			0.0300	0.13
		Total	21.7836	94.62

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMFCS1
Lab Code: K2407397-004

Sand Fraction: Weight (Grams)	31.8983
Sand Fraction: Weight Recovered (Grams)	31.6504
Sand Fraction: Percent Recovery	99.22

Weight as received (Grams)	42.48
Percent Solids	74.0
Weight Oven-Dried (Grams)	31.4352

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	3.6583	11.64
Gravel, Fine	2.00 mm	10	4.3505	13.84
Sand, Very Coarse	0.850 mm	20	7.7747	24.73
Sand, Coarse	0.425 mm	40	11.5734	36.82
Sand, Medium	0.250 mm	60	3.4975	11.13
Sand, Fine	0.106 mm	140	0.6678	2.12
Sand, Very Fine	0.075 mm	200	0.0613	0.20
Silt			0.1300	0.41
Clay			0.0250	0.08
		Total	31.7385	100.97

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMFCS2
Lab Code: K2407397-005

Sand Fraction: Weight (Grams)	26.6309
Sand Fraction: Weight Recovered (Grams)	26.5493
Sand Fraction: Percent Recovery	99.69

Weight as received (Grams)	34.611
Percent Solids	75.2
Weight Oven-Dried (Grams)	26.0275

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	3.3200	12.76
Gravel, Fine	2.00 mm	10	7.2809	27.97
Sand, Very Coarse	0.850 mm	20	9.2584	35.57
Sand, Coarse	0.425 mm	40	4.3869	16.85
Sand, Medium	0.250 mm	60	1.2466	4.79
Sand, Fine	0.106 mm	140	0.9198	3.53
Sand, Very Fine	0.075 mm	200	0.0899	0.35
Silt			0.0800	0.31
Clay			0.0200	0.08
		Total	26.6025	102.21

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMFCS3
Lab Code: K2407397-006

Sand Fraction: Weight (Grams)	29.9988
Sand Fraction: Weight Recovered (Grams)	29.9157
Sand Fraction: Percent Recovery	99.72

Weight as received (Grams)	41.909
Percent Solids	72.3
Weight Oven-Dried (Grams)	30.3002

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.2207	0.73
Gravel, Fine	2.00 mm	10	2.8580	9.43
Sand, Very Coarse	0.850 mm	20	8.8580	29.23
Sand, Coarse	0.425 mm	40	13.6336	45.00
Sand, Medium	0.250 mm	60	3.5088	11.58
Sand, Fine	0.106 mm	140	0.7023	2.32
Sand, Very Fine	0.075 mm	200	0.0950	0.31
Silt			0.1200	0.40
Clay			0.0300	0.10
		Total	30.0264	99.10

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMZC371S1
Lab Code: K2407397-007

Sand Fraction: Weight (Grams)	25.1163
Sand Fraction: Weight Recovered (Grams)	25.1016
Sand Fraction: Percent Recovery	99.94

Weight as received (Grams)	35.512
Percent Solids	72.6
Weight Oven-Dried (Grams)	25.7817

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	3.9553	15.34
Gravel, Fine	2.00 mm	10	7.2610	28.16
Sand, Very Coarse	0.850 mm	20	9.6610	37.47
Sand, Coarse	0.425 mm	40	3.1020	12.03
Sand, Medium	0.250 mm	60	0.6351	2.46
Sand, Fine	0.106 mm	140	0.3811	1.48
Sand, Very Fine	0.075 mm	200	0.0590	0.23
Silt			0.1500	0.58
Clay			0.0250	0.10
		Total	25.2295	97.85

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMZC371S2
Lab Code: K2407397-008

Sand Fraction: Weight (Grams)	23.0103
Sand Fraction: Weight Recovered (Grams)	22.9687
Sand Fraction: Percent Recovery	99.82

Weight as received (Grams)	33.724
Percent Solids	70.4
Weight Oven-Dried (Grams)	23.7417

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	4.4497	18.74
Gravel, Fine	2.00 mm	10	2.9247	12.32
Sand, Very Coarse	0.850 mm	20	4.7578	20.04
Sand, Coarse	0.425 mm	40	4.8496	20.43
Sand, Medium	0.250 mm	60	3.7358	15.74
Sand, Fine	0.106 mm	140	1.9903	8.38
Sand, Very Fine	0.075 mm	200	0.1788	0.75
Silt			0.2950	1.24
Clay			0.0350	0.15
		Total	23.2167	97.79

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMZC371S3
Lab Code: K2407397-009

Sand Fraction: Weight (Grams)	24.2060
Sand Fraction: Weight Recovered (Grams)	24.1427
Sand Fraction: Percent Recovery	99.74

Weight as received (Grams)	36.535
Percent Solids	68.0
Weight Oven-Dried (Grams)	24.8438

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.2146	0.86
Gravel, Fine	2.00 mm	10	2.6436	10.64
Sand, Very Coarse	0.850 mm	20	9.2105	37.07
Sand, Coarse	0.425 mm	40	9.1982	37.02
Sand, Medium	0.250 mm	60	2.1392	8.61
Sand, Fine	0.106 mm	140	0.6191	2.49
Sand, Very Fine	0.075 mm	200	0.0713	0.29
Silt			0.1700	0.68
Clay			0.0350	0.14
		Total	24.3015	97.80

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMTC808S1
Lab Code: K2407397-010

Sand Fraction: Weight (Grams)	19.2510
Sand Fraction: Weight Recovered (Grams)	19.2075
Sand Fraction: Percent Recovery	99.77

Weight as received (Grams)	36.154
Percent Solids	53.9
Weight Oven-Dried (Grams)	19.4870

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0000	0.00
Gravel, Fine	2.00 mm	10	0.1011	0.52
Sand, Very Coarse	0.850 mm	20	1.0652	5.47
Sand, Coarse	0.425 mm	40	5.2753	27.07
Sand, Medium	0.250 mm	60	6.1412	31.51
Sand, Fine	0.106 mm	140	5.6055	28.77
Sand, Very Fine	0.075 mm	200	0.7213	3.70
Silt			1.7200	8.83
Clay			0.0900	0.46
		Total	20.7196	106.33

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMTC808S2
Lab Code: K2407397-011

Sand Fraction: Weight (Grams)	14.8709
Sand Fraction: Weight Recovered (Grams)	14.7921
Sand Fraction: Percent Recovery	99.47

Weight as received (Grams)	32.492
Percent Solids	51.8
Weight Oven-Dried (Grams)	16.8309

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0289	0.17
Gravel, Fine	2.00 mm	10	0.1404	0.83
Sand, Very Coarse	0.850 mm	20	0.4983	2.96
Sand, Coarse	0.425 mm	40	1.0969	6.52
Sand, Medium	0.250 mm	60	3.7365	22.20
Sand, Fine	0.106 mm	140	8.1621	48.49
Sand, Very Fine	0.075 mm	200	0.8040	4.78
Silt			1.3450	7.99
Clay			0.0650	0.39
		Total	15.8771	94.33

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMTC808S3
Lab Code: K2407397-012

Sand Fraction: Weight (Grams)	15.6034
Sand Fraction: Weight Recovered (Grams)	15.5197
Sand Fraction: Percent Recovery	99.46

Weight as received (Grams)	36.158
Percent Solids	47.6
Weight Oven-Dried (Grams)	17.2112

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	1.1896	6.91
Gravel, Fine	2.00 mm	10	0.7365	4.28
Sand, Very Coarse	0.850 mm	20	0.7586	4.41
Sand, Coarse	0.425 mm	40	2.5610	14.88
Sand, Medium	0.250 mm	60	3.7836	21.98
Sand, Fine	0.106 mm	140	5.7744	33.55
Sand, Very Fine	0.075 mm	200	0.5366	3.12
Silt			0.9700	5.64
Clay			0.0300	0.17
		Total	16.3403	94.94

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMTC808S4
Lab Code: K2407397-013

Sand Fraction: Weight (Grams)	16.1959
Sand Fraction: Weight Recovered (Grams)	16.0716
Sand Fraction: Percent Recovery	99.23

Weight as received (Grams)	35.53
Percent Solids	45.8
Weight Oven-Dried (Grams)	16.2727

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0000	0.00
Gravel, Fine	2.00 mm	10	0.1728	1.06
Sand, Very Coarse	0.850 mm	20	1.9487	11.98
Sand, Coarse	0.425 mm	40	6.0094	36.93
Sand, Medium	0.250 mm	60	3.6318	22.32
Sand, Fine	0.106 mm	140	3.0433	18.70
Sand, Very Fine	0.075 mm	200	0.7959	4.89
Silt			2.2100	13.58
Clay			0.0950	0.58
		Total	17.9069	110.04

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMTC808S5
Lab Code: K2407397-014

Sand Fraction: Weight (Grams)	16.5738
Sand Fraction: Weight Recovered (Grams)	16.4422
Sand Fraction: Percent Recovery	99.21

Weight as received (Grams)	42.417
Percent Solids	41.4
Weight Oven-Dried (Grams)	17.5606

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0000	0.00
Gravel, Fine	2.00 mm	10	0.0359	0.20
Sand, Very Coarse	0.850 mm	20	0.2133	1.21
Sand, Coarse	0.425 mm	40	1.1294	6.43
Sand, Medium	0.250 mm	60	3.9554	22.52
Sand, Fine	0.106 mm	140	8.2852	47.18
Sand, Very Fine	0.075 mm	200	1.8689	10.64
Silt			3.9800	22.66
Clay			0.2250	1.28
		Total	19.6931	112.12

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMTC9S1
Lab Code: K2407397-015

Sand Fraction: Weight (Grams)	23.9855
Sand Fraction: Weight Recovered (Grams)	23.8486
Sand Fraction: Percent Recovery	99.43

Weight as received (Grams)	40.598
Percent Solids	65.4
Weight Oven-Dried (Grams)	26.5511

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0000	0.00
Gravel, Fine	2.00 mm	10	2.4333	9.16
Sand, Very Coarse	0.850 mm	20	7.1909	27.08
Sand, Coarse	0.425 mm	40	5.4806	20.64
Sand, Medium	0.250 mm	60	3.0397	11.45
Sand, Fine	0.106 mm	140	4.0016	15.07
Sand, Very Fine	0.075 mm	200	0.9786	3.69
Silt			4.0500	15.25
Clay			0.2600	0.98
		Total	27.4347	103.32

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMTC9S2
Lab Code: K2407397-016

Sand Fraction: Weight (Grams)	30.1388
Sand Fraction: Weight Recovered (Grams)	30.0005
Sand Fraction: Percent Recovery	99.54

Weight as received (Grams)	47.861
Percent Solids	65.2
Weight Oven-Dried (Grams)	31.2054

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.0000	0.00
Gravel, Fine	2.00 mm	10	1.5941	5.11
Sand, Very Coarse	0.850 mm	20	5.3474	17.14
Sand, Coarse	0.425 mm	40	9.4172	30.18
Sand, Medium	0.250 mm	60	6.9344	22.22
Sand, Fine	0.106 mm	140	5.4862	17.58
Sand, Very Fine	0.075 mm	200	0.6842	2.19
Silt			2.7850	8.92
Clay			0.3100	0.99
		Total	32.5585	104.33

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMTC9S3
Lab Code: K2407397-017

Sand Fraction: Weight (Grams)	27.2095
Sand Fraction: Weight Recovered (Grams)	27.0327
Sand Fraction: Percent Recovery	99.35

Weight as received (Grams)	43.454
Percent Solids	67.2
Weight Oven-Dried (Grams)	29.2011

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.2893	0.99
Gravel, Fine	2.00 mm	10	1.7409	5.96
Sand, Very Coarse	0.850 mm	20	5.4999	18.83
Sand, Coarse	0.425 mm	40	8.4769	29.03
Sand, Medium	0.250 mm	60	5.5227	18.91
Sand, Fine	0.106 mm	140	4.1306	14.15
Sand, Very Fine	0.075 mm	200	0.7083	2.43
Silt			2.8350	9.71
Clay			0.4150	1.42
		Total	29.6186	101.43

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMGC63S1
Lab Code: K2407397-018

Sand Fraction: Weight (Grams)	32.6260
Sand Fraction: Weight Recovered (Grams)	32.5870
Sand Fraction: Percent Recovery	99.88

Weight as received (Grams)	43.147
Percent Solids	65.4
Weight Oven-Dried (Grams)	28.2181

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	6.2611	22.19
Gravel, Fine	2.00 mm	10	16.2168	57.47
Sand, Very Coarse	0.850 mm	20	8.7294	30.94
Sand, Coarse	0.425 mm	40	1.1011	3.90
Sand, Medium	0.250 mm	60	0.1642	0.58
Sand, Fine	0.106 mm	140	0.0877	0.31
Sand, Very Fine	0.075 mm	200	0.0141	0.05
Silt			0.0350	0.12
Clay			0.0500	0.18
		Total	32.6594	115.74

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMGC63S2
Lab Code: K2407397-019

Sand Fraction: Weight (Grams)	32.7491
Sand Fraction: Weight Recovered (Grams)	32.7303
Sand Fraction: Percent Recovery	99.94

Weight as received (Grams)	41.958
Percent Solids	73.8
Weight Oven-Dried (Grams)	30.9650

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	12.3161	39.77
Gravel, Fine	2.00 mm	10	15.4702	49.96
Sand, Very Coarse	0.850 mm	20	4.4019	14.22
Sand, Coarse	0.425 mm	40	0.4031	1.30
Sand, Medium	0.250 mm	60	0.0659	0.21
Sand, Fine	0.106 mm	140	0.0422	0.14
Sand, Very Fine	0.075 mm	200	0.0109	0.04
Silt			0.0600	0.19
Clay			0.0500	0.16
		Total	32.8203	105.99

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMGC63S3
Lab Code: K2407397-020

Sand Fraction: Weight (Grams)	39.2076
Sand Fraction: Weight Recovered (Grams)	39.1511
Sand Fraction: Percent Recovery	99.86

Weight as received (Grams)	46.521
Percent Solids	77.8
Weight Oven-Dried (Grams)	36.1933

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	25.7869	71.25
Gravel, Fine	2.00 mm	10	10.3279	28.54
Sand, Very Coarse	0.850 mm	20	2.4673	6.82
Sand, Coarse	0.425 mm	40	0.3649	1.01
Sand, Medium	0.250 mm	60	0.1163	0.32
Sand, Fine	0.106 mm	140	0.0517	0.14
Sand, Very Fine	0.075 mm	200	0.0097	0.03
Silt			0.0250	0.07
Clay			0.0400	0.11
		Total	39.1897	108.29

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMTC1847S1
Lab Code: K2407397-021

Sand Fraction: Weight (Grams)	28.9105
Sand Fraction: Weight Recovered (Grams)	28.8391
Sand Fraction: Percent Recovery	99.75

Weight as received (Grams)	42.165
Percent Solids	73.5
Weight Oven-Dried (Grams)	30.9913

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	1.8438	5.95
Gravel, Fine	2.00 mm	10	8.7818	28.34
Sand, Very Coarse	0.850 mm	20	4.4831	14.47
Sand, Coarse	0.425 mm	40	3.0762	9.93
Sand, Medium	0.250 mm	60	3.7895	12.23
Sand, Fine	0.106 mm	140	5.6843	18.34
Sand, Very Fine	0.075 mm	200	0.9392	3.03
Silt			1.9850	6.41
Clay			0.0200	0.06
		Total	30.6029	98.76

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMTC1847S2
Lab Code: K2407397-022

Sand Fraction: Weight (Grams)	32.0945
Sand Fraction: Weight Recovered (Grams)	32.0529
Sand Fraction: Percent Recovery	99.87

Weight as received (Grams)	41.42
Percent Solids	75.2
Weight Oven-Dried (Grams)	31.1478

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	5.9596	19.13
Gravel, Fine	2.00 mm	10	8.0873	25.96
Sand, Very Coarse	0.850 mm	20	9.3135	29.90
Sand, Coarse	0.425 mm	40	6.1414	19.72
Sand, Medium	0.250 mm	60	1.6935	5.44
Sand, Fine	0.106 mm	140	0.7152	2.30
Sand, Very Fine	0.075 mm	200	0.0788	0.25
Silt			0.3600	1.16
Clay			0.0000	0.00
		Total	32.3493	103.86

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMTC1847S3
Lab Code: K2407397-023

Sand Fraction: Weight (Grams)	35.8097
Sand Fraction: Weight Recovered (Grams)	35.7710
Sand Fraction: Percent Recovery	99.89

Weight as received (Grams)	43.316
Percent Solids	80.4
Weight Oven-Dried (Grams)	34.8261

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	12.8179	36.81
Gravel, Fine	2.00 mm	10	9.5388	27.39
Sand, Very Coarse	0.850 mm	20	6.9393	19.93
Sand, Coarse	0.425 mm	40	4.5418	13.04
Sand, Medium	0.250 mm	60	1.5013	4.31
Sand, Fine	0.106 mm	140	0.3669	1.05
Sand, Very Fine	0.075 mm	200	0.0328	0.09
Silt			0.1100	0.32
Clay			0.0200	0.06
		Total	35.8688	103.00

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMGCDS1
Lab Code: K2407397-024

Sand Fraction: Weight (Grams)	30.7369
Sand Fraction: Weight Recovered (Grams)	30.7034
Sand Fraction: Percent Recovery	99.89

Weight as received (Grams)	35.879
Percent Solids	83.8
Weight Oven-Dried (Grams)	30.0666

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.3663	1.22
Gravel, Fine	2.00 mm	10	12.3440	41.06
Sand, Very Coarse	0.850 mm	20	9.7944	32.58
Sand, Coarse	0.425 mm	40	3.3594	11.17
Sand, Medium	0.250 mm	60	2.7626	9.19
Sand, Fine	0.106 mm	140	1.8988	6.32
Sand, Very Fine	0.075 mm	200	0.1486	0.49
Silt			0.2550	0.85
Clay			0.0250	0.08
		Total	30.9541	102.96

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMGCDS1
Lab Code: K2407397-024DUP

Sand Fraction: Weight (Grams)	32.0153
Sand Fraction: Weight Recovered (Grams)	31.9764
Sand Fraction: Percent Recovery	99.88

Weight as received (Grams)	36.857
Percent Solids	83.8
Weight Oven-Dried (Grams)	30.8862

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	1.1904	3.85
Gravel, Fine	2.00 mm	10	11.5720	37.47
Sand, Very Coarse	0.850 mm	20	10.5817	34.26
Sand, Coarse	0.425 mm	40	3.9245	12.71
Sand, Medium	0.250 mm	60	2.7534	8.91
Sand, Fine	0.106 mm	140	1.7617	5.70
Sand, Very Fine	0.075 mm	200	0.1472	0.48
Silt			0.3050	0.99
Clay			0.0000	0.00
		Total	32.2359	104.37

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMGCDS2
Lab Code: K2407397-025

Sand Fraction: Weight (Grams)	32.5682
Sand Fraction: Weight Recovered (Grams)	32.4944
Sand Fraction: Percent Recovery	99.77

Weight as received (Grams)	48.237
Percent Solids	66.3
Weight Oven-Dried (Grams)	31.9811

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	0.5135	1.61
Gravel, Fine	2.00 mm	10	0.7367	2.30
Sand, Very Coarse	0.850 mm	20	10.7861	33.73
Sand, Coarse	0.425 mm	40	14.5999	45.65
Sand, Medium	0.250 mm	60	4.8582	15.19
Sand, Fine	0.106 mm	140	0.8518	2.66
Sand, Very Fine	0.075 mm	200	0.0853	0.27
Silt			0.4000	1.25
Clay			0.0500	0.16
		Total	32.8815	102.82

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMGCDS3
Lab Code: K2407397-026

Sand Fraction: Weight (Grams)	35.9637
Sand Fraction: Weight Recovered (Grams)	35.9411
Sand Fraction: Percent Recovery	99.94

Weight as received (Grams)	48.495
Percent Solids	70.7
Weight Oven-Dried (Grams)	34.2860

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	1.0852	3.17
Gravel, Fine	2.00 mm	10	10.0328	29.26
Sand, Very Coarse	0.850 mm	20	11.5301	33.63
Sand, Coarse	0.425 mm	40	7.1123	20.74
Sand, Medium	0.250 mm	60	4.2141	12.29
Sand, Fine	0.106 mm	140	1.7955	5.24
Sand, Very Fine	0.075 mm	200	0.1414	0.41
Silt			0.3700	1.08
Clay			0.0000	0.00
		Total	36.2814	105.82

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMZC10S1
Lab Code: K2407397-027

Sand Fraction: Weight (Grams)	28.6411
Sand Fraction: Weight Recovered (Grams)	28.5694
Sand Fraction: Percent Recovery	99.75

Weight as received (Grams)	38.917
Percent Solids	70.6
Weight Oven-Dried (Grams)	27.4754

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	3.6469	13.27
Gravel, Fine	2.00 mm	10	4.8543	17.67
Sand, Very Coarse	0.850 mm	20	7.1851	26.15
Sand, Coarse	0.425 mm	40	7.4002	26.93
Sand, Medium	0.250 mm	60	4.0715	14.82
Sand, Fine	0.106 mm	140	1.2588	4.58
Sand, Very Fine	0.075 mm	200	0.1191	0.43
Silt			0.1300	0.47
Clay			0.0250	0.09
		Total	28.6909	104.41

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMZC10S2
Lab Code: K2407397-028

Sand Fraction: Weight (Grams)	35.6001
Sand Fraction: Weight Recovered (Grams)	35.5247
Sand Fraction: Percent Recovery	99.79

Weight as received (Grams)	48.528
Percent Solids	73.3
Weight Oven-Dried (Grams)	35.5710

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	1.8669	5.25
Gravel, Fine	2.00 mm	10	5.8700	16.50
Sand, Very Coarse	0.850 mm	20	8.5900	24.15
Sand, Coarse	0.425 mm	40	11.2989	31.76
Sand, Medium	0.250 mm	60	5.4237	15.25
Sand, Fine	0.106 mm	140	2.0712	5.82
Sand, Very Fine	0.075 mm	200	0.2854	0.80
Silt			0.4350	1.22
Clay			0.0300	0.08
		Total	35.8711	100.83

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/22/24

Particle Size Determination
ASTM D422M

Sample Name: 2024GCMZC10S3
Lab Code: K2407397-029

Sand Fraction: Weight (Grams)	32.1412
Sand Fraction: Weight Recovered (Grams)	32.1479
Sand Fraction: Percent Recovery	100.02

Weight as received (Grams)	43.695
Percent Solids	72.9
Weight Oven-Dried (Grams)	31.8537

Description	Sieve Size	Sieve Number	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel, Medium	4.75 mm	4	2.4299	7.63
Gravel, Fine	2.00 mm	10	3.0140	9.46
Sand, Very Coarse	0.850 mm	20	6.5004	20.41
Sand, Coarse	0.425 mm	40	13.1329	41.23
Sand, Medium	0.250 mm	60	5.6241	17.66
Sand, Fine	0.106 mm	140	1.3195	4.14
Sand, Very Fine	0.075 mm	200	0.0966	0.30
Silt			0.1900	0.60
Clay			0.0350	0.11
		Total	32.3424	101.54

Metals

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 14:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMCCS1	**Basis:**	Dry
Lab Code:	K2407397-001		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**11000**	mg/Kg	2.5	0.7	5	08/06/24 08:29	07/24/24	
Arsenic	200.8	**32.3**	mg/Kg	0.61	0.07	5	08/06/24 08:29	07/24/24	
Cadmium	200.8	**0.734**	mg/Kg	0.025	0.009	5	08/06/24 08:29	07/24/24	
Chromium	200.8	**28.7**	mg/Kg	0.25	0.07	5	08/06/24 08:29	07/24/24	
Copper	200.8	**24.7**	mg/Kg	0.12	0.05	5	08/06/24 08:29	07/24/24	
Lead	200.8	**13.3**	mg/Kg	0.061	0.025	5	08/06/24 08:29	07/24/24	
Mercury	7471B	**0.010**	**J** mg/Kg	0.028	0.003	1	07/25/24 13:30	07/24/24	
Nickel	200.8	**28.7**	mg/Kg	0.25	0.04	5	08/06/24 08:29	07/24/24	
Selenium	200.8	**0.6**	**J** mg/Kg	1.2	0.1	5	08/06/24 08:29	07/24/24	
Silver	200.8	**0.069**	mg/Kg	0.025	0.005	5	08/06/24 08:29	07/24/24	
Zinc	200.8	**122**	mg/Kg	0.61	0.25	5	08/06/24 08:29	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 14:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMCCS2	**Basis:**	Dry
Lab Code:	K2407397-002		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**10100**	mg/Kg	2.2	0.7	5	08/06/24 08:36	07/24/24	
Arsenic	200.8	**45.3**	mg/Kg	0.55	0.07	5	08/06/24 08:36	07/24/24	
Cadmium	200.8	**0.350**	mg/Kg	0.022	0.008	5	08/06/24 08:36	07/24/24	
Chromium	200.8	**16.4**	mg/Kg	0.22	0.07	5	08/06/24 08:36	07/24/24	
Copper	200.8	**25.1**	mg/Kg	0.11	0.04	5	08/06/24 08:36	07/24/24	
Lead	200.8	**13.1**	mg/Kg	0.055	0.022	5	08/06/24 08:36	07/24/24	
Mercury	7471B	**0.008**	**J** mg/Kg	0.023	0.002	1	07/25/24 13:37	07/24/24	
Nickel	200.8	**16.5**	mg/Kg	0.22	0.03	5	08/06/24 08:36	07/24/24	
Selenium	200.8	**0.5**	**J** mg/Kg	1.1	0.10	5	08/06/24 08:36	07/24/24	
Silver	200.8	**0.066**	mg/Kg	0.022	0.004	5	08/06/24 08:36	07/24/24	
Zinc	200.8	**102**	mg/Kg	0.55	0.22	5	08/06/24 08:36	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 14:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMCCS3	**Basis:**	Dry
Lab Code:	K2407397-003		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**9150**	mg/Kg	2.6	0.8	5	08/06/24 08:39	07/24/24	
Arsenic	200.8	**65.1**	mg/Kg	0.64	0.08	5	08/06/24 08:39	07/24/24	
Cadmium	200.8	**0.635**	mg/Kg	0.026	0.009	5	08/06/24 08:39	07/24/24	
Chromium	200.8	**9.36**	mg/Kg	0.26	0.08	5	08/06/24 08:39	07/24/24	
Copper	200.8	**10.8**	mg/Kg	0.13	0.05	5	08/06/24 08:39	07/24/24	
Lead	200.8	**11.9**	mg/Kg	0.064	0.026	5	08/06/24 08:39	07/24/24	
Mercury	7471B	**0.017 J**	mg/Kg	0.026	0.003	1	07/25/24 13:38	07/24/24	
Nickel	200.8	**17.3**	mg/Kg	0.26	0.04	5	08/06/24 08:39	07/24/24	
Selenium	200.8	**0.4 J**	mg/Kg	1.3	0.1	5	08/06/24 08:39	07/24/24	
Silver	200.8	**0.024 J**	mg/Kg	0.026	0.005	5	08/06/24 08:39	07/24/24	
Zinc	200.8	**114**	mg/Kg	0.64	0.26	5	08/06/24 08:39	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 14:45
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMFCS1	**Basis:**	Dry
Lab Code:	K2407397-004		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**10900**	mg/Kg	2.4	0.7	5	08/06/24 08:41	07/24/24	
Arsenic	200.8	**22.7**	mg/Kg	0.59	0.07	5	08/06/24 08:41	07/24/24	
Cadmium	200.8	**0.134**	mg/Kg	0.024	0.008	5	08/06/24 08:41	07/24/24	
Chromium	200.8	**28.3**	mg/Kg	0.24	0.07	5	08/06/24 08:41	07/24/24	
Copper	200.8	**15.8**	mg/Kg	0.12	0.05	5	08/06/24 08:41	07/24/24	
Lead	200.8	**8.88**	mg/Kg	0.059	0.024	5	08/06/24 08:41	07/24/24	
Mercury	7471B	**0.012**	**J** mg/Kg	0.023	0.002	1	07/25/24 13:40	07/24/24	
Nickel	200.8	**21.2**	mg/Kg	0.24	0.04	5	08/06/24 08:41	07/24/24	
Selenium	200.8	**0.1**	**J** mg/Kg	1.2	0.1	5	08/06/24 08:41	07/24/24	
Silver	200.8	**0.040**	mg/Kg	0.024	0.005	5	08/06/24 08:41	07/24/24	
Zinc	200.8	**62.5**	mg/Kg	0.59	0.24	5	08/06/24 08:41	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 14:45
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMFCS2	**Basis:**	Dry
Lab Code:	K2407397-005		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**13600**	mg/Kg	2.3	0.7	5	08/06/24 08:44	07/24/24	
Arsenic	200.8	**11.9**	mg/Kg	0.58	0.07	5	08/06/24 08:44	07/24/24	
Cadmium	200.8	**0.136**	mg/Kg	0.023	0.008	5	08/06/24 08:44	07/24/24	
Chromium	200.8	**22.1**	mg/Kg	0.23	0.07	5	08/06/24 08:44	07/24/24	
Copper	200.8	**13.0**	mg/Kg	0.12	0.05	5	08/06/24 08:44	07/24/24	
Lead	200.8	**5.91**	mg/Kg	0.058	0.023	5	08/06/24 08:44	07/24/24	
Mercury	7471B	**0.009 J**	mg/Kg	0.024	0.002	1	07/25/24 13:41	07/24/24	
Nickel	200.8	**23.5**	mg/Kg	0.23	0.03	5	08/06/24 08:44	07/24/24	
Selenium	200.8	ND U	mg/Kg	1.2	0.1	5	08/06/24 08:44	07/24/24	
Silver	200.8	**0.020 J**	mg/Kg	0.023	0.005	5	08/06/24 08:44	07/24/24	
Zinc	200.8	**68.4**	mg/Kg	0.58	0.23	5	08/06/24 08:44	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 14:45
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMFCS3	**Basis:**	Dry
Lab Code:	K2407397-006		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**10700**	mg/Kg	2.4	0.7	5	08/06/24 08:46	07/24/24	
Arsenic	200.8	**19.6**	mg/Kg	0.59	0.07	5	08/06/24 08:46	07/24/24	
Cadmium	200.8	**0.117**	mg/Kg	0.024	0.008	5	08/06/24 08:46	07/24/24	
Chromium	200.8	**24.8**	mg/Kg	0.24	0.07	5	08/06/24 08:46	07/24/24	
Copper	200.8	**14.0**	mg/Kg	0.12	0.05	5	08/06/24 08:46	07/24/24	
Lead	200.8	**7.02**	mg/Kg	0.059	0.024	5	08/06/24 08:46	07/24/24	
Mercury	7471B	**0.022** **J**	mg/Kg	0.027	0.003	1	07/25/24 13:46	07/24/24	
Nickel	200.8	**18.0**	mg/Kg	0.24	0.04	5	08/06/24 08:46	07/24/24	
Selenium	200.8	**0.1** **J**	mg/Kg	1.2	0.1	5	08/06/24 08:46	07/24/24	
Silver	200.8	**0.016** **J**	mg/Kg	0.024	0.005	5	08/06/24 08:46	07/24/24	
Zinc	200.8	**60.0**	mg/Kg	0.59	0.24	5	08/06/24 08:46	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 14:45
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMZC371S1	**Basis:**	Dry
Lab Code:	K2407397-007		

Total Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted
Aluminum	200.8	**10400**		mg/Kg	2.3	0.7	5	08/06/24 08:54	07/24/24
Arsenic	200.8	**38.2**		mg/Kg	0.58	0.07	5	08/06/24 08:54	07/24/24
Cadmium	200.8	**1.79**		mg/Kg	0.023	0.008	5	08/06/24 08:54	07/24/24
Chromium	200.8	**196**		mg/Kg	0.23	0.07	5	08/06/24 08:54	07/24/24
Copper	200.8	**32.2**		mg/Kg	0.12	0.05	5	08/06/24 08:54	07/24/24
Lead	200.8	**9.76**		mg/Kg	0.058	0.023	5	08/06/24 08:54	07/24/24
Mercury	7471B	**0.022**	**J**	mg/Kg	0.026	0.003	1	07/25/24 13:48	07/24/24
Nickel	200.8	**133**		mg/Kg	0.23	0.03	5	08/06/24 08:54	07/24/24
Selenium	200.8	**0.8**	**J**	mg/Kg	1.2	0.1	5	08/06/24 08:54	07/24/24
Silver	200.8	**0.083**		mg/Kg	0.023	0.005	5	08/06/24 08:54	07/24/24
Zinc	200.8	**274**		mg/Kg	0.58	0.23	5	08/06/24 08:54	07/24/24

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 14:45
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMZC371S2	**Basis:**	Dry
Lab Code:	K2407397-008		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**11300**	mg/Kg	2.2	0.6	5	08/06/24 08:57	07/24/24	
Arsenic	200.8	**51.6**	mg/Kg	0.54	0.06	5	08/06/24 08:57	07/24/24	
Cadmium	200.8	**2.16**	mg/Kg	0.022	0.008	5	08/06/24 08:57	07/24/24	
Chromium	200.8	**174**	mg/Kg	0.22	0.06	5	08/06/24 08:57	07/24/24	
Copper	200.8	**86.9**	mg/Kg	0.11	0.04	5	08/06/24 08:57	07/24/24	
Lead	200.8	**12.7**	mg/Kg	0.054	0.022	5	08/06/24 08:57	07/24/24	
Mercury	7471B	**0.050**	mg/Kg	0.027	0.003	1	07/25/24 13:50	07/24/24	
Nickel	200.8	**162**	mg/Kg	0.22	0.03	5	08/06/24 08:57	07/24/24	
Selenium	200.8	**1.8**	mg/Kg	1.1	0.10	5	08/06/24 08:57	07/24/24	
Silver	200.8	**0.673**	mg/Kg	0.022	0.004	5	08/06/24 08:57	07/24/24	
Zinc	200.8	**321**	mg/Kg	0.54	0.22	5	08/06/24 08:57	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 14:45
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMZC371S3	**Basis:**	Dry
Lab Code:	K2407397-009		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**14100**	mg/Kg	2.3	0.7	5	08/06/24 08:59	07/24/24	
Arsenic	200.8	**36.6**	mg/Kg	0.58	0.07	5	08/06/24 08:59	07/24/24	
Cadmium	200.8	**2.43**	mg/Kg	0.023	0.008	5	08/06/24 08:59	07/24/24	
Chromium	200.8	**233**	mg/Kg	0.23	0.07	5	08/06/24 08:59	07/24/24	
Copper	200.8	**37.3**	mg/Kg	0.12	0.05	5	08/06/24 08:59	07/24/24	
Lead	200.8	**11.9**	mg/Kg	0.058	0.023	5	08/06/24 08:59	07/24/24	
Mercury	7471B	**0.068**	mg/Kg	0.027	0.003	1	07/25/24 13:51	07/24/24	
Nickel	200.8	**169**	mg/Kg	0.23	0.04	5	08/06/24 08:59	07/24/24	
Selenium	200.8	**1.3**	mg/Kg	1.2	0.1	5	08/06/24 08:59	07/24/24	
Silver	200.8	**0.147**	mg/Kg	0.023	0.005	5	08/06/24 08:59	07/24/24	
Zinc	200.8	**366**	mg/Kg	0.58	0.23	5	08/06/24 08:59	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 10:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMTC808S1	**Basis:**	Dry
Lab Code:	K2407397-010		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**10500**	mg/Kg	3.3	1.0	5	08/06/24 09:02	07/24/24	
Arsenic	200.8	**20.0**	mg/Kg	0.82	0.10	5	08/06/24 09:02	07/24/24	
Cadmium	200.8	**0.339**	mg/Kg	0.033	0.012	5	08/06/24 09:02	07/24/24	
Chromium	200.8	**49.1**	mg/Kg	0.33	0.10	5	08/06/24 09:02	07/24/24	
Copper	200.8	**13.9**	mg/Kg	0.16	0.07	5	08/06/24 09:02	07/24/24	
Lead	200.8	**23.6**	mg/Kg	0.082	0.033	5	08/06/24 09:02	07/24/24	
Mercury	7471B	**0.039**	mg/Kg	0.035	0.003	1	07/25/24 13:53	07/24/24	
Nickel	200.8	**29.9**	mg/Kg	0.33	0.05	5	08/06/24 09:02	07/24/24	
Selenium	200.8	**0.4**	mg/Kg	1.6	0.1	5	08/06/24 09:02	07/24/24	**J**
Silver	200.8	**0.137**	mg/Kg	0.033	0.007	5	08/06/24 09:02	07/24/24	
Zinc	200.8	**95.5**	mg/Kg	0.82	0.33	5	08/06/24 09:02	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 10:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMTC808S2	**Basis:**	Dry
Lab Code:	K2407397-011		

Total Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted
Aluminum	200.8	**10700**		mg/Kg	3.3	1.0	5	08/06/24 09:10	07/24/24
Arsenic	200.8	**20.2**		mg/Kg	0.83	0.10	5	08/06/24 09:10	07/24/24
Cadmium	200.8	**0.435**		mg/Kg	0.033	0.012	5	08/06/24 09:10	07/24/24
Chromium	200.8	**39.5**		mg/Kg	0.33	0.10	5	08/06/24 09:10	07/24/24
Copper	200.8	**16.9**		mg/Kg	0.17	0.07	5	08/06/24 09:10	07/24/24
Lead	200.8	**25.6**		mg/Kg	0.083	0.033	5	08/06/24 09:10	07/24/24
Mercury	7471B	**0.048**		mg/Kg	0.037	0.004	1	07/25/24 13:54	07/24/24
Nickel	200.8	**29.2**		mg/Kg	0.33	0.05	5	08/06/24 09:10	07/24/24
Selenium	200.8	**0.5**	**J**	mg/Kg	1.7	0.2	5	08/06/24 09:10	07/24/24
Silver	200.8	**0.201**		mg/Kg	0.033	0.007	5	08/06/24 09:10	07/24/24
Zinc	200.8	**104**		mg/Kg	0.83	0.33	5	08/06/24 09:10	07/24/24

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 10:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMTC808S3	**Basis:**	Dry
Lab Code:	K2407397-012		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**12400**	mg/Kg	3.2	1.0	5	08/06/24 09:12	07/24/24	
Arsenic	200.8	**28.4**	mg/Kg	0.81	0.10	5	08/06/24 09:12	07/24/24	
Cadmium	200.8	**0.544**	mg/Kg	0.032	0.011	5	08/06/24 09:12	07/24/24	
Chromium	200.8	**46.8**	mg/Kg	0.32	0.10	5	08/06/24 09:12	07/24/24	
Copper	200.8	**19.4**	mg/Kg	0.16	0.06	5	08/06/24 09:12	07/24/24	
Lead	200.8	**31.3**	mg/Kg	0.081	0.032	5	08/06/24 09:12	07/24/24	
Mercury	7471B	**0.042**	mg/Kg	0.038	0.004	1	07/25/24 13:56	07/24/24	
Nickel	200.8	**35.8**	mg/Kg	0.32	0.05	5	08/06/24 09:12	07/24/24	
Selenium	200.8	**0.5**	mg/Kg	1.6	0.1	5	08/06/24 09:12	07/24/24	**J**
Silver	200.8	**0.229**	mg/Kg	0.032	0.006	5	08/06/24 09:12	07/24/24	
Zinc	200.8	**131**	mg/Kg	0.81	0.32	5	08/06/24 09:12	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 10:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMTC808S4	**Basis:**	Dry
Lab Code:	K2407397-013		

Total Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted
Aluminum	200.8	**14300**		mg/Kg	3.7	1.1	5	08/06/24 09:15	07/24/24
Arsenic	200.8	**31.9**		mg/Kg	0.94	0.11	5	08/06/24 09:15	07/24/24
Cadmium	200.8	**0.552**		mg/Kg	0.037	0.013	5	08/06/24 09:15	07/24/24
Chromium	200.8	**58.4**		mg/Kg	0.37	0.11	5	08/06/24 09:15	07/24/24
Copper	200.8	**18.7**		mg/Kg	0.19	0.07	5	08/06/24 09:15	07/24/24
Lead	200.8	**32.2**		mg/Kg	0.094	0.037	5	08/06/24 09:15	07/24/24
Mercury	7471B	**0.070**		mg/Kg	0.041	0.004	1	07/25/24 13:58	07/24/24
Nickel	200.8	**41.2**		mg/Kg	0.37	0.06	5	08/06/24 09:15	07/24/24
Selenium	200.8	**0.5**	**J**	mg/Kg	1.9	0.2	5	08/06/24 09:15	07/24/24
Silver	200.8	**0.231**		mg/Kg	0.037	0.007	5	08/06/24 09:15	07/24/24
Zinc	200.8	**137**		mg/Kg	0.94	0.37	5	08/06/24 09:15	07/24/24

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 10:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMTC808S5	**Basis:**	Dry
Lab Code:	K2407397-014		

Total Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted
Aluminum	200.8	**11300**		mg/Kg	4.5	1.3	5	08/06/24 09:17	07/24/24
Arsenic	200.8	**21.3**		mg/Kg	1.1	0.1	5	08/06/24 09:17	07/24/24
Cadmium	200.8	**0.620**		mg/Kg	0.045	0.016	5	08/06/24 09:17	07/24/24
Chromium	200.8	**41.7**		mg/Kg	0.45	0.13	5	08/06/24 09:17	07/24/24
Copper	200.8	**23.3**		mg/Kg	0.22	0.09	5	08/06/24 09:17	07/24/24
Lead	200.8	**32.1**		mg/Kg	0.11	0.04	5	08/06/24 09:17	07/24/24
Mercury	7471B	**0.070**		mg/Kg	0.045	0.004	1	07/25/24 13:59	07/24/24
Nickel	200.8	**32.0**		mg/Kg	0.45	0.07	5	08/06/24 09:17	07/24/24
Selenium	200.8	**0.7**	**J**	mg/Kg	2.2	0.2	5	08/06/24 09:17	07/24/24
Silver	200.8	**0.349**		mg/Kg	0.045	0.009	5	08/06/24 09:17	07/24/24
Zinc	200.8	**115**		mg/Kg	1.1	0.4	5	08/06/24 09:17	07/24/24

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 09:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMTC9S1	**Basis:**	Dry
Lab Code:	K2407397-015		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**12500**	mg/Kg	2.2	0.7	5	08/06/24 09:25	07/24/24	
Arsenic	200.8	**8.92**	mg/Kg	0.55	0.07	5	08/06/24 09:25	07/24/24	
Cadmium	200.8	**0.759**	mg/Kg	0.022	0.008	5	08/06/24 09:25	07/24/24	
Chromium	200.8	**42.7**	mg/Kg	0.22	0.07	5	08/06/24 09:25	07/24/24	
Copper	200.8	**21.5**	mg/Kg	0.11	0.04	5	08/06/24 09:25	07/24/24	
Lead	200.8	**8.41**	mg/Kg	0.055	0.022	5	08/06/24 09:25	07/24/24	
Mercury	7471B	**0.037**	mg/Kg	0.027	0.003	1	07/25/24 14:01	07/24/24	
Nickel	200.8	**53.1**	mg/Kg	0.22	0.03	5	08/06/24 09:25	07/24/24	
Selenium	200.8	**0.3**	mg/Kg	1.1	0.10	5	08/06/24 09:25	07/24/24	**J**
Silver	200.8	**0.072**	mg/Kg	0.022	0.004	5	08/06/24 09:25	07/24/24	
Zinc	200.8	**96.1**	mg/Kg	0.55	0.22	5	08/06/24 09:25	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 09:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMTC9S2	**Basis:**	Dry
Lab Code:	K2407397-016		

Total Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted
Aluminum	200.8	**15100**		mg/Kg	2.6	0.8	5	08/06/24 09:28	07/24/24
Arsenic	200.8	**11.1**		mg/Kg	0.65	0.08	5	08/06/24 09:28	07/24/24
Cadmium	200.8	**0.321**		mg/Kg	0.026	0.009	5	08/06/24 09:28	07/24/24
Chromium	200.8	**54.0**		mg/Kg	0.26	0.08	5	08/06/24 09:28	07/24/24
Copper	200.8	**23.2**		mg/Kg	0.13	0.05	5	08/06/24 09:28	07/24/24
Lead	200.8	**7.86**		mg/Kg	0.065	0.026	5	08/06/24 09:28	07/24/24
Mercury	7471B	**0.023**	**J**	mg/Kg	0.026	0.003	1	07/25/24 14:06	07/24/24
Nickel	200.8	**37.3**		mg/Kg	0.26	0.04	5	08/06/24 09:28	07/24/24
Selenium	200.8	**0.3**	**J**	mg/Kg	1.3	0.1	5	08/06/24 09:28	07/24/24
Silver	200.8	**0.047**		mg/Kg	0.026	0.005	5	08/06/24 09:28	07/24/24
Zinc	200.8	**90.5**		mg/Kg	0.65	0.26	5	08/06/24 09:28	07/24/24

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 09:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMTC9S3	**Basis:**	Dry
Lab Code:	K2407397-017		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**14500**	mg/Kg	2.5	0.8	5	08/06/24 09:30	07/24/24	
Arsenic	200.8	**11.1**	mg/Kg	0.64	0.08	5	08/06/24 09:30	07/24/24	
Cadmium	200.8	**0.379**	mg/Kg	0.025	0.009	5	08/06/24 09:30	07/24/24	
Chromium	200.8	**63.8**	mg/Kg	0.25	0.08	5	08/06/24 09:30	07/24/24	
Copper	200.8	**22.7**	mg/Kg	0.13	0.05	5	08/06/24 09:30	07/24/24	
Lead	200.8	**10.8**	mg/Kg	0.064	0.025	5	08/06/24 09:30	07/24/24	
Mercury	7471B	**0.041**	mg/Kg	0.026	0.003	1	07/25/24 14:07	07/24/24	
Nickel	200.8	**38.2**	mg/Kg	0.25	0.04	5	08/06/24 09:30	07/24/24	
Selenium	200.8	**0.5**	mg/Kg	1.3	0.1	5	08/06/24 09:30	07/24/24	**J**
Silver	200.8	**0.094**	mg/Kg	0.025	0.005	5	08/06/24 09:30	07/24/24	
Zinc	200.8	**93.9**	mg/Kg	0.64	0.25	5	08/06/24 09:30	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24 14:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMGC63S1	**Basis:**	Dry
Lab Code:	K2407397-018		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**10300**	mg/Kg	2.7	0.8	5	08/06/24 09:33	07/24/24	
Arsenic	200.8	**10.6**	mg/Kg	0.67	0.08	5	08/06/24 09:33	07/24/24	
Cadmium	200.8	**1.19**	mg/Kg	0.027	0.009	5	08/06/24 09:33	07/24/24	
Chromium	200.8	**18.2**	mg/Kg	0.27	0.08	5	08/06/24 09:33	07/24/24	
Copper	200.8	**33.0**	mg/Kg	0.13	0.05	5	08/06/24 09:33	07/24/24	
Lead	200.8	**9.22**	mg/Kg	0.067	0.027	5	08/06/24 09:33	07/24/24	
Mercury	7471B	**0.058**	mg/Kg	0.029	0.003	1	07/25/24 14:09	07/24/24	
Nickel	200.8	**28.9**	mg/Kg	0.27	0.04	5	08/06/24 09:33	07/24/24	
Selenium	200.8	**1.8**	mg/Kg	1.3	0.1	5	08/06/24 09:33	07/24/24	
Silver	200.8	**0.293**	mg/Kg	0.027	0.005	5	08/06/24 09:33	07/24/24	
Zinc	200.8	**177**	mg/Kg	0.67	0.27	5	08/06/24 09:33	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24 14:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMGC63S2	**Basis:**	Dry
Lab Code:	K2407397-019		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**3340**	mg/Kg	2.4	0.7	5	08/06/24 09:35	07/24/24	
Arsenic	200.8	**10.2**	mg/Kg	0.60	0.07	5	08/06/24 09:35	07/24/24	
Cadmium	200.8	**0.851**	mg/Kg	0.024	0.008	5	08/06/24 09:35	07/24/24	
Chromium	200.8	**7.21**	mg/Kg	0.24	0.07	5	08/06/24 09:35	07/24/24	
Copper	200.8	**32.6**	mg/Kg	0.12	0.05	5	08/06/24 09:35	07/24/24	
Lead	200.8	**6.86**	mg/Kg	0.060	0.024	5	08/06/24 09:35	07/24/24	
Mercury	7471B	**0.064**	mg/Kg	0.024	0.002	1	07/25/24 14:11	07/24/24	
Nickel	200.8	**17.6**	mg/Kg	0.24	0.04	5	08/06/24 09:35	07/24/24	
Selenium	200.8	**1.6**	mg/Kg	1.2	0.1	5	08/06/24 09:35	07/24/24	
Silver	200.8	**0.594**	mg/Kg	0.024	0.005	5	08/06/24 09:35	07/24/24	
Zinc	200.8	**128**	mg/Kg	0.60	0.24	5	08/06/24 09:35	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/09/24 14:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMGC63S3	**Basis:**	Dry
Lab Code:	K2407397-020		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**7320**	mg/Kg	2.3	0.7	5	08/06/24 09:38	07/24/24	
Arsenic	200.8	**4.54**	mg/Kg	0.58	0.07	5	08/06/24 09:38	07/24/24	
Cadmium	200.8	**0.570**	mg/Kg	0.023	0.008	5	08/06/24 09:38	07/24/24	
Chromium	200.8	**11.4**	mg/Kg	0.23	0.07	5	08/06/24 09:38	07/24/24	
Copper	200.8	**30.6**	mg/Kg	0.12	0.05	5	08/06/24 09:38	07/24/24	
Lead	200.8	**7.51**	mg/Kg	0.058	0.023	5	08/06/24 09:38	07/24/24	
Mercury	7471B	**0.024**	mg/Kg	0.022	0.002	1	07/25/24 14:12	07/24/24	
Nickel	200.8	**21.1**	mg/Kg	0.23	0.03	5	08/06/24 09:38	07/24/24	
Selenium	200.8	**0.8**	mg/Kg	1.2	0.1	5	08/06/24 09:38	07/24/24	**J**
Silver	200.8	**0.105**	mg/Kg	0.023	0.005	5	08/06/24 09:38	07/24/24	
Zinc	200.8	**134**	mg/Kg	0.58	0.23	5	08/06/24 09:38	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 12:30
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMTC1847S1	**Basis:**	Dry
Lab Code:	K2407397-021		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**9700**	mg/Kg	2.0	0.6	5	08/06/24 10:03	07/24/24	
Arsenic	200.8	**9.41**	mg/Kg	0.49	0.06	5	08/06/24 10:03	07/24/24	
Cadmium	200.8	**0.339**	mg/Kg	0.020	0.007	5	08/06/24 10:03	07/24/24	
Chromium	200.8	**35.1**	mg/Kg	0.20	0.06	5	08/06/24 10:03	07/24/24	
Copper	200.8	**14.1**	mg/Kg	0.098	0.039	5	08/06/24 10:03	07/24/24	
Lead	200.8	**8.89**	mg/Kg	0.049	0.020	5	08/06/24 10:03	07/24/24	
Mercury	7471B	**0.027**	mg/Kg	0.021	0.002	1	07/25/24 14:40	07/24/24	
Nickel	200.8	**27.8**	mg/Kg	0.20	0.03	5	08/06/24 10:03	07/24/24	
Selenium	200.8	**0.29**	mg/Kg	0.98	0.09	5	08/06/24 10:03	07/24/24	**J**
Silver	200.8	**0.075**	mg/Kg	0.020	0.004	5	08/06/24 10:03	07/24/24	
Zinc	200.8	**76.3**	mg/Kg	0.49	0.20	5	08/06/24 10:03	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 12:30
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMTC1847S2	**Basis:**	Dry
Lab Code:	K2407397-022		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**10400**	mg/Kg	2.4	0.7	5	08/06/24 10:06	07/24/24	
Arsenic	200.8	**21.9**	mg/Kg	0.61	0.07	5	08/06/24 10:06	07/24/24	
Cadmium	200.8	**0.326**	mg/Kg	0.024	0.008	5	08/06/24 10:06	07/24/24	
Chromium	200.8	**42.7**	mg/Kg	0.24	0.07	5	08/06/24 10:06	07/24/24	
Copper	200.8	**12.3**	mg/Kg	0.12	0.05	5	08/06/24 10:06	07/24/24	
Lead	200.8	**7.78**	mg/Kg	0.061	0.024	5	08/06/24 10:06	07/24/24	
Mercury	7471B	**0.011 J**	mg/Kg	0.023	0.002	1	07/25/24 14:45	07/24/24	
Nickel	200.8	**29.5**	mg/Kg	0.24	0.04	5	08/06/24 10:06	07/24/24	
Selenium	200.8	**0.2 J**	mg/Kg	1.2	0.1	5	08/06/24 10:06	07/24/24	
Silver	200.8	**0.030**	mg/Kg	0.024	0.005	5	08/06/24 10:06	07/24/24	
Zinc	200.8	**77.5**	mg/Kg	0.61	0.24	5	08/06/24 10:06	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24 12:30
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMTC1847S3	**Basis:**	Dry
Lab Code:	K2407397-023		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**9070**	mg/Kg	2.3	0.7	5	08/06/24 10:08	07/24/24	
Arsenic	200.8	**8.66**	mg/Kg	0.56	0.07	5	08/06/24 10:08	07/24/24	
Cadmium	200.8	**0.388**	mg/Kg	0.023	0.008	5	08/06/24 10:08	07/24/24	
Chromium	200.8	**40.4**	mg/Kg	0.23	0.07	5	08/06/24 10:08	07/24/24	
Copper	200.8	**7.66**	mg/Kg	0.11	0.05	5	08/06/24 10:08	07/24/24	
Lead	200.8	**7.37**	mg/Kg	0.056	0.023	5	08/06/24 10:08	07/24/24	
Mercury	7471B	**0.011 J**	mg/Kg	0.023	0.002	1	07/25/24 14:46	07/24/24	
Nickel	200.8	**23.5**	mg/Kg	0.23	0.03	5	08/06/24 10:08	07/24/24	
Selenium	200.8	ND U	mg/Kg	1.1	0.1	5	08/06/24 10:08	07/24/24	
Silver	200.8	**0.019 J**	mg/Kg	0.023	0.005	5	08/06/24 10:08	07/24/24	
Zinc	200.8	**57.8**	mg/Kg	0.56	0.23	5	08/06/24 10:08	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 14:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMGCDS1	**Basis:**	Dry
Lab Code:	K2407397-024		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**9780**	mg/Kg	2.0	0.6	5	08/06/24 09:56	07/24/24	
Arsenic	200.8	**24.3**	mg/Kg	0.51	0.06	5	08/06/24 09:56	07/24/24	
Cadmium	200.8	**1.04**	mg/Kg	0.020	0.007	5	08/06/24 09:56	07/24/24	
Chromium	200.8	**80.3**	mg/Kg	0.20	0.06	5	08/06/24 09:56	07/24/24	
Copper	200.8	**23.1**	mg/Kg	0.10	0.04	5	08/06/24 09:56	07/24/24	
Lead	200.8	**9.66**	mg/Kg	0.051	0.020	5	08/06/24 09:56	07/24/24	
Mercury	7471B	**0.021**	mg/Kg	0.019	0.002	1	07/25/24 14:48	07/24/24	
Nickel	200.8	**80.9**	mg/Kg	0.20	0.03	5	08/06/24 09:56	07/24/24	
Selenium	200.8	**0.6**	mg/Kg	1.0	0.09	5	08/06/24 09:56	07/24/24	**J**
Silver	200.8	**0.074**	mg/Kg	0.020	0.004	5	08/06/24 09:56	07/24/24	
Zinc	200.8	**219**	mg/Kg	0.51	0.20	5	08/06/24 09:56	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 14:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMGCDS2	**Basis:**	Dry
Lab Code:	K2407397-025		

Total Metals

Analyte Name	Analysis Method	Result	Q	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**11800**		mg/Kg	2.5	0.7	5	08/06/24 10:11	07/24/24	
Arsenic	200.8	**31.8**		mg/Kg	0.62	0.07	5	08/06/24 10:11	07/24/24	
Cadmium	200.8	**2.59**		mg/Kg	0.025	0.009	5	08/06/24 10:11	07/24/24	
Chromium	200.8	**121**		mg/Kg	0.25	0.07	5	08/06/24 10:11	07/24/24	
Copper	200.8	**26.4**		mg/Kg	0.12	0.05	5	08/06/24 10:11	07/24/24	
Lead	200.8	**13.5**		mg/Kg	0.062	0.025	5	08/06/24 10:11	07/24/24	
Mercury	7471B	**0.022**	**J**	mg/Kg	0.024	0.002	1	07/25/24 14:54	07/24/24	
Nickel	200.8	**126**		mg/Kg	0.25	0.04	5	08/06/24 10:11	07/24/24	
Selenium	200.8	**0.8**	**J**	mg/Kg	1.2	0.1	5	08/06/24 10:11	07/24/24	
Silver	200.8	**0.078**		mg/Kg	0.025	0.005	5	08/06/24 10:11	07/24/24	
Zinc	200.8	**314**		mg/Kg	0.62	0.25	5	08/06/24 10:11	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 14:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMGCDS3	**Basis:**	Dry
Lab Code:	K2407397-026		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**8540**	mg/Kg	2.4	0.7	5	08/06/24 10:14	07/24/24	
Arsenic	200.8	**26.9**	mg/Kg	0.60	0.07	5	08/06/24 10:14	07/24/24	
Cadmium	200.8	**1.12**	mg/Kg	0.024	0.008	5	08/06/24 10:14	07/24/24	
Chromium	200.8	**51.3**	mg/Kg	0.24	0.07	5	08/06/24 10:14	07/24/24	
Copper	200.8	**24.1**	mg/Kg	0.12	0.05	5	08/06/24 10:14	07/24/24	
Lead	200.8	**11.6**	mg/Kg	0.060	0.024	5	08/06/24 10:14	07/24/24	
Mercury	7471B	**0.020**	**J** mg/Kg	0.024	0.002	1	07/25/24 14:56	07/24/24	
Nickel	200.8	**71.0**	mg/Kg	0.24	0.04	5	08/06/24 10:14	07/24/24	
Selenium	200.8	**0.9**	**J** mg/Kg	1.2	0.1	5	08/06/24 10:14	07/24/24	
Silver	200.8	**0.068**	mg/Kg	0.024	0.005	5	08/06/24 10:14	07/24/24	
Zinc	200.8	**225**	mg/Kg	0.60	0.24	5	08/06/24 10:14	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 14:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMZC10S1	**Basis:**	Dry
Lab Code:	K2407397-027		

Total Metals

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**11300**		mg/Kg	2.4	0.7	5	08/06/24 10:21	07/24/24	
Arsenic	200.8	**22.4**		mg/Kg	0.59	0.07	5	08/06/24 10:21	07/24/24	
Cadmium	200.8	**1.18**		mg/Kg	0.024	0.008	5	08/06/24 10:21	07/24/24	
Chromium	200.8	**90.1**		mg/Kg	0.24	0.07	5	08/06/24 10:21	07/24/24	
Copper	200.8	**21.0**		mg/Kg	0.12	0.05	5	08/06/24 10:21	07/24/24	
Lead	200.8	**9.71**		mg/Kg	0.059	0.024	5	08/06/24 10:21	07/24/24	
Mercury	7471B	**0.028**		mg/Kg	0.026	0.003	1	07/25/24 14:58	07/24/24	
Nickel	200.8	**97.0**		mg/Kg	0.24	0.04	5	08/06/24 10:21	07/24/24	
Selenium	200.8	**0.8**	**J**	mg/Kg	1.2	0.1	5	08/06/24 10:21	07/24/24	
Silver	200.8	**0.088**		mg/Kg	0.024	0.005	5	08/06/24 10:21	07/24/24	
Zinc	200.8	**222**		mg/Kg	0.59	0.24	5	08/06/24 10:21	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 14:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMZC10S2	**Basis:**	Dry
Lab Code:	K2407397-028		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**13200**	mg/Kg	2.5	0.7	5	08/06/24 10:24	07/24/24	
Arsenic	200.8	**33.2**	mg/Kg	0.62	0.07	5	08/06/24 10:24	07/24/24	
Cadmium	200.8	**1.37**	mg/Kg	0.025	0.009	5	08/06/24 10:24	07/24/24	
Chromium	200.8	**109**	mg/Kg	0.25	0.07	5	08/06/24 10:24	07/24/24	
Copper	200.8	**31.4**	mg/Kg	0.12	0.05	5	08/06/24 10:24	07/24/24	
Lead	200.8	**14.2**	mg/Kg	0.062	0.025	5	08/06/24 10:24	07/24/24	
Mercury	7471B	**0.025**	mg/Kg	0.020	0.002	1	07/25/24 14:59	07/24/24	
Nickel	200.8	**124**	mg/Kg	0.25	0.04	5	08/06/24 10:24	07/24/24	
Selenium	200.8	**0.7**	mg/Kg	1.2	0.1	5	08/06/24 10:24	07/24/24	**J**
Silver	200.8	**0.085**	mg/Kg	0.025	0.005	5	08/06/24 10:24	07/24/24	
Zinc	200.8	**272**	mg/Kg	0.62	0.25	5	08/06/24 10:24	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24 14:00
Sample Matrix:	Sediment	**Date Received:**	07/17/24 09:35
Sample Name:	2024GCMZC10S3	**Basis:**	Dry
Lab Code:	K2407397-029		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**10900**	mg/Kg	2.5	0.8	5	08/06/24 10:26	07/24/24	
Arsenic	200.8	**24.7**	mg/Kg	0.64	0.08	5	08/06/24 10:26	07/24/24	
Cadmium	200.8	**1.26**	mg/Kg	0.025	0.009	5	08/06/24 10:26	07/24/24	
Chromium	200.8	**97.8**	mg/Kg	0.25	0.08	5	08/06/24 10:26	07/24/24	
Copper	200.8	**24.1**	mg/Kg	0.13	0.05	5	08/06/24 10:26	07/24/24	
Lead	200.8	**9.64**	mg/Kg	0.064	0.025	5	08/06/24 10:26	07/24/24	
Mercury	7471B	**0.037**	mg/Kg	0.023	0.002	1	07/25/24 15:04	07/24/24	
Nickel	200.8	**91.5**	mg/Kg	0.25	0.04	5	08/06/24 10:26	07/24/24	
Selenium	200.8	**0.7**	mg/Kg	1.3	0.1	5	08/06/24 10:26	07/24/24	**J**
Silver	200.8	**0.079**	mg/Kg	0.025	0.005	5	08/06/24 10:26	07/24/24	
Zinc	200.8	**235**	mg/Kg	0.64	0.25	5	08/06/24 10:26	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2411055-03		

Total Metals

Analyte Name	Analysis Method	Result		Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	ND	U	mg/Kg	2.0	0.6	5	08/06/24 09:51	07/24/24	
Arsenic	200.8	ND	U	mg/Kg	0.5	0.06	5	08/06/24 09:51	07/24/24	
Cadmium	200.8	ND	U	mg/Kg	0.020	0.007	5	08/06/24 09:51	07/24/24	
Chromium	200.8	ND	U	mg/Kg	0.20	0.06	5	08/06/24 09:51	07/24/24	
Copper	200.8	ND	U	mg/Kg	0.10	0.04	5	08/06/24 09:51	07/24/24	
Lead	200.8	ND	U	mg/Kg	0.05	0.020	5	08/06/24 09:51	07/24/24	
Nickel	200.8	ND	U	mg/Kg	0.20	0.03	5	08/06/24 09:51	07/24/24	
Selenium	200.8	ND	U	mg/Kg	1.0	0.09	5	08/06/24 09:51	07/24/24	
Silver	200.8	ND	U	mg/Kg	0.020	0.004	5	08/06/24 09:51	07/24/24	
Zinc	200.8	ND	U	mg/Kg	0.5	0.20	5	08/06/24 09:51	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2411059-05		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Aluminum	200.8	**0.6 J**	mg/Kg	2.0	0.6	5	08/06/24 08:23	07/24/24	
Arsenic	200.8	ND U	mg/Kg	0.5	0.06	5	08/06/24 08:23	07/24/24	
Cadmium	200.8	ND U	mg/Kg	0.020	0.007	5	08/06/24 08:23	07/24/24	
Chromium	200.8	ND U	mg/Kg	0.20	0.06	5	08/06/24 08:23	07/24/24	
Copper	200.8	ND U	mg/Kg	0.10	0.04	5	08/06/24 08:23	07/24/24	
Lead	200.8	ND U	mg/Kg	0.05	0.020	5	08/06/24 08:23	07/24/24	
Nickel	200.8	ND U	mg/Kg	0.20	0.03	5	08/06/24 08:23	07/24/24	
Selenium	200.8	ND U	mg/Kg	1.0	0.09	5	08/06/24 08:23	07/24/24	
Silver	200.8	ND U	mg/Kg	0.020	0.004	5	08/06/24 08:23	07/24/24	
Zinc	200.8	ND U	mg/Kg	0.5	0.20	5	08/06/24 08:23	07/24/24	

Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2411054-03		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Mercury	7471B	ND U	mg/Kg	0.02	0.002	1	07/25/24 14:37	07/24/24	

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Analytical Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	NA
Sample Matrix:	Sediment	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	Dry
Lab Code:	KQ2411058-03		

Total Metals

Analyte Name	Analysis Method	Result	Units	MRL	MDL	Dil.	Date Analyzed	Date Extracted	Q
Mercury	7471B	ND U	mg/Kg	0.02	0.002	1	07/25/24 13:27	07/24/24	

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/06/24

Replicate Sample Summary
Total Metals

Sample Name:	2024GCMGCDS1	**Units:**	mg/Kg
Lab Code:	K2407397-024	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2411055-01 Result	Average	RPD	RPD Limit
Aluminum	200.8	1.9	0.6	9780	11600	10700	17	30
Arsenic	200.8	0.49	0.06	24.3	25.0	24.7	3	30
Cadmium	200.8	0.019	0.007	1.04	1.15	1.10	9	30
Chromium	200.8	0.19	0.06	80.3	128	104	46 *	30
Copper	200.8	0.097	0.039	23.1	21.7	22.4	6	30
Lead	200.8	0.049	0.019	9.66	10.7	10.2	10	30
Nickel	200.8	0.19	0.03	80.9	100	90.5	22	30
Selenium	200.8	0.97	0.09	0.62 J	0.73 J	0.68	16	30
Silver	200.8	0.019	0.004	0.074	0.065	0.070	12	30
Zinc	200.8	0.49	0.19	219	239	229	9	30

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/06/24

Replicate Sample Summary
Total Metals

Sample Name:	2024GCMCCS1	**Units:**	mg/Kg
Lab Code:	K2407397-001	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2411059-01 Result	Average	RPD	RPD Limit
Aluminum	200.8	2.6	0.8	11000	12400	11700	11	30
Arsenic	200.8	0.64	0.08	32.3	44.1	38.2	31 *	30
Cadmium	200.8	0.026	0.009	0.734	0.772	0.753	5	30
Chromium	200.8	0.26	0.08	28.7	17.9	23.3	46 *	30
Copper	200.8	0.13	0.05	24.7	26.8	25.8	8	30
Lead	200.8	0.064	0.026	13.3	14.6	14.0	9	30
Nickel	200.8	0.26	0.04	28.7	25.4	27.1	12	30
Selenium	200.8	1.3	0.1	0.6 J	0.8 J	0.7	34 #	30
Silver	200.8	0.026	0.005	0.069	0.084	0.077	20	30
Zinc	200.8	0.64	0.26	122	130	126	6	30

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/06/24

Replicate Sample Summary
Total Metals

Sample Name:	2024GCMTC808S1	**Units:**	mg/Kg
Lab Code:	K2407397-010	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2411059-03 Result	Average	RPD	RPD Limit
Aluminum	200.8	3.3	1.0	10500	11400	11000	8	30
Arsenic	200.8	0.83	0.10	20.0	27.5	23.8	31 *	30
Cadmium	200.8	0.033	0.012	0.339	0.348	0.344	3	30
Chromium	200.8	0.33	0.10	49.1	40.3	44.7	20	30
Copper	200.8	0.17	0.07	13.9	16.2	15.1	15	30
Lead	200.8	0.083	0.033	23.6	25.2	24.4	7	30
Nickel	200.8	0.33	0.05	29.9	31.7	30.8	6	30
Selenium	200.8	1.7	0.1	0.4 J	0.4 J	0.4	5	30
Silver	200.8	0.033	0.007	0.137	0.136	0.137	1	30
Zinc	200.8	0.83	0.33	95.5	113	104	17	30

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	07/25/24

Replicate Sample Summary
Total Metals

Sample Name:	2024GCMGCDS1	**Units:**	mg/Kg
Lab Code:	K2407397-024	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2411054-01 Result	Average	RPD	RPD Limit
Mercury	7471B	0.018	0.002	0.021	0.019	0.020	6	20

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	07/25/24

Replicate Sample Summary
Total Metals

Sample Name:	2024GCMCCS1	**Units:**	mg/Kg
Lab Code:	K2407397-001	**Basis:**	Dry

Analyte Name	Analysis Method	MRL	MDL	Sample Result	Duplicate Sample KQ2411058-01 Result	Average	RPD	RPD Limit
Mercury	7471B	0.024	0.002	0.010 J	0.013 J	0.012	35 #	20

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/6/24
		Date Extracted:	07/24/24

Matrix Spike Summary
Total Metals

Sample Name:	2024GCMGCDS1	**Units:**	mg/Kg
Lab Code:	K2407397-024	**Basis:**	Dry
Analysis Method:	200.8		
Prep Method:	EPA 3050B		

Matrix Spike
KQ2411055-02

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	9780	9060	384	-188 #	70-130
Arsenic	24.3	126	96.1	106	70-130
Cadmium	1.04	10.8	9.61	102	70-130
Chromium	80.3	141	38.4	159 N	70-130
Copper	23.1	68.0	48.0	94	70-130
Lead	9.66	113	96.1	107	70-130
Nickel	80.9	181	96.1	104	70-130
Selenium	0.62 J	97.1	96.1	100	70-130
Silver	0.074	9.51	9.61	98	70-130
Zinc	219	285	96.1	68 N	70-130

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Matrix Spike and Matrix Spike Duplicate Data is presented for information purposes only. The matrix may or may not be relevant to samples reported in this report. The laboratory evaluates system performance based on the LCS and LCSD control limits.

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/6/24
		Date Extracted:	07/24/24

Matrix Spike Summary
Total Metals

Sample Name:	2024GCMCCS1	**Units:**	mg/Kg
Lab Code:	K2407397-001	**Basis:**	Dry
Analysis Method:	200.8		
Prep Method:	EPA 3050B		

Matrix Spike
KQ2411059-02

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	11000	10600	494	-90 #	70-130
Arsenic	32.3	155	124	99	70-130
Cadmium	0.734	13.9	12.4	107	70-130
Chromium	28.7	63.7	49.4	71	70-130
Copper	24.7	76.3	61.7	83	70-130
Lead	13.3	149	124	110	70-130
Nickel	28.7	155	124	102	70-130
Selenium	0.6 J	125	124	100	70-130
Silver	0.069	12.3	12.4	99	70-130
Zinc	122	235	124	91	70-130

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	08/6/24
		Date Extracted:	07/24/24

Matrix Spike Summary
Total Metals

Sample Name:	2024GCMTC808S1	**Units:**	mg/Kg
Lab Code:	K2407397-010	**Basis:**	Dry
Analysis Method:	200.8		
Prep Method:	EPA 3050B		

Matrix Spike
KQ2411059-04

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	10500	10500	662	-1 #	70-130
Arsenic	20.0	208	166	113	70-130
Cadmium	0.339	17.4	16.6	103	70-130
Chromium	49.1	106	66.2	86	70-130
Copper	13.9	99.7	82.9	104	70-130
Lead	23.6	207	166	111	70-130
Nickel	29.9	201	166	103	70-130
Selenium	0.4 J	167	166	100	70-130
Silver	0.137	16.5	16.6	98	70-130
Zinc	95.5	272	166	106	70-130

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/08/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	07/25/24
		Date Extracted:	07/24/24

Matrix Spike Summary
Total Metals

Sample Name:	2024GCMGCDS1	**Units:**	mg/Kg
Lab Code:	K2407397-024	**Basis:**	Dry
Analysis Method:	7471B		
Prep Method:	Method		

Matrix Spike
KQ2411054-02

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Mercury	0.021	0.485	0.486	96	80-120

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Collected:**	07/10/24
Sample Matrix:	Sediment	**Date Received:**	07/17/24
		Date Analyzed:	07/25/24
		Date Extracted:	07/24/24

Matrix Spike Summary
Total Metals

Sample Name:	2024GCMCCS1	**Units:**	mg/Kg
Lab Code:	K2407397-001	**Basis:**	Dry
Analysis Method:	7471B		
Prep Method:	Method		

Matrix Spike
KQ2411058-02

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Mercury	0.010 J	0.653	0.678	95	80-120

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QA/QC Report

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Service Request: K2407397
Date Analyzed: 08/06/24

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2411055-04

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	200.8	426	400	107	85-115
Arsenic	200.8	106	100	106	85-115
Cadmium	200.8	10.5	10.0	105	85-115
Chromium	200.8	43.3	40.0	108	85-115
Copper	200.8	52.6	50.0	105	85-115
Lead	200.8	101	100	101	85-115
Nickel	200.8	109	100	109	85-115
Selenium	200.8	101	100	101	85-115
Silver	200.8	10.4	10.0	104	85-115
Zinc	200.8	104	100	104	85-115

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QA/QC Report

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Service Request: K2407397
Date Analyzed: 08/06/24

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2411059-06

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Aluminum	200.8	410	400	103	85-115
Arsenic	200.8	106	100	106	85-115
Cadmium	200.8	10.5	10.0	105	85-115
Chromium	200.8	42.7	40.0	107	85-115
Copper	200.8	52.0	50.0	104	85-115
Lead	200.8	104	100	104	85-115
Nickel	200.8	108	100	108	85-115
Selenium	200.8	101	100	101	85-115
Silver	200.8	10.4	10.0	104	85-115
Zinc	200.8	102	100	102	85-115

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Analyzed:**	07/25/24
Sample Matrix:	Sediment		

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2411054-04

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Mercury	7471B	0.481	0.500	96	80-120

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QA/QC Report

Client:	Alaska Department of Fish and Game	**Service Request:**	K2407397
Project:	2024 Greens Creek Biomonitoring	**Date Analyzed:**	07/25/24
Sample Matrix:	Sediment		

Lab Control Sample Summary
Total Metals

Units:mg/Kg
Basis: Dry

Lab Control Sample
KQ2411058-04

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Mercury	7471B	0.488	0.500	98	80-120

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Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Metals

Prep Method: EPA 3050B **Extraction Lot:** 441812
Analytical Method: 200.8 **Extraction Date:** 07/24/24 11:41

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024GCMCCS1	K2407397-001	7/10/24	7/17/24	1.153 g	100 mL	
2024GCMCCS2	K2407397-002	7/10/24	7/17/24	1.193 g	100 mL	
2024GCMCCS3	K2407397-003	7/10/24	7/17/24	1.110 g	100 mL	
2024GCMFCS1	K2407397-004	7/10/24	7/17/24	1.140 g	100 mL	
2024GCMFCS2	K2407397-005	7/10/24	7/17/24	1.151 g	100 mL	
2024GCMFCS3	K2407397-006	7/10/24	7/17/24	1.164 g	100 mL	
2024GCMZC371S1	K2407397-007	7/8/24	7/17/24	1.189 g	100 mL	
2024GCMZC371S2	K2407397-008	7/8/24	7/17/24	1.320 g	100 mL	
2024GCMZC371S3	K2407397-009	7/8/24	7/17/24	1.257 g	100 mL	
2024GCMTC808S1	K2407397-010	7/10/24	7/17/24	1.1250 g	100 mL	
2024GCMTC808S2	K2407397-011	7/10/24	7/17/24	1.156 g	100 mL	
2024GCMTC808S3	K2407397-012	7/10/24	7/17/24	1.294 g	100 mL	
2024GCMTC808S4	K2407397-013	7/10/24	7/17/24	1.165 g	100 mL	
2024GCMTC808S5	K2407397-014	7/10/24	7/17/24	1.075 g	100 mL	
2024GCMTC9S1	K2407397-015	7/10/24	7/17/24	1.397 g	100 mL	
2024GCMTC9S2	K2407397-016	7/10/24	7/17/24	1.186 g	100 mL	
2024GCMTC9S3	K2407397-017	7/10/24	7/17/24	1.169 g	100 mL	
2024GCMGC63S1	K2407397-018	7/9/24	7/17/24	1.139 g	100 mL	
2024GCMGC63S2	K2407397-019	7/9/24	7/17/24	1.122 g	100 mL	
2024GCMGC63S3	K2407397-020	7/9/24	7/17/24	1.114 g	100 mL	
Duplicate	KQ2411059-01DUP	7/10/24	7/17/24	1.107 g	100 mL	
Matrix Spike	KQ2411059-02MS	7/10/24	7/17/24	1.143 g	100 mL	
Duplicate	KQ2411059-03DUP	7/10/24	7/17/24	1.1160 g	100 mL	
Matrix Spike	KQ2411059-04MS	7/10/24	7/17/24	1.1190 g	100 mL	
Method Blank	KQ2411059-05MB	NA	NA	1 g	100 mL	
Lab Control Sample	KQ2411059-06LCS	NA	NA	1 g	100 mL	

Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Metals

Prep Method: EPA 3050B **Extraction Lot:** 441808
Analytical Method: 200.8 **Extraction Date:** 07/24/24 11:43

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024GCMTC1847S1	K2407397-021	7/10/24	7/17/24	1.387 g	100 mL	
2024GCMTC1847S2	K2407397-022	7/10/24	7/17/24	1.097 g	100 mL	
2024GCMTC1847S3	K2407397-023	7/10/24	7/17/24	1.105 g	100 mL	
2024GCMGCDS1	K2407397-024	7/8/24	7/17/24	1.165 g	100 mL	
2024GCMGCDS2	K2407397-025	7/8/24	7/17/24	1.220 g	100 mL	
2024GCMGCDS3	K2407397-026	7/8/24	7/17/24	1.172 g	100 mL	
2024GCMZC10S1	K2407397-027	7/8/24	7/17/24	1.192 g	100 mL	
2024GCMZC10S2	K2407397-028	7/8/24	7/17/24	1.101 g	100 mL	
2024GCMZC10S3	K2407397-029	7/8/24	7/17/24	1.077 g	100 mL	
Duplicate	KQ2411055-01DUP	7/8/24	7/17/24	1.227 g	100 mL	
Matrix Spike	KQ2411055-02MS	7/8/24	7/17/24	1.243 g	100 mL	
Method Blank	KQ2411055-03MB	NA	NA	1 g	100 mL	
Lab Control Sample	KQ2411055-04LCS	NA	NA	1 g	100 mL	

ALS Group USA, Corp.
dba ALS Environmental

Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Metals

Prep Method: Method **Extraction Lot:** 441811
Analytical Method: 7471B **Extraction Date:** 07/24/24 14:15

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024GCMCCS1	K2407397-001	7/10/24	7/17/24	0.508 g	50 mL	
2024GCMCCS2	K2407397-002	7/10/24	7/17/24	0.564 g	50 mL	
2024GCMCCS3	K2407397-003	7/10/24	7/17/24	0.557 g	50 mL	
2024GCMFCS1	K2407397-004	7/10/24	7/17/24	0.576 g	50 mL	
2024GCMFCS2	K2407397-005	7/10/24	7/17/24	0.544 g	50 mL	
2024GCMFCS3	K2407397-006	7/10/24	7/17/24	0.511 g	50 mL	
2024GCMZC371S1	K2407397-007	7/8/24	7/17/24	0.540 g	50 mL	
2024GCMZC371S2	K2407397-008	7/8/24	7/17/24	0.534 g	50 mL	
2024GCMZC371S3	K2407397-009	7/8/24	7/17/24	0.545 g	50 mL	
2024GCMTC808S1	K2407397-010	7/10/24	7/17/24	0.531 g	50 mL	
2024GCMTC808S2	K2407397-011	7/10/24	7/17/24	0.516 g	50 mL	
2024GCMTC808S3	K2407397-012	7/10/24	7/17/24	0.548 g	50 mL	
2024GCMTC808S4	K2407397-013	7/10/24	7/17/24	0.532 g	50 mL	
2024GCMTC808S5	K2407397-014	7/10/24	7/17/24	0.540 g	50 mL	
2024GCMTC9S1	K2407397-015	7/10/24	7/17/24	0.572 g	50 mL	
2024GCMTC9S2	K2407397-016	7/10/24	7/17/24	0.579 g	50 mL	
2024GCMTC9S3	K2407397-017	7/10/24	7/17/24	0.564 g	50 mL	
2024GCMGC63S1	K2407397-018	7/9/24	7/17/24	0.535 g	50 mL	
2024GCMGC63S2	K2407397-019	7/9/24	7/17/24	0.561 g	50 mL	
2024GCMGC63S3	K2407397-020	7/9/24	7/17/24	0.596 g	50 mL	
Duplicate	KQ2411058-01DUP	7/10/24	7/17/24	0.578 g	50 mL	
Matrix Spike	KQ2411058-02MS	7/10/24	7/17/24	0.521 g	50 mL	
Method Blank	KQ2411058-03MB	NA	NA	0.5 g	50 mL	
Lab Control Sample	KQ2411058-04LCS	NA	NA	0.5 g	50 mL	

ALS Group USA, Corp.
dba ALS Environmental

Prep Summary Report

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Metals

Prep Method: Method **Extraction Lot:** 441807
Analytical Method: 7471B **Extraction Date:** 07/24/24 14:15

Sample Name	Lab Code	Date Collected	Date Received	Sample Amount	Final Amount	Percent Solids
2024GCMTC1847S1	K2407397-021	7/10/24	7/17/24	0.656 g	50 mL	
2024GCMTC1847S2	K2407397-022	7/10/24	7/17/24	0.571 g	50 mL	
2024GCMTC1847S3	K2407397-023	7/10/24	7/17/24	0.541 g	50 mL	
2024GCMGCDS1	K2407397-024	7/8/24	7/17/24	0.628 g	50 mL	
2024GCMGCDS2	K2407397-025	7/8/24	7/17/24	0.631 g	50 mL	
2024GCMGCDS3	K2407397-026	7/8/24	7/17/24	0.595 g	50 mL	
2024GCMZC10S1	K2407397-027	7/8/24	7/17/24	0.537 g	50 mL	
2024GCMZC10S2	K2407397-028	7/8/24	7/17/24	0.671 g	50 mL	
2024GCMZC10S3	K2407397-029	7/8/24	7/17/24	0.605 g	50 mL	
Duplicate	KQ2411054-01DUP	7/8/24	7/17/24	0.661 g	50 mL	
Matrix Spike	KQ2411054-02MS	7/8/24	7/17/24	0.615 g	50 mL	
Method Blank	KQ2411054-03MB	NA	NA	0.5 g	50 mL	
Lab Control Sample	KQ2411054-04LCS	NA	NA	0.5 g	50 mL	

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
ICV 07/25/24 13:19						
Mercury	7471B	848628	4.85	5.00	97	90-110
CCV 07/25/24 13:24						
Mercury	7471B	848628	5.00	5.00	100	90-110
CCV 07/25/24 13:43						
Mercury	7471B	848628	4.97	5.00	99	90-110
CCV 07/25/24 14:02						
Mercury	7471B	848628	4.95	5.00	99	90-110
CCV 07/25/24 14:22						
Mercury	7471B	848628	4.96	5.00	99	90-110
CCV 07/25/24 14:41						
Mercury	7471B	848628	4.98	5.00	100	90-110
CCV 07/25/24 15:01						
Mercury	7471B	848628	5.06	5.00	101	90-110
CCV 07/25/24 15:20						
Mercury	7471B	848628	5.01	5.00	100	90-110
ICV 08/06/24 08:02						
Aluminum	200.8	849736	95.0	100	95	90-110
Arsenic	200.8	849736	24.4	25.0	98	90-110
Cadmium	200.8	849736	12.1	12.5	97	90-110
Chromium	200.8	849736	9.81	10.0	98	90-110
Copper	200.8	849736	12.2	12.5	98	90-110
Lead	200.8	849736	24.4	25.0	98	90-110
Nickel	200.8	849736	25.0	25.0	100	90-110
Selenium	200.8	849736	23.1	25.0	93	90-110
Silver	200.8	849736	11.4	12.5	91	90-110
Zinc	200.8	849736	24.4	25.0	98	90-110
CCV 08/06/24 08:05						
Aluminum	200.8	849736	252	250	101	90-110
Arsenic	200.8	849736	25.8	25.0	103	90-110
Cadmium	200.8	849736	24.3	25.0	97	90-110
Chromium	200.8	849736	25.7	25.0	103	90-110
Copper	200.8	849736	25.0	25.0	100	90-110
Lead	200.8	849736	24.7	25.0	99	90-110
Nickel	200.8	849736	25.8	25.0	103	90-110
Selenium	200.8	849736	24.5	25.0	98	90-110
Silver	200.8	849736	12.0	12.5	96	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
CCV 08/06/24 08:05						
Zinc	200.8	849736	25.2	25.0	101	90-110
CCV 08/06/24 08:49						
Aluminum	200.8	849736	254	250	101	90-110
Arsenic	200.8	849736	25.3	25.0	101	90-110
Cadmium	200.8	849736	24.5	25.0	98	90-110
Chromium	200.8	849736	25.6	25.0	103	90-110
Copper	200.8	849736	25.2	25.0	101	90-110
Lead	200.8	849736	24.6	25.0	98	90-110
Nickel	200.8	849736	25.9	25.0	104	90-110
Selenium	200.8	849736	24.4	25.0	98	90-110
Silver	200.8	849736	12.2	12.5	98	90-110
Zinc	200.8	849736	25.4	25.0	102	90-110
CCV 08/06/24 09:20						
Aluminum	200.8	849736	253	250	101	90-110
Arsenic	200.8	849736	25.5	25.0	102	90-110
Cadmium	200.8	849736	24.6	25.0	98	90-110
Chromium	200.8	849736	25.7	25.0	103	90-110
Copper	200.8	849736	25.4	25.0	101	90-110
Lead	200.8	849736	24.4	25.0	98	90-110
Nickel	200.8	849736	26.0	25.0	104	90-110
Selenium	200.8	849736	24.3	25.0	97	90-110
Silver	200.8	849736	12.3	12.5	98	90-110
Zinc	200.8	849736	25.5	25.0	102	90-110
CCV 08/06/24 09:45						
Aluminum	200.8	849736	251	250	101	90-110
Arsenic	200.8	849736	25.1	25.0	101	90-110
Cadmium	200.8	849736	24.5	25.0	98	90-110
Chromium	200.8	849736	25.6	25.0	102	90-110
Copper	200.8	849736	25.4	25.0	102	90-110
Lead	200.8	849736	24.2	25.0	97	90-110
Nickel	200.8	849736	25.4	25.0	102	90-110
Selenium	200.8	849736	24.5	25.0	98	90-110
Silver	200.8	849736	12.3	12.5	99	90-110
Zinc	200.8	849736	25.5	25.0	102	90-110
CCV 08/06/24 10:16						
Aluminum	200.8	849736	252	250	101	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits
CCV 08/06/24 10:16						
Arsenic	200.8	849736	25.8	25.0	103	90-110
Cadmium	200.8	849736	24.6	25.0	99	90-110
Chromium	200.8	849736	25.9	25.0	104	90-110
Copper	200.8	849736	25.8	25.0	103	90-110
Lead	200.8	849736	25.0	25.0	100	90-110
Nickel	200.8	849736	26.1	25.0	104	90-110
Selenium	200.8	849736	24.5	25.0	98	90-110
Silver	200.8	849736	12.4	12.5	99	90-110
Zinc	200.8	849736	25.6	25.0	103	90-110
CCV 08/06/24 10:33						
Aluminum	200.8	849736	255	250	102	90-110
Arsenic	200.8	849736	25.3	25.0	101	90-110
Cadmium	200.8	849736	24.1	25.0	96	90-110
Chromium	200.8	849736	25.9	25.0	103	90-110
Copper	200.8	849736	25.2	25.0	101	90-110
Lead	200.8	849736	24.5	25.0	98	90-110
Nickel	200.8	849736	25.6	25.0	103	90-110
Selenium	200.8	849736	24.6	25.0	98	90-110
Silver	200.8	849736	12.1	12.5	97	90-110
Zinc	200.8	849736	25.2	25.0	101	90-110

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
ICB 07/25/24 13:20				
Mercury	7471B	848628	0.02	U
CCB 07/25/24 13:25				
Mercury	7471B	848628	0.02	U
CCB 07/25/24 13:45				
Mercury	7471B	848628	0.02	U
CCB 07/25/24 14:04				
Mercury	7471B	848628	0.02	U
CCB 07/25/24 14:24				
Mercury	7471B	848628	0.02	U
CCB 07/25/24 14:43				
Mercury	7471B	848628	0.02	U
CCB 07/25/24 15:02				
Mercury	7471B	848628	0.02	U
CCB 07/25/24 15:22				
Mercury	7471B	848628	0.02	U
ICB 08/06/24 08:07				
Aluminum	200.8	849736	1.2	U
Arsenic	200.8	849736	0.1	U
Cadmium	200.8	849736	0.014	U
Chromium	200.8	849736	0.12	U
Copper	200.8	849736	0.08	U
Lead	200.8	849736	0.04	U
Nickel	200.8	849736	0.06	U
Selenium	200.8	849736	0.2	U
Silver	200.8	849736	0.008	U
Zinc	200.8	849736	0.4	U
CCB 08/06/24 08:10				
Aluminum	200.8	849736	1.2	U
Arsenic	200.8	849736	0.1	U
Cadmium	200.8	849736	0.014	U
Chromium	200.8	849736	0.12	U
Copper	200.8	849736	0.08	U
Lead	200.8	849736	0.04	U
Nickel	200.8	849736	0.06	U
Selenium	200.8	849736	0.2	U
Silver	200.8	849736	0.008	U

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
CCB 08/06/24 08:10				
Zinc	200.8	849736	0.4	U
CCB 08/06/24 08:52				
Aluminum	200.8	849736	1.2	U
Arsenic	200.8	849736	0.1	U
Cadmium	200.8	849736	0.014	U
Chromium	200.8	849736	0.12	U
Copper	200.8	849736	0.08	U
Lead	200.8	849736	0.04	U
Nickel	200.8	849736	0.06	U
Selenium	200.8	849736	0.2	U
Silver	200.8	849736	0.008	U
Zinc	200.8	849736	0.4	U
CCB 08/06/24 09:22				
Aluminum	200.8	849736	1.2	U
Arsenic	200.8	849736	0.1	U
Cadmium	200.8	849736	0.014	U
Chromium	200.8	849736	0.12	U
Copper	200.8	849736	0.08	U
Lead	200.8	849736	0.04	U
Nickel	200.8	849736	0.06	U
Selenium	200.8	849736	0.2	U
Silver	200.8	849736	0.008	U
Zinc	200.8	849736	0.4	U
CCB 08/06/24 09:48				
Aluminum	200.8	849736	1.2	U
Arsenic	200.8	849736	0.1	U
Cadmium	200.8	849736	0.014	U
Chromium	200.8	849736	0.12	U
Copper	200.8	849736	0.08	U
Lead	200.8	849736	0.04	U
Nickel	200.8	849736	0.06	U
Selenium	200.8	849736	0.2	U
Silver	200.8	849736	0.008	U
Zinc	200.8	849736	0.4	U
CCB 08/06/24 10:19				
Aluminum	200.8	849736	1.2	U

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring

INITIAL AND CONTINUING CALIBRATION BLANKS

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	C
CCB 08/06/24 10:19				
Arsenic	200.8	849736	0.1	U
Cadmium	200.8	849736	0.014	U
Chromium	200.8	849736	0.12	U
Copper	200.8	849736	0.08	U
Lead	200.8	849736	0.04	U
Nickel	200.8	849736	0.06	U
Selenium	200.8	849736	0.2	U
Silver	200.8	849736	0.008	U
Zinc	200.8	849736	0.4	U
CCB 08/06/24 10:36				
Aluminum	200.8	849736	1.2	U
Arsenic	200.8	849736	0.1	U
Cadmium	200.8	849736	0.014	U
Chromium	200.8	849736	0.12	U
Copper	200.8	849736	0.08	U
Lead	200.8	849736	0.04	U
Nickel	200.8	849736	0.06	U
Selenium	200.8	849736	0.2	U
Silver	200.8	849736	0.008	U
Zinc	200.8	849736	0.4	U

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring

LOW LEVEL INITIAL AND LOW LEVEL CONTINUING CALIBRATION VERIFICATION

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Result	True Value	% Rec	% Rec. Limits	Analysis Date
LLICV							
Mercury	7471B	848628	0.20	0.2	98	50-150	07/25/24 13:22
LLICVS							
Aluminum	200.8	849736	4.1	4.0	104	50-199	08/06/24 08:12
Arsenic	200.8	849736	0.55	0.5	110	50-199	08/06/24 08:12
Cadmium	200.8	849736	0.043	0.04	108	50-199	08/06/24 08:12
Chromium	200.8	849736	0.45	0.4	114	50-199	08/06/24 08:12
Copper	200.8	849736	0.22	0.2	110	50-199	08/06/24 08:12
Lead	200.8	849736	0.10	0.1	101	50-199	08/06/24 08:12
Nickel	200.8	849736	0.46	0.4	116	50-199	08/06/24 08:12
Selenium	200.8	849736	1.1	1.0	106	50-199	08/06/24 08:12
Silver	200.8	849736	0.040	0.04	100	50-199	08/06/24 08:12
Zinc	200.8	849736	1.3	1.0	132	50-199	08/06/24 08:12

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring

POST SPIKE SAMPLE RECOVERY

Concentration Units: ug/L

Sample ID / Analyte	Method	Analysis Batch:	Initial Sample Result	Post Spike Result	True Value	% Rec	% Rec. Limits	Analysis Date
K2407397-001A								
Mercury	7471B	848628	0.07 J	4.88	5.00	96	80-120	07/25/24 13:35
K2407397-024A								
Mercury	7471B	848628	0.22	5.03	5.00	96	80-120	07/25/24 14:53

Results flagged with a pound (#) indicate the control criteria is not applicable.

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring/

Detection Limits

Instrument: K-CVAA-04 **Matrix:** Sediment

Analyte	Wavelength (nm)	Units	MRL	MDL	Method
Mercury	253	ug/L	0.2	0.02	7471B

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring/

Detection Limits

Instrument: K-ICP-MS-05 **Matrix:** Sediment

Analyte	Mass	Units	MRL	MDL	Method
Aluminum	27	ug/L	4	1.2	200.8
Arsenic	75	ug/L	1	0.12	200.8
Cadmium	111	ug/L	0.04	0.014	200.8
Chromium	52	ug/L	0.4	0.12	200.8
Copper	65	ug/L	0.2	0.08	200.8
Lead	208	ug/L	0.1	0.04	200.8
Nickel	60	ug/L	0.4	0.06	200.8
Selenium	78	ug/L	2	0.18	200.8
Silver	107	ug/L	0.04	0.008	200.8
Zinc	66	ug/L	1	0.4	200.8

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring/

ICP Linear Range (Quarterly)

Instrument: K-ICP-MS-05

Analyte	Concentration (ug/L)	Method
Aluminum 27	45000	200.8
Arsenic 75	3600	200.8
Cadmium 111	3600	200.8
Chromium 52	3600	200.8
Copper 65	3600	200.8
Lead 208	3600	200.8
Nickel 60	3600	200.8
Selenium 78	3600	200.8
Silver 107	180	200.8
Zinc 66	3600	200.8

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring/

Analysis Run Log

Instrument ID: **K-CVAA-04** **Analytical BatchID:** **848628**

Sample	Dilution Factor	Date/Time	Hg
ZZZZZZ	1	07/25/24 13:09	
ZZZZZZ	1	07/25/24 13:11	
ZZZZZZ	1	07/25/24 13:12	
ZZZZZZ	1	07/25/24 13:14	
ZZZZZZ	1	07/25/24 13:16	
ZZZZZZ	1	07/25/24 13:17	
ICV1	1	07/25/24 13:19	X
ICB1	1	07/25/24 13:20	X
LLICV1	1	07/25/24 13:22	X
CCV1	1	07/25/24 13:24	X
CCB1	1	07/25/24 13:25	X
KQ2411058-03MB	1	07/25/24 13:27	X
KQ2411058-04LCS	1	07/25/24 13:28	X
K2407397-001	1	07/25/24 13:30	X
K2407397-001DUP	1	07/25/24 13:32	X
K2407397-001MS	1	07/25/24 13:33	X
K2407397-001PS	1	07/25/24 13:35	X
K2407397-002	1	07/25/24 13:37	X
K2407397-003	1	07/25/24 13:38	X
K2407397-004	1	07/25/24 13:40	X
K2407397-005	1	07/25/24 13:41	X
CCV2	1	07/25/24 13:43	X
CCB2	1	07/25/24 13:45	X
K2407397-006	1	07/25/24 13:46	X
K2407397-007	1	07/25/24 13:48	X
K2407397-008	1	07/25/24 13:50	X
K2407397-009	1	07/25/24 13:51	X
K2407397-010	1	07/25/24 13:53	X
K2407397-011	1	07/25/24 13:54	X
K2407397-012	1	07/25/24 13:56	X
K2407397-013	1	07/25/24 13:58	X
K2407397-014	1	07/25/24 13:59	X
K2407397-015	1	07/25/24 14:01	X
CCV3	1	07/25/24 14:02	X
CCB3	1	07/25/24 14:04	X
K2407397-016	1	07/25/24 14:06	X
K2407397-017	1	07/25/24 14:07	X

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring/

Analysis Run Log

Instrument ID: **K-CVAA-04** **Analytical BatchID:** **848628**

Sample	Dilution Factor	Date/Time	Hg
K2407397-018	1	07/25/24 14:09	X
K2407397-019	1	07/25/24 14:11	X
K2407397-020	1	07/25/24 14:12	X
ZZZZZZ	1	07/25/24 14:14	
ZZZZZZ	1	07/25/24 14:15	
ZZZZZZ	1	07/25/24 14:17	
ZZZZZZ	1	07/25/24 14:19	
ZZZZZZ	1	07/25/24 14:20	
CCV4	1	07/25/24 14:22	X
CCB4	1	07/25/24 14:24	X
ZZZZZZ	1	07/25/24 14:25	
ZZZZZZ	1	07/25/24 14:27	
ZZZZZZ	1	07/25/24 14:28	
ZZZZZZ	1	07/25/24 14:30	
ZZZZZZ	1	07/25/24 14:32	
ZZZZZZ	1	07/25/24 14:33	
ZZZZZZ	1	07/25/24 14:35	
KQ2411054-03MB	1	07/25/24 14:37	X
KQ2411054-04LCS	1	07/25/24 14:38	X
K2407397-021	1	07/25/24 14:40	X
CCV5	1	07/25/24 14:41	X
CCB5	1	07/25/24 14:43	X
K2407397-022	1	07/25/24 14:45	X
K2407397-023	1	07/25/24 14:46	X
K2407397-024	1	07/25/24 14:48	X
K2407397-024DUP	1	07/25/24 14:49	X
K2407397-024MS	1	07/25/24 14:51	X
K2407397-024PS	1	07/25/24 14:53	X
K2407397-025	1	07/25/24 14:54	X
K2407397-026	1	07/25/24 14:56	X
K2407397-027	1	07/25/24 14:58	X
K2407397-028	1	07/25/24 14:59	X
CCV6	1	07/25/24 15:01	X
CCB6	1	07/25/24 15:02	X
K2407397-029	1	07/25/24 15:04	X
ZZZZZZ	1	07/25/24 15:06	
ZZZZZZ	1	07/25/24 15:07	

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring/

Analysis Run Log

Instrument ID: **K-CVAA-04** **Analytical BatchID:** **848628**

Sample	Dilution Factor	Date/Time	Hg
ZZZZZZ	1	07/25/24 15:09	
ZZZZZZ	1	07/25/24 15:11	
ZZZZZZ	1	07/25/24 15:12	
ZZZZZZ	1	07/25/24 15:14	
ZZZZZZ	1	07/25/24 15:15	
ZZZZZZ	1	07/25/24 15:17	
ZZZZZZ	1	07/25/24 15:19	
CCV7	1	07/25/24 15:20	X
CCB7	1	07/25/24 15:22	X
ZZZZZZ	1	07/25/24 15:24	
ZZZZZZ	1	07/25/24 15:25	
ZZZZZZ	1	07/25/24 15:27	
ZZZZZZ	1	07/25/24 15:28	
ZZZZZZ	1	07/25/24 15:30	
ZZZZZZ	1	07/25/24 15:32	
ZZZZZZ	1	07/25/24 15:33	
ZZZZZZ	1	07/25/24 15:35	
ZZZZZZ	1	07/25/24 15:37	
ZZZZZZ	1	07/25/24 15:38	
ZZZZZZ	1	07/25/24 15:40	
ZZZZZZ	1	07/25/24 15:41	
ZZZZZZ	1	07/25/24 15:43	
ZZZZZZ	1	07/25/24 15:45	
ZZZZZZ	1	07/25/24 15:46	
ZZZZZZ	1	07/25/24 15:48	
ZZZZZZ	1	07/25/24 15:50	
ZZZZZZ	1	07/25/24 15:51	
ZZZZZZ	1	07/25/24 15:53	
ZZZZZZ	1	07/25/24 15:54	
ZZZZZZ	1	07/25/24 15:56	
ZZZZZZ	1	07/25/24 15:58	
ZZZZZZ	1	07/25/24 15:59	
ZZZZZZ	1	07/25/24 16:01	
ZZZZZZ	1	07/25/24 16:03	
ZZZZZZ	1	07/25/24 16:04	
ZZZZZZ	1	07/25/24 16:06	
ZZZZZZ	1	07/25/24 16:07	

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **849736**

Sample	Dilution Factor	Date/Time	Al	As	Cd	Cr	Cu	Pb	Ni	Se	Ag	Zn
ZZZZZZ	1	08/06/24 07:55										
ZZZZZZ	1	08/06/24 07:58										
ICV	1	08/06/24 08:02	X	X	X	X	X	X	X	X	X	X
CCV	1	08/06/24 08:05	X	X	X	X	X	X	X	X	X	X
ICB	1	08/06/24 08:07	X	X	X	X	X	X	X	X	X	X
CCB	1	08/06/24 08:10	X	X	X	X	X	X	X	X	X	X
LLICVS	1	08/06/24 08:12	X	X	X	X	X	X	X	X	X	X
ZZZZZZ	1	08/06/24 08:19										
KQ2411059-05MB	5	08/06/24 08:23	X	X	X	X	X	X	X	X	X	X
KQ2411059-06LCS	20	08/06/24 08:26	X	X	X	X	X	X	X	X	X	X
K2407397-001	5	08/06/24 08:29	X	X	X	X	X	X	X	X	X	X
K2407397-001DUP	5	08/06/24 08:31	X	X	X	X	X	X	X	X	X	X
K2407397-001MS	5	08/06/24 08:34	X	X	X	X	X	X	X	X	X	X
K2407397-002	5	08/06/24 08:36	X	X	X	X	X	X	X	X	X	X
K2407397-003	5	08/06/24 08:39	X	X	X	X	X	X	X	X	X	X
K2407397-004	5	08/06/24 08:41	X	X	X	X	X	X	X	X	X	X
K2407397-005	5	08/06/24 08:44	X	X	X	X	X	X	X	X	X	X
K2407397-006	5	08/06/24 08:46	X	X	X	X	X	X	X	X	X	X
CCV	1	08/06/24 08:49	X	X	X	X	X	X	X	X	X	X
CCB	1	08/06/24 08:52	X	X	X	X	X	X	X	X	X	X
K2407397-007	5	08/06/24 08:54	X	X	X	X	X	X	X	X	X	X
K2407397-008	5	08/06/24 08:57	X	X	X	X	X	X	X	X	X	X
K2407397-009	5	08/06/24 08:59	X	X	X	X	X	X	X	X	X	X
K2407397-010	5	08/06/24 09:02	X	X	X	X	X	X	X	X	X	X
K2407397-010DUP	5	08/06/24 09:04	X	X	X	X	X	X	X	X	X	X
K2407397-010MS	5	08/06/24 09:07	X	X	X	X	X	X	X	X	X	X
K2407397-011	5	08/06/24 09:10	X	X	X	X	X	X	X	X	X	X
K2407397-012	5	08/06/24 09:12	X	X	X	X	X	X	X	X	X	X
K2407397-013	5	08/06/24 09:15	X	X	X	X	X	X	X	X	X	X
K2407397-014	5	08/06/24 09:17	X	X	X	X	X	X	X	X	X	X
CCV	1	08/06/24 09:20	X	X	X	X	X	X	X	X	X	X
CCB	1	08/06/24 09:22	X	X	X	X	X	X	X	X	X	X
K2407397-015	5	08/06/24 09:25	X	X	X	X	X	X	X	X	X	X
K2407397-016	5	08/06/24 09:28	X	X	X	X	X	X	X	X	X	X
K2407397-017	5	08/06/24 09:30	X	X	X	X	X	X	X	X	X	X
K2407397-018	5	08/06/24 09:33	X	X	X	X	X	X	X	X	X	X
K2407397-019	5	08/06/24 09:35	X	X	X	X	X	X	X	X	X	X

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring/

Analysis Run Log

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **849736**

Sample	Dilution Factor	Date/Time	Al	As	Cd	Cr	Cu	Pb	Ni	Se	Ag	Zn
K2407397-020	5	08/06/24 09:38	X	X	X	X	X	X	X	X	X	X
CCV	1	08/06/24 09:45	X	X	X	X	X	X	X	X	X	X
CCB	1	08/06/24 09:48	X	X	X	X	X	X	X	X	X	X
KQ2411055-03MB	5	08/06/24 09:51	X	X	X	X	X	X	X	X	X	X
KQ2411055-04LCS	20	08/06/24 09:53	X	X	X	X	X	X	X	X	X	X
K2407397-024	5	08/06/24 09:56	X	X	X	X	X	X	X	X	X	X
K2407397-024DUP	5	08/06/24 09:58	X	X	X	X	X	X	X	X	X	X
K2407397-024MS	5	08/06/24 10:01	X	X	X	X	X	X	X	X	X	X
K2407397-021	5	08/06/24 10:03	X	X	X	X	X	X	X	X	X	X
K2407397-022	5	08/06/24 10:06	X	X	X	X	X	X	X	X	X	X
K2407397-023	5	08/06/24 10:08	X	X	X	X	X	X	X	X	X	X
K2407397-025	5	08/06/24 10:11	X	X	X	X	X	X	X	X	X	X
K2407397-026	5	08/06/24 10:14	X	X	X	X	X	X	X	X	X	X
CCV	1	08/06/24 10:16	X	X	X	X	X	X	X	X	X	X
CCB	1	08/06/24 10:19	X	X	X	X	X	X	X	X	X	X
K2407397-027	5	08/06/24 10:21	X	X	X	X	X	X	X	X	X	X
K2407397-028	5	08/06/24 10:24	X	X	X	X	X	X	X	X	X	X
K2407397-029	5	08/06/24 10:26	X	X	X	X	X	X	X	X	X	X
CCV	1	08/06/24 10:33	X	X	X	X	X	X	X	X	X	X
CCB	1	08/06/24 10:36	X	X	X	X	X	X	X	X	X	X

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **849736**

Sample	Date/Time	Li6NG	Ge72H2	Ge72He	In115He	Lu175He
ZZZZZZ	08/06/24 07:55					
ZZZZZZ	08/06/24 07:58					
ICV	08/06/24 08:02	102	92	101	104	97
CCV	08/06/24 08:05	102	94	103	104	101
ICB	08/06/24 08:07	100	90	100	99	99
CCB	08/06/24 08:10	100	89	99	102	98
LLICVS	08/06/24 08:12	100	88	99	102	99
ZZZZZZ	08/06/24 08:19					
KQ2411059-05MB	08/06/24 08:23	105	88	100	102	99
KQ2411059-06LCS	08/06/24 08:26	100	90	101	99	99
K2407397-001	08/06/24 08:29	103	89	98	99	98
K2407397-001DUP	08/06/24 08:31	100	71	88	89	90
K2407397-001MS	08/06/24 08:34	96	85	94	94	96
K2407397-002	08/06/24 08:36	96	84	93	96	97
K2407397-003	08/06/24 08:39	94	83	94	97	98
K2407397-004	08/06/24 08:41	96	85	94	96	97
K2407397-005	08/06/24 08:44	98	86	94	97	96
K2407397-006	08/06/24 08:46	96	84	94	96	97
CCV	08/06/24 08:49	94	84	93	95	96
CCB	08/06/24 08:52	89	83	91	94	95
K2407397-007	08/06/24 08:54	93	85	92	95	96
K2407397-008	08/06/24 08:57	91	79	86	89	93
K2407397-009	08/06/24 08:59	90	76	85	88	93
K2407397-010	08/06/24 09:02	88	78	88	91	95
K2407397-010DUP	08/06/24 09:04	93	83	92	93	94
K2407397-010MS	08/06/24 09:07	92	83	92	93	94
K2407397-011	08/06/24 09:10	91	84	91	92	96
K2407397-012	08/06/24 09:12	93	85	92	97	97
K2407397-013	08/06/24 09:15	94	85	93	94	97
K2407397-014	08/06/24 09:17	93	84	93	95	97
CCV	08/06/24 09:20	93	84	93	94	95
CCB	08/06/24 09:22	89	83	90	92	95
K2407397-015	08/06/24 09:25	95	84	93	95	96
K2407397-016	08/06/24 09:28	96	83	91	94	94
K2407397-017	08/06/24 09:30	94	81	91	93	96
K2407397-018	08/06/24 09:33	96	84	92	95	96
K2407397-019	08/06/24 09:35	95	85	93	95	97

Client: Alaska Department of Fish and Game **Service Request:** K2407397
Project: 2024 Greens Creek Biomonitoring/

ICP-MS INTERNAL STANDARDS RELATIVE INTENSITY SUMMARY

Instrument ID: **K-ICP-MS-05** **Analytical BatchID:** **849736**

Sample	Date/Time	Li6NG	Ge72H2	Ge72He	In115He	Lu175He
K2407397-020	08/06/24 09:38	96	85	94	96	96
CCV	08/06/24 09:45	97	84	93	93	94
CCB	08/06/24 09:48	91	84	90	93	93
KQ2411055-03MB	08/06/24 09:51	90	82	90	94	94
KQ2411055-04LCS	08/06/24 09:53	89	82	90	92	93
K2407397-024	08/06/24 09:56	92	84	91	93	94
K2407397-024DUP	08/06/24 09:58	94	81	87	90	93
K2407397-024MS	08/06/24 10:01	90	79	86	89	93
K2407397-021	08/06/24 10:03	90	78	87	90	93
K2407397-022	08/06/24 10:06	92	82	89	92	95
K2407397-023	08/06/24 10:08	92	83	90	92	94
K2407397-025	08/06/24 10:11	93	81	88	91	93
K2407397-026	08/06/24 10:14	91	81	88	92	95
CCV	08/06/24 10:16	88	81	89	90	91
CCB	08/06/24 10:19	88	80	88	91	94
K2407397-027	08/06/24 10:21	89	84	91	92	94
K2407397-028	08/06/24 10:24	92	80	87	92	93
K2407397-029	08/06/24 10:26	89	81	88	92	93
CCV	08/06/24 10:33	91	81	90	92	91
CCB	08/06/24 10:36	89	82	89	93	93

Raw Data

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Total Solids

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Analytical Results Summary

Instrument Name: K-BALANCE-50 **Analyst:** ZBIBI **Analysis Lot:** 847768 **Method/Testcode:** 160.3 Modified/TS

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407397-001	Solids, Total	N/A		Sediment	70.80 Percent	10 g	70.8 Percent	1					7/17/24 16:00:00	N	IV
K2407397-002	Solids, Total	N/A		Sediment	75.80 Percent	10 g	75.8 Percent	1					7/17/24 16:00:00	N	IV
K2407397-003	Solids, Total	N/A		Sediment	70.30 Percent	10 g	70.3 Percent	1					7/17/24 16:00:00	N	IV
K2407397-004	Solids, Total	N/A		Sediment	74.00 Percent	10 g	74.0 Percent	1					7/17/24 16:00:00	N	IV
K2407397-005	Solids, Total	N/A		Sediment	75.20 Percent	10 g	75.2 Percent	1					7/17/24 16:00:00	N	IV
K2407397-006	Solids, Total	N/A		Sediment	72.30 Percent	10 g	72.3 Percent	1					7/17/24 16:00:00	N	IV
K2407397-007	Solids, Total	N/A		Sediment	72.60 Percent	10 g	72.6 Percent	1					7/17/24 16:00:00	N	IV
K2407397-008	Solids, Total	N/A		Sediment	70.40 Percent	10 g	70.4 Percent	1					7/17/24 16:00:00	N	IV
K2407397-009	Solids, Total	N/A		Sediment	68.00 Percent	10 g	68.0 Percent	1					7/17/24 16:00:00	N	IV
K2407397-010	Solids, Total	N/A		Sediment	53.90 Percent	10 g	53.9 Percent	1					7/17/24 16:00:00	N	IV
K2407397-011	Solids, Total	N/A		Sediment	51.80 Percent	10 g	51.8 Percent	1					7/17/24 16:00:00	N	IV
K2407397-012	Solids, Total	N/A		Sediment	47.60 Percent	10 g	47.6 Percent	1					7/17/24 16:00:00	N	IV
K2407397-013	Solids, Total	N/A		Sediment	45.80 Percent	10 g	45.8 Percent	1					7/17/24 16:00:00	N	IV
K2407397-014	Solids, Total	N/A		Sediment	41.40 Percent	10 g	41.4 Percent	1					7/17/24 16:00:00	N	IV
K2407397-015	Solids, Total	N/A		Sediment	65.40 Percent	10 g	65.4 Percent	1					7/17/24 16:00:00	N	IV
K2407397-016	Solids, Total	N/A		Sediment	65.20 Percent	10 g	65.2 Percent	1					7/17/24 16:00:00	N	IV
K2407397-017	Solids, Total	N/A		Sediment	67.20 Percent	10 g	67.2 Percent	1					7/17/24 16:00:00	N	IV
K2407397-018	Solids, Total	N/A		Sediment	65.40 Percent	10 g	65.4 Percent	1					7/17/24 16:00:00	N	IV
K2407397-019	Solids, Total	N/A		Sediment	73.80 Percent	10 g	73.8 Percent	1					7/17/24 16:00:00	N	IV
K2407397-020	Solids, Total	N/A		Sediment	77.80 Percent	10 g	77.8 Percent	1					7/17/24 16:00:00	N	IV
KQ2411033-01	Solids, Total	DUP	K2407397-020	Sediment	78.70 Percent	10 g	78.7 Percent	1				1	7/17/24 16:00:00	N	IV
KQ2411033-02	Solids, Total	DUP	K2407397-001	Sediment	72.60 Percent	10 g	72.6 Percent	1				3	7/17/24 16:00:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: K2407397 Method: TVS

Run: 847665

Analysis: Total Solids / Volatile Solids Matrix: SOIL

Sample Number		MB	7397-1	7397-1DUP	7397-2	7397-3	7397-4
Crucible Number		Purple	pink	green	Blue	Black	orange
SampleWeight		50.7322	25.8824	25.7816	29.2556	25.9280	27.1692
Tare Weight	7/17/2024	54.0040	57.8861	52.3436	55.5099	60.7877	56.6567
Tare + Dry Wt. (1)	7/18/2024	54.0173	76.2071	71.0336	77.6591	79.0125	76.7456
Tare + Dry Wt. (2)	7/18/2024	54.0198	76.2215	71.0500	77.6744	79.0255	76.7552
Tare + Ash Wt. (1)	7/18/2024	54.0102	75.6484	70.5115	77.1274	78.3839	76.3501
Tare + Ash Wt. (2)	7/18/2024	54.0077	75.5524	70.4009	76.9972	78.2874	76.3398
Total Solids		0.0%	70.8%	72.6%	75.8%	70.3%	74.0%
Volatile Solids		76.6%	3.6%	3.5%	3.1%	4.0%	2.1%

Sample Number		7397-5	7397-6	7397-7	7397-8	7397-9	7397-10
Crucible Number		yellow	Brown	Silver	Gold	Royal	Sam
Sample Weight		28.4332	27.1967	25.6595	27.3505	28.7628	26.3587
Tare Weight	7/17/2024	55.9890	61.1620	58.8727	60.1349	57.8454	57.5126
Tare + Dry Wt. (1)	7/18/2024	77.3671	80.8115	77.4971	79.3695	77.3884	71.7051
Tare + Dry Wt. (2)	7/18/2024	77.3789	80.8228	77.5059	79.3778	77.3978	71.7149
Tare + Ash Wt. (1)	7/18/2024	76.9512	80.4150	77.1252	79.0720	77.0646	70.8826
Tare + Ash Wt. (2)	7/18/2024	76.9312	80.3128	76.8997	78.8757	76.9441	70.7612
Total Solids		75.2%	72.3%	72.6%	70.4%	68.0%	53.9%
Volatile Solids		2.1%	2.6%	3.3%	2.6%	2.3%	6.7%

% Total Solids = (Tare + Dry Wt. - Tare / Sample Weight)

% Volatile Solids = (Dry Wt. - Ash Wt. / Dry Sample Weight)

Comments:

105 oven: K - OVEN 07

550 oven: K -Furnace-01 K-Balance- 61

Analyzed By:	ZZB	Date:	7/17/2024
Reviewed By:		Date:	7/22/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: K2407397 Method: TVS

Run: 847665

Analysis: Total Solids / Volatile Solids Matrix:

Sample Number		7397-11	7397-12	7397-13	7397-14	7397-15	7397-16
Crucible Number		queen	Jack	White	Bob	King	Bulb
SampleWeight		25.6333	27.3966	25.5974	26.1499	26.0085	28.3529
Tare Weight	7/17/2024	62.3641	57.3440	57.2276	59.0694	61.1226	52.1494
Tare + Dry Wt. (1)	7/18/2024	75.6389	70.3845	68.9368	69.8910	78.0737	71.1917
Tare + Dry Wt. (2)	7/18/2024	75.6460	70.3888	68.9402	69.8958	78.0757	71.1957
Tare + Ash Wt. (1)	7/18/2024	75.6164	69.0800	67.8633	68.7103	77.2361	70.5065
Tare + Ash Wt. (2)	7/18/2024	75.5005	68.9794	67.7326	68.5931	77.1092	70.3873
Total Solids		51.8%	47.6%	45.8%	41.4%	65.2%	67.2%
Volatile Solids		1.1%	10.8%	10.3%	12.0%	5.7%	4.2%

Sample Number		7397-17	7397-18	7397-19	7397-20	7397-20DUP	
Crucible Number		Red	Rat	Tom	Bill	Cat	
Sample Weight		25.9778	28.7263	25.2979	27.2720	27.2263	
Tare Weight	7/17/2024	60.6586	56.9840	55.2954	52.7780	56.4651	
Tare + Dry Wt. (1)	7/18/2024	77.6482	78.1866	73.9701	73.9847	77.8922	
Tare + Dry Wt. (2)	7/18/2024	77.6559	78.1895	73.9721	73.9871	77.8939	
Tare + Ash Wt. (1)	7/18/2024	76.9121	77.9286	73.7366	73.7909	77.6729	
Tare + Ash Wt. (2)	7/18/2024	76.7888	77.8757	73.7209	73.7785	77.6699	
Total Solids		65.4%	73.8%	73.8%	77.8%	78.7%	#DIV/0!
Volatile Solids		5.1%	1.5%	1.3%	1.0%	1.0%	#DIV/0!

% Total Solids = (Tare + Dry Wt. - Tare / Sample Weight)

% Volatile Solids = (Dry Wt. - Ash Wt. / Dry Sample Weight)

Comments:

105 oven: K - OVEN 07

550 oven: K -Furnace-01 K-Balance- 61

Analyzed By:	ZZB	Date:	7/17/2024
Reviewed By:		Date:	7/22/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #: K2407397 Method: TVS

Run: 847665

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

Oven Temp and Times				
Oven Temp	Time In	Date In	Time Out	Date Out
105	16.00.00	7/17/2024	08.35.00	7/18/2024
105	09.00.00	7/18/2024	10.30.00	7/18/2024
550	10.45.00	7/18/2024	11.50.00	7/18/2024
550	12.30.00	7/18/2024	13.35.00	7/18/2024

Analyzed By:	ZZB	Date Analyzed:	7/17/2024
Reviewed By:		Date Reviewed:	7/22/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: K2407397 Method: TVS

Run: 847665

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

CCV Verification SN:						
	200.0000g	≤(+/- 0.5%)		10.0000g	≤(+/- 0.5%)	Date
CCV1	200.0000	100.0%	CCV1	10.0000	100.0%	7/17/2024
CCV2	200.0000	100.0%	CCV2	10.0000	100.0%	7/17/2024
CCV3	199.9998	100.0%	CCV3	9.9997	100.0%	7/18/2024
CCV4	199.9998	100.0%	CCV4	9.9997	100.0%	7/18/2024
CCV5	199.9999	100.0%	CCV5	9.9997	100.0%	7/18/2024
CCV6	199.9999	100.0%	CCV6	9.9997	100.0%	7/18/2024
CCV7	199.9998	100.0%	CCV7	9.9998	100.0%	7/18/2024
CCV8	199.9998	100.0%	CCV8	9.9998	100.0%	7/18/2024
CCV9	199.9998	100.0%	CCV9	9.9997	100.0%	7/18/2024
CCV10	199.9998	100.0%	CCV10	9.9997	100.0%	7/18/2024
CCV11		0.0%	CCV11		0.0%	
CCV12		0.0%	CCV12		0.0%	
CCV13		0.0%	CCV13		0.0%	
CCV14		0.0%	CCV14		0.0%	
CCV15		0.0%	CCV15		0.0%	
CCV16		0.0%	CCV16		0.0%	
CCV17		0.0%	CCV17		0.0%	
CCV18		0.0%	CCV18		0.0%	
CCV19		0.0%	CCV19		0.0%	
CCV20		0.0%	CCV20		0.0%	

Analyzed By:	ZZB	Date Analyzed:	7/17/2024
Reviewed By:		Date Reviewed:	7/22/24

Analytical Results Summary

Instrument Name: K-BALANCE-49 **Analyst:** PPRICE **Analysis Lot:** 848065 **Method/Testcode:** 160.3 Modified/TS

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407397-021	Solids, Total	N/A		Sediment	73.50 Percent	10 g	73.5 Percent	1					7/18/24 09:53:00	N	IV
K2407397-022	Solids, Total	N/A		Sediment	75.20 Percent	10 g	75.2 Percent	1					7/18/24 09:53:00	N	IV
K2407397-023	Solids, Total	N/A		Sediment	80.40 Percent	10 g	80.4 Percent	1					7/18/24 09:53:00	N	IV
K2407397-024	Solids, Total	N/A		Sediment	83.80 Percent	10 g	83.8 Percent	1					7/18/24 09:53:00	N	IV
K2407397-025	Solids, Total	N/A		Sediment	66.30 Percent	10 g	66.3 Percent	1					7/18/24 09:53:00	N	IV
K2407397-026	Solids, Total	N/A		Sediment	70.70 Percent	10 g	70.7 Percent	1					7/18/24 09:53:00	N	IV
K2407397-027	Solids, Total	N/A		Sediment	70.60 Percent	10 g	70.6 Percent	1					7/18/24 09:53:00	N	IV
K2407397-028	Solids, Total	N/A		Sediment	73.30 Percent	10 g	73.3 Percent	1					7/18/24 09:53:00	N	IV
K2407397-029	Solids, Total	N/A		Sediment	72.90 Percent	10 g	72.9 Percent	1					7/18/24 09:53:00	N	IV
KQ2411184-01	Solids, Total	DUP	K2407397-021	Sediment	76.50 Percent	10 g	76.5 Percent	1				4	7/18/24 09:53:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: K2407397 Method: TVS

Run: 847666

Analysis: Total Solids / Volatile Solids Matrix: SOIL

Sample Number		MB	7397-21	7397-21DUP	7397-22	7397-23	7397-24
Crucible Number		FUNNY	SHOE	KAT	DOG	FROG	HENRY
SampleWeight		50.2087	25.9546	25.9694	25.0543	25.3271	25.2609
Tare Weight	7/18/2024	53.1359	52.8799	53.7499	55.2015	55.4224	51.6587
Tare + Dry Wt. (1)	7/19/2024	53.1315	71.9645	73.6302	74.0553	75.4829	72.8232
Tare + Dry Wt. (2)	7/19/2024	53.1282	71.9626	73.6288	74.0534	75.7805	72.8230
Tare + Ash Wt. (1)	7/19/2024	53.1300	71.4284	73.0739	73.6710	75.1332	72.6485
Tare + Ash Wt. (2)	7/19/2024	53.1311	71.4085	73.0493	73.6428	75.1030	72.3156
Total Solids		0.0%	73.5%	76.5%	75.2%	80.4%	83.8%
Volatile Solids		37.7%	2.9%	2.9%	2.2%	3.3%	2.4%

Sample Number		7397-25	7397-26	7397-27	7397-28	7397-29	
Crucible Number		ADD	MAT	SAT	SALT	TAD	
Sample Weight		25.4550	25.0654	25.2526	25.3883	25.1774	
Tare Weight	7/18/2024	51.6836	56.5301	54.5525	55.1884	55.2611	
Tare + Dry Wt. (1)	7/19/2024	68.5664	74.2414	72.3881	73.8037	73.6255	
Tare + Dry Wt. (2)	7/19/2024	68.5659	74.2389	72.3875	73.8025	73.6242	
Tare + Ash Wt. (1)	7/19/2024	68.0425	72.8459	71.9298	73.3717	73.2783	
Tare + Ash Wt. (2)	7/19/2024	68.0100	72.8399	71.8966	73.3311	73.2246	
Total Solids		66.3%	70.7%	70.6%	73.3%	72.9%	#DIV/0!
Volatile Solids		3.3%	7.9%	2.8%	2.5%	2.2%	#DIV/0!

% Total Solids = (Tare + Dry Wt. - Tare / Sample Weight)

% Volatile Solids = (Dry Wt. - Ash Wt. / Dry Sample Weight)

Comments:

105 oven: K - OVEN 07

550 oven: K -Furnace-01 K-Balance- 61

Analyzed By:	PDP	Date:	7/18/2024
Reviewed By:	ZZB	Date:	7/23/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #: K2407397 Method: TVS

Run: 8476661

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

Oven Temp and Times				
Oven Temp	Time In	Date In	Time Out	Date Out
105	09.53.00	7/18/2024	08.46.00	7/19/2024
105	09.00.00	9/19/2024	10.00.00	7/19/2024
550	10.30.00	9/19/2024	11.30.00	7/19/2024
550	12.15.00	9/19/2024	13.15.00	7/19/2024

Analyzed By:	PDP	Date Analyzed:	7/18/2024
Reviewed By:	ZZB	Date Reviewed:	7/23/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: K2407397 Method: TVS

Run: 8476661

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

CCV Verification SN:						
	200.0000g	≤(+/- 0.5%)		10.0000g	≤(+/- 0.5%)	Date
CCV1	200.0000	100.0%	CCV1	9.9995	100.0%	7/18/2024
CCV2	199.9999	100.0%	CCV2	10.0000	100.0%	7/18/2024
CCV3	200.0000	100.0%	CCV3	10.0000	100.0%	7/19/2024
CCV4	200.0000	100.0%	CCV4	10.0000	100.0%	7/19/2024
CCV5	200.0002	100.0%	CCV5	9.9999	100.0%	7/19/2024
CCV6	199.9997	100.0%	CCV6	9.9998	100.0%	9/19/2024
CCV7	199.9999	100.0%	CCV7	10.0000	100.0%	9/19/2024
CCV8	199.9999	100.0%	CCV8	10.0001	100.0%	9/19/2024
CCV9	200.0000	100.0%	CCV9	10.0000	100.0%	9/19/2024
CCV10	200.0001	100.0%	CCV10	10.0002	100.0%	9/19/2024
CCV11		0.0%	CCV11		0.0%	
CCV12		0.0%	CCV12		0.0%	
CCV13		0.0%	CCV13		0.0%	
CCV14		0.0%	CCV14		0.0%	
CCV15		0.0%	CCV15		0.0%	
CCV16		0.0%	CCV16		0.0%	
CCV17		0.0%	CCV17		0.0%	
CCV18		0.0%	CCV18		0.0%	
CCV19		0.0%	CCV19		0.0%	
CCV20		0.0%	CCV20		0.0%	

Analyzed By:	PDP	Date Analyzed:	7/18/2024
Reviewed By:	ZAB	Date Reviewed:	7/23/24

Analytical Results Summary

Instrument Name: K-Balance-61 **Analyst:** ZBIBI **Analysis Lot:** 847665 **Method/Testcode:** 160.4 Modified/TVS

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407397-001	Solids, Total Volatile	N/A		Sediment	3.60 Percent	10 g	3.60 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-002	Solids, Total Volatile	N/A		Sediment	3.10 Percent	10 g	3.10 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-003	Solids, Total Volatile	N/A		Sediment	4.00 Percent	10 g	4.00 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-004	Solids, Total Volatile	N/A		Sediment	2.10 Percent	10 g	2.10 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-005	Solids, Total Volatile	N/A		Sediment	2.10 Percent	10 g	2.10 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-006	Solids, Total Volatile	N/A		Sediment	2.60 Percent	10 g	2.60 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-007	Solids, Total Volatile	N/A		Sediment	3.30 Percent	10 g	3.30 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-008	Solids, Total Volatile	N/A		Sediment	2.60 Percent	10 g	2.60 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-009	Solids, Total Volatile	N/A		Sediment	2.30 Percent	10 g	2.30 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-010	Solids, Total Volatile	N/A		Sediment	6.70 Percent	10 g	6.70 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-011	Solids, Total Volatile	N/A		Sediment	1.10 Percent	10 g	1.10 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-012	Solids, Total Volatile	N/A		Sediment	10.80 Percent	10 g	10.8 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-013	Solids, Total Volatile	N/A		Sediment	10.30 Percent	10 g	10.3 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-014	Solids, Total Volatile	N/A		Sediment	12.00 Percent	10 g	12.0 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-015	Solids, Total Volatile	N/A		Sediment	5.70 Percent	10 g	5.70 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-016	Solids, Total Volatile	N/A		Sediment	4.20 Percent	10 g	4.20 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-017	Solids, Total Volatile	N/A		Sediment	5.10 Percent	10 g	5.10 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-018	Solids, Total Volatile	N/A		Sediment	1.50 Percent	10 g	1.50 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-019	Solids, Total Volatile	N/A		Sediment	1.30 Percent	10 g	1.30 Percent	1		0.10			7/17/24 16:00:00	N	IV
K2407397-020	Solids, Total Volatile	N/A		Sediment	1.00 Percent	10 g	1.00 Percent	1		0.10			7/17/24 16:00:00	N	IV
KQ2410974-01	Solids, Total Volatile	DUP	K2407397-001	Sediment	3.50 Percent	10 g	3.50 Percent	1		0.10		3	7/17/24 16:00:00	N	IV
KQ2410974-02	Solids, Total Volatile	MB		Sediment	0.00 Percent	10 g	0.10 Percent U	1		0.10			7/17/24 16:00:00	N	IV
KQ2410974-03	Solids, Total Volatile	DUP	K2407397-020	Sediment	1.00 Percent	10 g	1.00 Percent	1		0.10		<1	7/17/24 16:00:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: K2407397 Method: TVS

Run: 847665

Analysis: Total Solids / Volatile Solids Matrix: SOIL

Sample Number		MB	7397-1	7397-1DUP	7397-2	7397-3	7397-4
Crucible Number		Purple	pink	green	Blue	Black	orange
SampleWeight		50.7322	25.8824	25.7816	29.2556	25.9280	27.1692
Tare Weight	7/17/2024	54.0040	57.8861	52.3436	55.5099	60.7877	56.6567
Tare + Dry Wt. (1)	7/18/2024	54.0173	76.2071	71.0336	77.6591	79.0125	76.7456
Tare + Dry Wt. (2)	7/18/2024	54.0198	76.2215	71.0500	77.6744	79.0255	76.7552
Tare + Ash Wt. (1)	7/18/2024	54.0102	75.6484	70.5115	77.1274	78.3839	76.3501
Tare + Ash Wt. (2)	7/18/2024	54.0077	75.5524	70.4009	76.9972	78.2874	76.3398
Total Solids		0.0%	70.8%	72.6%	75.8%	70.3%	74.0%
Volatile Solids		76.6%	3.6%	3.5%	3.1%	4.0%	2.1%

Sample Number		7397-5	7397-6	7397-7	7397-8	7397-9	7397-10
Crucible Number		yellow	Brown	Silver	Gold	Royal	Sam
Sample Weight		28.4332	27.1967	25.6595	27.3505	28.7628	26.3587
Tare Weight	7/17/2024	55.9890	61.1620	58.8727	60.1349	57.8454	57.5126
Tare + Dry Wt. (1)	7/18/2024	77.3671	80.8115	77.4971	79.3695	77.3884	71.7051
Tare + Dry Wt. (2)	7/18/2024	77.3789	80.8228	77.5059	79.3778	77.3978	71.7149
Tare + Ash Wt. (1)	7/18/2024	76.9512	80.4150	77.1252	79.0720	77.0646	70.8826
Tare + Ash Wt. (2)	7/18/2024	76.9312	80.3128	76.8997	78.8757	76.9441	70.7612
Total Solids		75.2%	72.3%	72.6%	70.4%	68.0%	53.9%
Volatile Solids		2.1%	2.6%	3.3%	2.6%	2.3%	6.7%

% Total Solids = (Tare + Dry Wt. - Tare / Sample Weight)

% Volatile Solids = (Dry Wt. - Ash Wt. / Dry Sample Weight)

Comments:

105 oven: K - OVEN 07

550 oven: K -Furnace-01 K-Balance- 61

Analyzed By:	ZZB	Date:	7/17/2024
Reviewed By:		Date:	7/22/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: K2407397 Method: TVS

Run: 847665

Analysis: Total Solids / Volatile Solids Matrix:

Sample Number		7397-11	7397-12	7397-13	7397-14	7397-15	7397-16
Crucible Number		queen	Jack	White	Bob	King	Bulb
SampleWeight		25.6333	27.3966	25.5974	26.1499	26.0085	28.3529
Tare Weight	7/17/2024	62.3641	57.3440	57.2276	59.0694	61.1226	52.1494
Tare + Dry Wt. (1)	7/18/2024	75.6389	70.3845	68.9368	69.8910	78.0737	71.1917
Tare + Dry Wt. (2)	7/18/2024	75.6460	70.3888	68.9402	69.8958	78.0757	71.1957
Tare + Ash Wt. (1)	7/18/2024	75.6164	69.0800	67.8633	68.7103	77.2361	70.5065
Tare + Ash Wt. (2)	7/18/2024	75.5005	68.9794	67.7326	68.5931	77.1092	70.3873
Total Solids		51.8%	47.6%	45.8%	41.4%	65.2%	67.2%
Volatile Solids		1.1%	10.8%	10.3%	12.0%	5.7%	4.2%

Sample Number		7397-17	7397-18	7397-19	7397-20	7397-20DUP	
Crucible Number		Red	Rat	Tom	Bill	Cat	
Sample Weight		25.9778	28.7263	25.2979	27.2720	27.2263	
Tare Weight	7/17/2024	60.6586	56.9840	55.2954	52.7780	56.4651	
Tare + Dry Wt. (1)	7/18/2024	77.6482	78.1866	73.9701	73.9847	77.8922	
Tare + Dry Wt. (2)	7/18/2024	77.6559	78.1895	73.9721	73.9871	77.8939	
Tare + Ash Wt. (1)	7/18/2024	76.9121	77.9286	73.7366	73.7909	77.6729	
Tare + Ash Wt. (2)	7/18/2024	76.7888	77.8757	73.7209	73.7785	77.6699	
Total Solids		65.4%	73.8%	73.8%	77.8%	78.7%	#DIV/0!
Volatile Solids		5.1%	1.5%	1.3%	1.0%	1.0%	#DIV/0!

% Total Solids = (Tare + Dry Wt. - Tare / Sample Weight)

% Volatile Solids = (Dry Wt. - Ash Wt. / Dry Sample Weight)

Comments:

105 oven: K - OVEN 07

550 oven: K -Furnace-01 K-Balance- 61

Analyzed By:	ZZB	Date:	7/17/2024
Reviewed By:		Date:	7/22/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #: K2407397

Method: TVS

Run: 847665

Analysis: Total Solids / Volatile Solids

Matrix: Soil/Solids

Oven Temp and Times				
Oven Temp	Time In	Date In	Time Out	Date Out
105	16.00.00	7/17/2024	08.35.00	7/18/2024
105	09.00.00	7/18/2024	10.30.00	7/18/2024
550	10.45.00	7/18/2024	11.50.00	7/18/2024
550	12.30.00	7/18/2024	13.35.00	7/18/2024

Analyzed By:	ZZB	Date Analyzed:	7/17/2024
Reviewed By:		Date Reviewed:	7/22/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: K2407397 Method: TVS

Run: 847665

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

CCV Verification SN:						
	200.0000g	≤(+/- 0.5%)		10.0000g	≤(+/- 0.5%)	Date
CCV1	200.0000	100.0%	CCV1	10.0000	100.0%	7/17/2024
CCV2	200.0000	100.0%	CCV2	10.0000	100.0%	7/17/2024
CCV3	199.9998	100.0%	CCV3	9.9997	100.0%	7/18/2024
CCV4	199.9998	100.0%	CCV4	9.9997	100.0%	7/18/2024
CCV5	199.9999	100.0%	CCV5	9.9997	100.0%	7/18/2024
CCV6	199.9999	100.0%	CCV6	9.9997	100.0%	7/18/2024
CCV7	199.9998	100.0%	CCV7	9.9998	100.0%	7/18/2024
CCV8	199.9998	100.0%	CCV8	9.9998	100.0%	7/18/2024
CCV9	199.9998	100.0%	CCV9	9.9997	100.0%	7/18/2024
CCV10	199.9998	100.0%	CCV10	9.9997	100.0%	7/18/2024
CCV11		0.0%	CCV11		0.0%	
CCV12		0.0%	CCV12		0.0%	
CCV13		0.0%	CCV13		0.0%	
CCV14		0.0%	CCV14		0.0%	
CCV15		0.0%	CCV15		0.0%	
CCV16		0.0%	CCV16		0.0%	
CCV17		0.0%	CCV17		0.0%	
CCV18		0.0%	CCV18		0.0%	
CCV19		0.0%	CCV19		0.0%	
CCV20		0.0%	CCV20		0.0%	

Analyzed By:	ZZB	Date Analyzed:	7/17/2024
Reviewed By:		Date Reviewed:	7/22/24

Analytical Results Summary

Instrument Name: K-Balance-61 **Analyst:** ZBIBI **Analysis Lot:** 847666 **Method/Testcode:** 160.4 Modified/TVS

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407397-021	Solids, Total Volatile	N/A		Sediment	2.90 Percent	10 g	2.90 Percent	1		0.10			7/18/24 08:46:00	N	IV
K2407397-022	Solids, Total Volatile	N/A		Sediment	2.20 Percent	10 g	2.20 Percent	1		0.10			7/18/24 08:46:00	N	IV
K2407397-023	Solids, Total Volatile	N/A		Sediment	3.30 Percent	10 g	3.30 Percent	1		0.10			7/18/24 08:46:00	N	IV
K2407397-024	Solids, Total Volatile	N/A		Sediment	2.40 Percent	10 g	2.40 Percent	1		0.10			7/18/24 08:46:00	N	IV
K2407397-025	Solids, Total Volatile	N/A		Sediment	3.30 Percent	10 g	3.30 Percent	1		0.10			7/18/24 08:46:00	N	IV
K2407397-026	Solids, Total Volatile	N/A		Sediment	7.90 Percent	10 g	7.90 Percent	1		0.10			7/18/24 08:46:00	N	IV
K2407397-027	Solids, Total Volatile	N/A		Sediment	2.80 Percent	10 g	2.80 Percent	1		0.10			7/18/24 08:46:00	N	IV
K2407397-028	Solids, Total Volatile	N/A		Sediment	2.50 Percent	10 g	2.50 Percent	1		0.10			7/18/24 08:46:00	N	IV
K2407397-029	Solids, Total Volatile	N/A		Sediment	2.20 Percent	10 g	2.20 Percent	1		0.10			7/18/24 08:46:00	N	IV
KQ2410975-01	Solids, Total Volatile	DUP	K2407397-021	Sediment	2.90 Percent	10 g	2.90 Percent	1		0.10		<1	7/18/24 08:46:00	N	IV
KQ2410975-02	Solids, Total Volatile	MB		Sediment	0.00 Percent	10 g	0.10 Percent U	1		0.10			7/18/24 08:46:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS Group USA, Corp.
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Work Order #.: K2407397 Method: TVS

Run: 847666

Analysis: Total Solids / Volatile Solids Matrix: SOIL

Sample Number		MB	7397-21	7397-21DUP	7397-22	7397-23	7397-24
Crucible Number		FUNNY	SHOE	KAT	DOG	FROG	HENRY
SampleWeight		50.2087	25.9546	25.9694	25.0543	25.3271	25.2609
Tare Weight	7/18/2024	53.1359	52.8799	53.7499	55.2015	55.4224	51.6587
Tare + Dry Wt. (1)	7/19/2024	53.1315	71.9645	73.6302	74.0553	75.4829	72.8232
Tare + Dry Wt. (2)	7/19/2024	53.1282	71.9626	73.6288	74.0534	75.7805	72.8230
Tare + Ash Wt. (1)	7/19/2024	53.1300	71.4284	73.0739	73.6710	75.1332	72.6485
Tare + Ash Wt. (2)	7/19/2024	53.1311	71.4085	73.0493	73.6428	75.1030	72.3156
Total Solids		0.0%	73.5%	76.5%	75.2%	80.4%	83.8%
Volatile Solids		37.7%	2.9%	2.9%	2.2%	3.3%	2.4%

Sample Number		7397-25	7397-26	7397-27	7397-28	7397-29	
Crucible Number		ADD	MAT	SAT	SALT	TAD	
Sample Weight		25.4550	25.0654	25.2526	25.3883	25.1774	
Tare Weight	7/18/2024	51.6836	56.5301	54.5525	55.1884	55.2611	
Tare + Dry Wt. (1)	7/19/2024	68.5664	74.2414	72.3881	73.8037	73.6255	
Tare + Dry Wt. (2)	7/19/2024	68.5659	74.2389	72.3875	73.8025	73.6242	
Tare + Ash Wt. (1)	7/19/2024	68.0425	72.8459	71.9298	73.3717	73.2783	
Tare + Ash Wt. (2)	7/19/2024	68.0100	72.8399	71.8966	73.3311	73.2246	
Total Solids		66.3%	70.7%	70.6%	73.3%	72.9%	#DIV/0!
Volatile Solids		3.3%	7.9%	2.8%	2.5%	2.2%	#DIV/0!

% Total Solids = (Tare + Dry Wt. - Tare / Sample Weight)

% Volatile Solids = (Dry Wt. - Ash Wt. / Dry Sample Weight)

Comments:

105 oven: K - OVEN 07

550 oven: K -Furnace-01 K-Balance- 61

Analyzed By:	PDP	Date:	7/18/2024
Reviewed By:	ZZB	Date:	7/23/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #: K2407397 Method: TVS

Run: 8476661

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

Oven Temp and Times				
Oven Temp	Time In	Date In	Time Out	Date Out
105	09.53.00	7/18/2024	08.46.00	7/19/2024
105	09.00.00	9/19/2024	10.00.00	7/19/2024
550	10.30.00	9/19/2024	11.30.00	7/19/2024
550	12.15.00	9/19/2024	13.15.00	7/19/2024

Analyzed By:	PDP	Date Analyzed:	7/18/2024
Reviewed By:	ZZB	Date Reviewed:	7/23/24

ALS Group USA, Corp.
dba ALS Environmental

Work Order #.: K2407397 Method: TVS

Run: 8476661

Analysis: Total Solids / Volatile Solids Matrix: Soil/Solids

CCV Verification SN:						
	200.0000g	≤(+/- 0.5%)		10.0000g	≤(+/- 0.5%)	Date
CCV1	200.0000	100.0%	CCV1	9.9995	100.0%	7/18/2024
CCV2	199.9999	100.0%	CCV2	10.0000	100.0%	7/18/2024
CCV3	200.0000	100.0%	CCV3	10.0000	100.0%	7/19/2024
CCV4	200.0000	100.0%	CCV4	10.0000	100.0%	7/19/2024
CCV5	200.0002	100.0%	CCV5	9.9999	100.0%	7/19/2024
CCV6	199.9997	100.0%	CCV6	9.9998	100.0%	9/19/2024
CCV7	199.9999	100.0%	CCV7	10.0000	100.0%	9/19/2024
CCV8	199.9999	100.0%	CCV8	10.0001	100.0%	9/19/2024
CCV9	200.0000	100.0%	CCV9	10.0000	100.0%	9/19/2024
CCV10	200.0001	100.0%	CCV10	10.0002	100.0%	9/19/2024
CCV11		0.0%	CCV11		0.0%	
CCV12		0.0%	CCV12		0.0%	
CCV13		0.0%	CCV13		0.0%	
CCV14		0.0%	CCV14		0.0%	
CCV15		0.0%	CCV15		0.0%	
CCV16		0.0%	CCV16		0.0%	
CCV17		0.0%	CCV17		0.0%	
CCV18		0.0%	CCV18		0.0%	
CCV19		0.0%	CCV19		0.0%	
CCV20		0.0%	CCV20		0.0%	

Analyzed By:	PDP	Date Analyzed:	7/18/2024
Reviewed By:	ZAB	Date Reviewed:	7/23/24

General Chemistry

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577- 7222 Fax (360)636- 1068
www.alsglobal.com

Work Request # K2407397

Date Analyzed: 8/22/24

Analyst: ZH Run # 851130

Analysis: ASTM D422M CB

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
9.	Are results for methods blanks all ND?	yes/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
11.	Are all exceptions explained?	yes/no/NA
12.	Have all applicable service requests been reviewed?	yes/no/NA
13.	Are all samples labeled correctly?	yes/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	yes/no/NA
15.	Are detection limits and units reported correctly?	yes/no/NA
16.	Is the unused space on the bench sheet crossed out?	yes/no/NA
17.	Was analysis turned in by the data due date? (If not record SR#)	yes/no/NA

7397

COMMENTS:

Secondary Approved by: _____ Date: 08/28/24

DQREPORT

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-001
Sample Name: 2024GCMCCS1

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: ~~1/0/1900~~ ZH 8/28/24 8/22/24

I. Sieving Operation

Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	7.1954
Gravel 2.00 mm (g)	10	9.4884
Gravel 0.850 mm (g)	20	8.4504
Gravel 0.425 mm (g)	40	2.9723
Gravel 0.250 mm (g)	60	0.7787
Gravel 0.106 mm (g)	140	0.4861
Gravel 0.075 mm (g)	200	0.1051
S/C <0.075 mm (g)	Pan	0.0710
Total (g) Recov'd	29.5474
Total (%) Recov'd	99.8

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	141.2457
Grams Beaker (Tare)	111.6257
Grams Gravel/Sand	29.6200

I. Sample Preparation

Grams As Received Sample	39.4610
Percent (%) Solids	70.8
Grams Oven Dried Sample	27.9384

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM
Thermometer ID# C65669

	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	42.3200	27.8990
Grams of Tare	42.3099	27.8964
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0081	0.0006
Total Grams Sample X 50	0.4050	0.0300

Balance ID: K-Balance-58 **1% Sodium hexametaphosphate ID:** 21-GEN-06-8-B

Analyst: ZH Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-001DUP
Sample Name: 2024GCMCCS1

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: ~~1/0/1900~~ 8/22/24 8/28/24

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	9.9021
Gravel 2.00 mm (g)	10	9.2216
Gravel 0.850 mm (g)	20	6.5970
Gravel 0.425 mm (g)	40	2.3499
Gravel 0.250 mm (g)	60	0.6394
Gravel 0.106 mm (g)	140	0.4619
Gravel 0.075 mm (g)	200	0.0995
S/C <0.075 mm (g)	Pan	0.0675
Total (g) Recov'd	29.3389	
Total (%) Recov'd	99.9	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	143.6277
Grams Beaker (Tare)	114.2547
Grams Gravel/Sand	29.3730

I. Sample Preparation

Grams As Received Sample	38.1290
Percent (%) Solids	70.8
Grams Oven Dried Sample	26.9953

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	31.5248	28.0138
Grams of Tare	31.5176	28.0114
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0052	0.0004
Total Grams Sample X 50	0.2600	0.0200

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: ~~08/28/24~~

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-002
Sample Name: 2024GCMCCS2

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: ~~1/0/1900~~ ZH 8/22/24 8/22/24

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	4.7326
Gravel 2.00 mm (g)	10	13.3767
Gravel 0.850 mm (g)	20	6.1121
Gravel 0.425 mm (g)	40	1.4494
Gravel 0.250 mm (g)	60	0.2482
Gravel 0.106 mm (g)	140	0.1797
Gravel 0.075 mm (g)	200	0.0548
S/C <0.075 mm (g)	Pan	0.0703
Total (g) Recov'd	26.2238	
Total (%) Recov'd	100.0	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	140.6994
Grams Beaker (Tare)	114.4670
Grams Gravel/Sand	26.2324

I. Sample Preparation

Grams As Received Sample	34.5550
Percent (%) Solids	75.8
Grams Oven Dried Sample	26.1927

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.3577	27.5468
Grams of Tare	27.3525	27.5448
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0032	0.0000
Total Grams Sample X 50	0.1600	0.0000

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

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Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-003
Sample Name: 2024GCMCCS3

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	5.4497
Gravel 2.00 mm (g)	10	8.1459
Gravel 0.850 mm (g)	20	5.4630
Gravel 0.425 mm (g)	40	1.6717
Gravel 0.250 mm (g)	60	0.4727
Gravel 0.106 mm (g)	140	0.3401
Gravel 0.075 mm (g)	200	0.0755
S/C <0.075 mm (g)	Pan	0.0708
Total (g) Recov'd		21.6894
Total (%) Recov'd		99.9

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	128.8257
Grams Beaker (Tare)	107.1210
Grams Gravel/Sand	21.7047

I. Sample Preparation

Grams As Received Sample	32.7490
Percent (%) Solids	70.3
Grams Oven Dried Sample	23.0225

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.7161	27.5264
Grams of Tare	28.7108	27.5238
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0033	0.0006
Total Grams Sample X 50	0.1650	0.0300

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-004
Sample Name: 2024GCMFCS1

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	3.6583
Gravel 2.00 mm (g)	10	4.3505
Gravel 0.850 mm (g)	20	7.7747
Gravel 0.425 mm (g)	40	11.5734
Gravel 0.250 mm (g)	60	3.4975
Gravel 0.106 mm (g)	140	0.6678
Gravel 0.075 mm (g)	200	0.0613
S/C <0.075 mm (g)	Pan	0.0669
Total (g) Recov'd	31.6504	
Total (%) Recov'd	99.2	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	151.5692
Grams Beaker (Tare)	119.6709
Grams Gravel/Sand	31.8983

I. Sample Preparation

Grams As Received Sample	42.4800
Percent (%) Solids	74.0
Grams Oven Dried Sample	31.4352

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.4259	27.5449
Grams of Tare	27.4208	27.5424
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0031	0.0005
Total Grams Sample X 50	0.1550	0.0250

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-005
Sample Name: 2024GCMFCS2

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	3.3200
Gravel 2.00 mm (g)	10	7.2809
Gravel 0.850 mm (g)	20	9.2584
Gravel 0.425 mm (g)	40	4.3869
Gravel 0.250 mm (g)	60	1.2466
Gravel 0.106 mm (g)	140	0.9198
Gravel 0.075 mm (g)	200	0.0899
S/C <0.075 mm (g)	Pan	0.0468
Total (g) Recov'd	26.5493	
Total (%) Recov'd	99.7	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	137.2917
Grams Beaker (Tare)	110.6608
Grams Gravel/Sand	26.6309

I. Sample Preparation

Grams As Received Sample	34.6110
Percent (%) Solids	75.2
Grams Oven Dried Sample	26.0275

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.2641	27.5478
Grams of Tare	28.2601	27.5454
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0020	0.0004
Total Grams Sample X 50	0.1000	0.0200

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-006
Sample Name: 2024GCMFCS3

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.2207
Gravel 2.00 mm (g)	10	2.8580
Gravel 0.850 mm (g)	20	8.8580
Gravel 0.425 mm (g)	40	13.6336
Gravel 0.250 mm (g)	60	3.5088
Gravel 0.106 mm (g)	140	0.7023
Gravel 0.075 mm (g)	200	0.0950
S/C <0.075 mm (g)	Pan	0.0393
Total (g) Recov'd	29.9157	
Total (%) Recov'd	99.7	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	151.6482
Grams Beaker (Tare)	121.6494
Grams Gravel/Sand	29.9988

I. Sample Preparation

Grams As Received Sample	41.9090
Percent (%) Solids	72.3
Grams Oven Dried Sample	30.3002

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.1701	27.3611
Grams of Tare	27.1651	27.3585
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0030	0.0006
Total Grams Sample X 50	0.1500	0.0300

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-007
Sample Name: 2024GCMZC371S1

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/8/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	3.9553
Gravel 2.00 mm (g)	10	7.2610
Gravel 0.850 mm (g)	20	9.6610
Gravel 0.425 mm (g)	40	3.1020
Gravel 0.250 mm (g)	60	0.6351
Gravel 0.106 mm (g)	140	0.3811
Gravel 0.075 mm (g)	200	0.0590
S/C <0.075 mm (g)	Pan	0.0471
Total (g) Recov'd	25.1016	
Total (%) Recov'd	99.9	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	122.9450
Grams Beaker (Tare)	97.8287
Grams Gravel/Sand	25.1163

I. Sample Preparation

Grams As Received Sample	35.5120
Percent (%) Solids	72.6
Grams Oven Dried Sample	25.7817

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.9729	27.6449
Grams of Tare	27.9674	27.6424
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0035	0.0005
Total Grams Sample X 50	0.1750	0.0250

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-008
Sample Name: 2024GCMZC371S2

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/8/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	4.4497
Gravel 2.00 mm (g)	10	2.9247
Gravel 0.850 mm (g)	20	4.7578
Gravel 0.425 mm (g)	40	4.8496
Gravel 0.250 mm (g)	60	3.7358
Gravel 0.106 mm (g)	140	1.9903
Gravel 0.075 mm (g)	200	0.1788
S/C <0.075 mm (g)	Pan	0.0820
Total (g) Recov'd	22.9687	
Total (%) Recov'd	99.8	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	137.5321
Grams Beaker (Tare)	114.5218
Grams Gravel/Sand	23.0103

I. Sample Preparation

Grams As Received Sample	33.7240
Percent (%) Solids	70.4
Grams Oven Dried Sample	23.7417

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.6029	28.1841
Grams of Tare	27.5943	28.1814
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0066	0.0007
Total Grams Sample X 50	0.3300	0.0350

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-009
Sample Name: 2024GCMZC371S3

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/8/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.2146
Gravel 2.00 mm (g)	10	2.6436
Gravel 0.850 mm (g)	20	9.2105
Gravel 0.425 mm (g)	40	9.1982
Gravel 0.250 mm (g)	60	2.1392
Gravel 0.106 mm (g)	140	0.6191
Gravel 0.075 mm (g)	200	0.0713
S/C <0.075 mm (g)	Pan	0.0462
Total (g) Recov'd	24.1427	
Total (%) Recov'd	99.7	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	130.9021
Grams Beaker (Tare)	106.6961
Grams Gravel/Sand	24.2060

I. Sample Preparation

Grams As Received Sample	36.5350
Percent (%) Solids	68.0
Grams Oven Dried Sample	24.8438

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.4666	28.0804
Grams of Tare	28.4605	28.0777
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0041	0.0007
Total Grams Sample X 50	0.2050	0.0350

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-010
Sample Name: 2024GCMTC808S1

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.0000
Gravel 2.00 mm (g)	10	0.1011
Gravel 0.850 mm (g)	20	1.0652
Gravel 0.425 mm (g)	40	5.2753
Gravel 0.250 mm (g)	60	6.1412
Gravel 0.106 mm (g)	140	5.6055
Gravel 0.075 mm (g)	200	0.7213
S/C <0.075 mm (g)	Pan	0.2979
Total (g) Recov'd	19.2075	
Total (%) Recov'd	99.8	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	131.6560
Grams Beaker (Tare)	112.4050
Grams Gravel/Sand	19.2510

I. Sample Preparation

Grams As Received Sample	36.1540
Percent (%) Solids	53.9
Grams Oven Dried Sample	19.4870

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	26.8134	28.8231
Grams of Tare	26.7752	28.8193
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0362	0.0018
Total Grams Sample X 50	1.8100	0.0900

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-011
Sample Name: 2024GCMTC808S2

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.0289
Gravel 2.00 mm (g)	10	0.1404
Gravel 0.850 mm (g)	20	0.4983
Gravel 0.425 mm (g)	40	1.0969
Gravel 0.250 mm (g)	60	3.7365
Gravel 0.106 mm (g)	140	8.1621
Gravel 0.075 mm (g)	200	0.8040
S/C <0.075 mm (g)	Pan	0.3250
Total (g) Recov'd	14.7921	
Total (%) Recov'd	99.5	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	125.8016
Grams Beaker (Tare)	110.9307
Grams Gravel/Sand	14.8709

I. Sample Preparation

Grams As Received Sample	32.4920
Percent (%) Solids	51.8
Grams Oven Dried Sample	16.8309

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	29.2606	40.7319
Grams of Tare	29.2304	40.7286
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0282	0.0013
Total Grams Sample X 50	1.4100	0.0650

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-012
Sample Name: 2024GCMTC808S3

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	1.1896
Gravel 2.00 mm (g)	10	0.7365
Gravel 0.850 mm (g)	20	0.7586
Gravel 0.425 mm (g)	40	2.5610
Gravel 0.250 mm (g)	60	3.7836
Gravel 0.106 mm (g)	140	5.7744
Gravel 0.075 mm (g)	200	0.5366
S/C <0.075 mm (g)	Pan	0.1794
Total (g) Recov'd	15.5197	
Total (%) Recov'd	99.5	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	125.6656
Grams Beaker (Tare)	110.0622
Grams Gravel/Sand	15.6034

I. Sample Preparation

Grams As Received Sample	36.1580
Percent (%) Solids	47.6
Grams Oven Dried Sample	17.2112

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	31.0520	34.0125
Grams of Tare	31.0300	34.0099
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0200	0.0006
Total Grams Sample X 50	1.0000	0.0300

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-013
Sample Name: 2024GCMTC808S4

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.0000
Gravel 2.00 mm (g)	10	0.1728
Gravel 0.850 mm (g)	20	1.9487
Gravel 0.425 mm (g)	40	6.0094
Gravel 0.250 mm (g)	60	3.6318
Gravel 0.106 mm (g)	140	3.0433
Gravel 0.075 mm (g)	200	0.7959
S/C <0.075 mm (g)	Pan	0.4697
Total (g) Recov'd	16.0716	
Total (%) Recov'd	99.2	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	130.7229
Grams Beaker (Tare)	114.5270
Grams Gravel/Sand	16.1959

I. Sample Preparation

Grams As Received Sample	35.5300
Percent (%) Solids	45.8
Grams Oven Dried Sample	16.2727

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.5792	42.1220
Grams of Tare	28.5311	42.1181
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0461	0.0019
Total Grams Sample X 50	2.3050	0.0950

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-014
Sample Name: 2024GCMTC808S5

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.0000
Gravel 2.00 mm (g)	10	0.0359
Gravel 0.850 mm (g)	20	0.2133
Gravel 0.425 mm (g)	40	1.1294
Gravel 0.250 mm (g)	60	3.9554
Gravel 0.106 mm (g)	140	8.2852
Gravel 0.075 mm (g)	200	1.8689
S/C <0.075 mm (g)	Pan	0.9541
Total (g) Recov'd	16.4422	
Total (%) Recov'd	99.2	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	122.3559
Grams Beaker (Tare)	105.7821
Grams Gravel/Sand	16.5738

I. Sample Preparation

Grams As Received Sample	42.4170
Percent (%) Solids	41.4
Grams Oven Dried Sample	17.5606

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.7483	31.3840
Grams of Tare	27.6622	31.3775
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0841	0.0045
Total Grams Sample X 50	4.2050	0.2250

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-015
Sample Name: 2024GCMTC9S1

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation

Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.0000
Gravel 2.00 mm (g)	10	2.4333
Gravel 0.850 mm (g)	20	7.1909
Gravel 0.425 mm (g)	40	5.4806
Gravel 0.250 mm (g)	60	3.0397
Gravel 0.106 mm (g)	140	4.0016
Gravel 0.075 mm (g)	200	0.9786
S/C <0.075 mm (g)	Pan	0.7239
Total (g) Recov'd	23.8486
Total (%) Recov'd	99.4

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	131.8327
Grams Beaker (Tare)	107.8472
Grams Gravel/Sand	23.9855

I. Sample Preparation

Grams As Received Sample	40.5980
Percent (%) Solids	65.4
Grams Oven Dried Sample	26.5511

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.7846	28.8734
Grams of Tare	27.6964	28.8662
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0862	0.0052
Total Grams Sample X 50	4.3100	0.2600

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-016
Sample Name: 2024GCMTC9S2

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.0000
Gravel 2.00 mm (g)	10	1.5941
Gravel 0.850 mm (g)	20	5.3474
Gravel 0.425 mm (g)	40	9.4172
Gravel 0.250 mm (g)	60	6.9344
Gravel 0.106 mm (g)	140	5.4862
Gravel 0.075 mm (g)	200	0.6842
S/C <0.075 mm (g)	Pan	0.5370
Total (g) Recov'd	30.0005	
Total (%) Recov'd	99.5	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	141.6201
Grams Beaker (Tare)	111.4813
Grams Gravel/Sand	30.1388

I. Sample Preparation

Grams As Received Sample	47.8610
Percent (%) Solids	65.2
Grams Oven Dried Sample	31.2054

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.2235	28.6799
Grams of Tare	28.1596	28.6717
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0619	0.0062
Total Grams Sample X 50	3.0950	0.3100

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-017
Sample Name: 2024GCMTC9S3

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.2893
Gravel 2.00 mm (g)	10	1.7409
Gravel 0.850 mm (g)	20	5.4999
Gravel 0.425 mm (g)	40	8.4769
Gravel 0.250 mm (g)	60	5.5227
Gravel 0.106 mm (g)	140	4.1306
Gravel 0.075 mm (g)	200	0.7083
S/C <0.075 mm (g)	Pan	0.6641
Total (g) Recov'd	27.0327	
Total (%) Recov'd	99.4	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	105.9656
Grams Beaker (Tare)	78.7561
Grams Gravel/Sand	27.2095

I. Sample Preparation

Grams As Received Sample	43.4540
Percent (%) Solids	67.2
Grams Oven Dried Sample	29.2011

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.3925	28.3311
Grams of Tare	28.3255	28.3208
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0650	0.0083
Total Grams Sample X 50	3.2500	0.4150

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-018
Sample Name: 2024GCMGC63S1

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/9/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	6.2611
Gravel 2.00 mm (g)	10	16.2168
Gravel 0.850 mm (g)	20	8.7294
Gravel 0.425 mm (g)	40	1.1011
Gravel 0.250 mm (g)	60	0.1642
Gravel 0.106 mm (g)	140	0.0877
Gravel 0.075 mm (g)	200	0.0141
S/C <0.075 mm (g)	Pan	0.0126
Total (g) Recov'd	32.5870	
Total (%) Recov'd	99.9	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	157.0043
Grams Beaker (Tare)	124.3783
Grams Gravel/Sand	32.6260

I. Sample Preparation

Grams As Received Sample	43.1470
Percent (%) Solids	65.4
Grams Oven Dried Sample	28.2181

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.7775	27.5806
Grams of Tare	28.7738	27.5776
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0017	0.0010
Total Grams Sample X 50	0.0850	0.0500

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-019
Sample Name: 2024GCMGC63S2

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/9/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	12.3161
Gravel 2.00 mm (g)	10	15.4702
Gravel 0.850 mm (g)	20	4.4019
Gravel 0.425 mm (g)	40	0.4031
Gravel 0.250 mm (g)	60	0.0659
Gravel 0.106 mm (g)	140	0.0422
Gravel 0.075 mm (g)	200	0.0109
S/C <0.075 mm (g)	Pan	0.0200
Total (g) Recov'd	32.7303	
Total (%) Recov'd	99.9	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	151.4584
Grams Beaker (Tare)	118.7093
Grams Gravel/Sand	32.7491

I. Sample Preparation

Grams As Received Sample	41.9580
Percent (%) Solids	73.8
Grams Oven Dried Sample	30.9650

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.0147	31.3411
Grams of Tare	28.0105	31.3381
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0022	0.0010
Total Grams Sample X 50	0.1100	0.0500

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-020
Sample Name: 2024GCMGC63S3

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/9/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	25.7869
Gravel 2.00 mm (g)	10	10.3279
Gravel 0.850 mm (g)	20	2.4673
Gravel 0.425 mm (g)	40	0.3649
Gravel 0.250 mm (g)	60	0.1163
Gravel 0.106 mm (g)	140	0.0517
Gravel 0.075 mm (g)	200	0.0097
S/C <0.075 mm (g)	Pan	0.0264
Total (g) Recov'd	39.1511	
Total (%) Recov'd	99.9	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	144.1409
Grams Beaker (Tare)	104.9333
Grams Gravel/Sand	39.2076

I. Sample Preparation

Grams As Received Sample	46.5210
Percent (%) Solids	77.8
Grams Oven Dried Sample	36.1933

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.2726	27.0047
Grams of Tare	27.2693	27.0019
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0013	0.0008
Total Grams Sample X 50	0.0650	0.0400

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-021
Sample Name: 2024GCMTC1847S1

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	1.8438
Gravel 2.00 mm (g)	10	8.7818
Gravel 0.850 mm (g)	20	4.4831
Gravel 0.425 mm (g)	40	3.0762
Gravel 0.250 mm (g)	60	3.7895
Gravel 0.106 mm (g)	140	5.6843
Gravel 0.075 mm (g)	200	0.9392
S/C <0.075 mm (g)	Pan	0.2412
Total (g) Recov'd	28.8391	
Total (%) Recov'd	99.8	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	140.3972
Grams Beaker (Tare)	111.4867
Grams Gravel/Sand	28.9105

I. Sample Preparation

Grams As Received Sample	42.1650
Percent (%) Solids	73.5
Grams Oven Dried Sample	30.9913

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.2268	33.8630
Grams of Tare	27.1847	33.8606
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0401	0.0004
Total Grams Sample X 50	2.0050	0.0200

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-022
Sample Name: 2024GCMTC1847S2

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	5.9596
Gravel 2.00 mm (g)	10	8.0873
Gravel 0.850 mm (g)	20	9.3135
Gravel 0.425 mm (g)	40	6.1414
Gravel 0.250 mm (g)	60	1.6935
Gravel 0.106 mm (g)	140	0.7152
Gravel 0.075 mm (g)	200	0.0788
S/C <0.075 mm (g)	Pan	0.0636
Total (g) Recov'd	32.0529	
Total (%) Recov'd	99.9	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	153.8503
Grams Beaker (Tare)	121.7558
Grams Gravel/Sand	32.0945

I. Sample Preparation

Grams As Received Sample	41.4200
Percent (%) Solids	75.2
Grams Oven Dried Sample	31.1478

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM
Thermometer ID# C65669

	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	29.2839	29.0541
Grams of Tare	29.2747	29.0521
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0072	0.0000
Total Grams Sample X 50	0.3600	0.0000

Balance ID: K-Balance-58 **1% Sodium hexametaphosphate ID:** 21-GEN-06-8-B

Analyst: ZH Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-023
Sample Name: 2024GCMTC1847S3

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/10/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	12.8179
Gravel 2.00 mm (g)	10	9.5388
Gravel 0.850 mm (g)	20	6.9393
Gravel 0.425 mm (g)	40	4.5418
Gravel 0.250 mm (g)	60	1.5013
Gravel 0.106 mm (g)	140	0.3669
Gravel 0.075 mm (g)	200	0.0328
S/C <0.075 mm (g)	Pan	0.0322
Total (g) Recov'd		35.7710
Total (%) Recov'd		99.9

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	156.1391
Grams Beaker (Tare)	120.3294
Grams Gravel/Sand	35.8097

I. Sample Preparation

Grams As Received Sample	43.3160
Percent (%) Solids	80.4
Grams Oven Dried Sample	34.8261

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.7133	28.8269
Grams of Tare	28.7087	28.8245
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0026	0.0004
Total Grams Sample X 50	0.1300	0.0200

Analyst: _____ Date: 8/27/2024
Reviewed by: _____ Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-024
Sample Name: 2024GCMGCDS1

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/8/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.3663
Gravel 2.00 mm (g)	10	12.3440
Gravel 0.850 mm (g)	20	9.7944
Gravel 0.425 mm (g)	40	3.3594
Gravel 0.250 mm (g)	60	2.7626
Gravel 0.106 mm (g)	140	1.8988
Gravel 0.075 mm (g)	200	0.1486
S/C <0.075 mm (g)	Pan	0.0293
Total (g) Recov'd	30.7034	
Total (%) Recov'd	99.9	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	139.2767
Grams Beaker (Tare)	108.5398
Grams Gravel/Sand	30.7369

I. Sample Preparation

Grams As Received Sample	35.8790
Percent (%) Solids	83.8
Grams Oven Dried Sample	30.0666

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	33.5702	27.8982
Grams of Tare	33.5626	27.8957
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0056	0.0005
Total Grams Sample X 50	0.2800	0.0250

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-024DUP
Sample Name: 2024GCMGCDS1

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/8/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	1.1904
Gravel 2.00 mm (g)	10	11.5720
Gravel 0.850 mm (g)	20	10.5817
Gravel 0.425 mm (g)	40	3.9245
Gravel 0.250 mm (g)	60	2.7534
Gravel 0.106 mm (g)	140	1.7617
Gravel 0.075 mm (g)	200	0.1472
S/C <0.075 mm (g)	Pan	0.0455
Total (g) Recov'd	31.9764	
Total (%) Recov'd	99.9	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	144.1629
Grams Beaker (Tare)	112.1476
Grams Gravel/Sand	32.0153

I. Sample Preparation

Grams As Received Sample	36.8570
Percent (%) Solids	83.8
Grams Oven Dried Sample	30.8862

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.3994	41.4703
Grams of Tare	27.3913	41.4683
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0061	0.0000
Total Grams Sample X 50	0.3050	0.0000

Analyst: 0 Date: 8/27/2024
Reviewed by: Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-025
Sample Name: 2024GCMGCDS2

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/8/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	0.5135
Gravel 2.00 mm (g)	10	0.7367
Gravel 0.850 mm (g)	20	10.7861
Gravel 0.425 mm (g)	40	14.5999
Gravel 0.250 mm (g)	60	4.8582
Gravel 0.106 mm (g)	140	0.8518
Gravel 0.075 mm (g)	200	0.0853
S/C <0.075 mm (g)	Pan	0.0629
Total (g) Recov'd	32.4944	
Total (%) Recov'd	99.8	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	145.5507
Grams Beaker (Tare)	112.9825
Grams Gravel/Sand	32.5682

I. Sample Preparation

Grams As Received Sample	48.2370
Percent (%) Solids	66.3
Grams Oven Dried Sample	31.9811

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.1654	27.1894
Grams of Tare	28.1544	27.1864
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0090	0.0010
Total Grams Sample X 50	0.4500	0.0500

Analyst: _____ Date: 8/27/2024
Reviewed by: _____ Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-026
Sample Name: 2024GCMGCDS3

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/8/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	1.0852
Gravel 2.00 mm (g)	10	10.0328
Gravel 0.850 mm (g)	20	11.5301
Gravel 0.425 mm (g)	40	7.1123
Gravel 0.250 mm (g)	60	4.2141
Gravel 0.106 mm (g)	140	1.7955
Gravel 0.075 mm (g)	200	0.1414
S/C <0.075 mm (g)	Pan	0.0297
Total (g) Recov'd	35.9411	
Total (%) Recov'd	99.9	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	147.2007
Grams Beaker (Tare)	111.2370
Grams Gravel/Sand	35.9637

I. Sample Preparation

Grams As Received Sample	48.4950
Percent (%) Solids	70.7
Grams Oven Dried Sample	34.2860

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.9556	30.8732
Grams of Tare	28.9462	30.8712
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0074	0.0000
Total Grams Sample X 50	0.3700	0.0000

Analyst: _____ Date: 8/27/2024
Reviewed by: _____ Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-027
Sample Name: 2024GCMZC10S1

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/8/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	3.6469
Gravel 2.00 mm (g)	10	4.8543
Gravel 0.850 mm (g)	20	7.1851
Gravel 0.425 mm (g)	40	7.4002
Gravel 0.250 mm (g)	60	4.0715
Gravel 0.106 mm (g)	140	1.2588
Gravel 0.075 mm (g)	200	0.1191
S/C <0.075 mm (g)	Pan	0.0335
Total (g) Recov'd	28.5694	
Total (%) Recov'd	99.7	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	135.4746
Grams Beaker (Tare)	106.8335
Grams Gravel/Sand	28.6411

I. Sample Preparation

Grams As Received Sample	38.9170
Percent (%) Solids	70.6
Grams Oven Dried Sample	27.4754

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	27.5804	29.0094
Grams of Tare	27.5753	29.0069
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0031	0.0005
Total Grams Sample X 50	0.1550	0.0250

Analyst: _____ Date: 8/27/2024
Reviewed by: _____ Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-028
Sample Name: 2024GCMZC10S2

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/8/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	1.8669
Gravel 2.00 mm (g)	10	5.8700
Gravel 0.850 mm (g)	20	8.5900
Gravel 0.425 mm (g)	40	11.2989
Gravel 0.250 mm (g)	60	5.4237
Gravel 0.106 mm (g)	140	2.0712
Gravel 0.075 mm (g)	200	0.2854
S/C <0.075 mm (g)	Pan	0.1186
Total (g) Recov'd	35.5247	
Total (%) Recov'd	99.8	

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	141.2206
Grams Beaker (Tare)	105.6205
Grams Gravel/Sand	35.6001

I. Sample Preparation

Grams As Received Sample	48.5280
Percent (%) Solids	73.3
Grams Oven Dried Sample	35.5710

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	28.7794	27.3856
Grams of Tare	28.7681	27.3830
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0093	0.0006
Total Grams Sample X 50	0.4650	0.0300

Analyst: _____ Date: 8/27/2024
Reviewed by: _____ Date: 08/28/24

ALS Group USA, Corp.

dba ALS Environmental

Method: ASTM D422 Particle Size

Service Request #: K2407397
Lab Code #: K2407397-029
Sample Name: 2024GCMZC10S3

Client: Alaska Department of Fish and Game
Project: 2024 Greens Creek Biomonitoring
Sample Matrix: Sediment

Date Collected: 7/8/2024
Date Received: 7/17/2024
Date Analyzed: 8/22/2024

I. Sieving Operation	Sieve #	Weight (g)
Gravel 4.75 mm (g)	4	2.4299
Gravel 2.00 mm (g)	10	3.0140
Gravel 0.850 mm (g)	20	6.5004
Gravel 0.425 mm (g)	40	13.1329
Gravel 0.250 mm (g)	60	5.6241
Gravel 0.106 mm (g)	140	1.3195
Gravel 0.075 mm (g)	200	0.0966
S/C <0.075 mm (g)	Pan	0.0305
Total (g) Recov'd		32.1479
Total (%) Recov'd		100.0

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	137.2663
Grams Beaker (Tare)	105.1251
Grams Gravel/Sand	32.1412

I. Sample Preparation

Grams As Received Sample	43.6950
Percent (%) Solids	72.9
Grams Oven Dried Sample	31.8537

III. Determination of Silt/Clay Fraction

Temperature: 22 **Time Start:** 12:00 PM **Time Finish:** 2:30 PM

Thermometer ID#	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	26.7164	28.8931
Grams of Tare	26.7099	28.8904
Grams of Dispersant Correction	0.0020	0.0020
Grams of Sample	0.0045	0.0007
Total Grams Sample X 50	0.2250	0.0350

Analyst: _____ Date: 8/27/2024
Reviewed by: _____ Date: 08/28/24

Work Request # K2407397

IV

Date Analyzed: 7.19.24

Analyst: MAS Run # 847982

Analysis: PSEP Sulfide

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	(yes)/no/NA
2.	Holding times met for all analyses and for all samples?	yes/(no)/NA
3.	Are calculations correct?	(yes)/no/NA
4.	Is the reporting basis correct? (Dry Weight)	(yes)/no/NA
5.	All quality control criteria met?	(yes)/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	(yes)/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	(yes)/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	(yes)/no/NA
9.	Are results for methods blanks all ND?	(yes)/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	(yes)/no/NA
11.	Are all exceptions explained?	(yes)/no/NA
12.	Have all applicable service requests been reviewed?	(yes)/no/NA
13.	Are all samples labeled correctly?	(yes)/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	(yes)/no/NA
15.	Are detection limits and units reported correctly?	(yes)/no/NA
16.	Is the unused space on the bench sheet crossed out?	(yes)/no/NA
17.	Was analysis turned in by the data due date? (If not record SR#)	(yes)/no/NA

COMMENTS:

- Samples were received without adequate lead time to meet hold time.

Secondary Approved by: _____ Date: 07/22/24

DQREPORT

Analytical Results Summary

Instrument Name: K-UV-VIS-06 **Analyst:** MSPECHT **Analysis Lot:** 847982 **Method/Testcode:** PSEP Sulfide/PSEP Sulfide

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407397-001	Sulfide, Total	N/A		Sediment	0.02 mg/L	10.2190 g	1.4 mg/Kg U	1	0.5	1.4			7/19/24 19:50:00	N	IV
K2407397-002	Sulfide, Total	N/A		Sediment	0.02 mg/L	10.5490 g	1.3 mg/Kg U	1	0.4	1.3			7/19/24 19:50:00	N	IV
K2407397-003	Sulfide, Total	N/A		Sediment	0.05 mg/L	10.3000 g	1.4 mg/Kg U	1	0.5	1.4			7/19/24 19:50:00	N	IV
K2407397-004	Sulfide, Total	N/A		Sediment	0.06 mg/L	10.2740 g	1.3 mg/Kg U	1	0.4	1.3			7/19/24 19:50:00	N	IV
K2407397-005	Sulfide, Total	N/A		Sediment	0.02 mg/L	10.1970 g	1.3 mg/Kg U	1	0.4	1.3			7/19/24 19:50:00	N	IV
K2407397-006	Sulfide, Total	N/A		Sediment	0.04 mg/L	10.0660 g	1.4 mg/Kg U	1	0.5	1.4			7/19/24 19:50:00	N	IV
K2407397-007	Sulfide, Total	N/A		Sediment	0.05 mg/L	10.5720 g	1.3 mg/Kg U	1	0.4	1.3			7/19/24 19:50:00	N	IV
K2407397-008	Sulfide, Total	N/A		Sediment	0.06 mg/L	10.8920 g	1.3 mg/Kg U	1	0.4	1.3			7/19/24 19:50:00	N	IV
K2407397-009	Sulfide, Total	N/A		Sediment	0.04 mg/L	10.3560 g	1.4 mg/Kg U	1	0.5	1.4			7/19/24 19:50:00	N	IV
K2407397-010	Sulfide, Total	N/A		Sediment	0.08 mg/L	10.0250 g	0.8 mg/Kg J	1	0.6	1.9			7/19/24 19:50:00	N	IV
K2407397-011	Sulfide, Total	N/A		Sediment	0.50 mg/L	10.2240 g	4.7 mg/Kg	1	0.6	1.9			7/19/24 19:50:00	N	IV
K2407397-012	Sulfide, Total	N/A		Sediment	0.06 mg/L	10.0670 g	2.1 mg/Kg U	1	0.7	2.1			7/19/24 19:50:00	N	IV
K2407397-013	Sulfide, Total	N/A		Sediment	0.09 mg/L	10.5520 g	1.0 mg/Kg J	1	0.7	2.1			7/19/24 19:50:00	N	IV
K2407397-014	Sulfide, Total	N/A		Sediment	0.08 mg/L	10.4530 g	0.9 mg/Kg J	1	0.7	2.3			7/19/24 19:50:00	N	IV
K2407397-015	Sulfide, Total	N/A		Sediment	0.08 mg/L	10.1480 g	0.6 mg/Kg J	1	0.5	1.5			7/19/24 19:50:00	N	IV
K2407397-016	Sulfide, Total	N/A		Sediment	0.06 mg/L	10.5960 g	1.4 mg/Kg U	1	0.5	1.4			7/19/24 19:50:00	N	IV
K2407397-017	Sulfide, Total	N/A		Sediment	0.07 mg/L	10.7810 g	1.4 mg/Kg U	1	0.5	1.4			7/19/24 19:50:00	N	IV
K2407397-018	Sulfide, Total	N/A		Sediment	0.03 mg/L	10.6150 g	1.4 mg/Kg U	1	0.5	1.4			7/19/24 19:50:00	N	IV
K2407397-019	Sulfide, Total	N/A		Sediment	0.04 mg/L	10.4050 g	1.3 mg/Kg U	1	0.4	1.3			7/19/24 19:50:00	N	IV
K2407397-020	Sulfide, Total	N/A		Sediment	0.07 mg/L	10.5350 g	0.4 mg/Kg J	1	0.4	1.2			7/19/24 19:50:00	N	IV
KQ2411100-01	Sulfide, Total	MS	K2407397-017	Sediment	0.41 mg/L	10.5700 g	570 mg/Kg	200	90	280	100		7/19/24 19:50:00	N	IV
KQ2411100-02	Sulfide, Total	DMS	K2407397-017	Sediment	0.39 mg/L	10.2150 g	570 mg/Kg	200	90	290	96	<1	7/19/24 19:50:00	N	IV
KQ2411100-03	Sulfide, Total	DUP	K2407397-017	Sediment	0.05 mg/L	10.3570 g	1.4 mg/Kg U	1	0.5	1.4		NC	7/19/24 19:50:00	N	IV
KQ2411100-04	Sulfide, Total	TRP	K2407397-017	Sediment	0.05 mg/L	10.6340 g	1.4 mg/Kg U	1	0.5	1.4		NC	7/19/24 19:50:00	N	IV
KQ2411100-05	Sulfide, Total	MB		Sediment	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			7/19/24 19:50:00	N	IV
KQ2411100-06	Sulfide, Total	LCS		Sediment	0.39 mg/L	10 g	391 mg/Kg	200	60	200	96		7/19/24 19:50:00	N	IV
KQ2411234-01	Sulfide, Total	CCV		Sediment	0.61 mg/L	10 g	0.605 mg/L	1					7/19/24 19:50:00	N	IV
KQ2411234-02	Sulfide, Total	CCV		Sediment	0.60 mg/L	10 g	0.604 mg/L	1					7/19/24 19:50:00	N	IV
KQ2411234-03	Sulfide, Total	CCV		Sediment	0.61 mg/L	10 g	0.605 mg/L	1					7/19/24 19:50:00	N	IV
KQ2411234-04	Sulfide, Total	CCV		Sediment	0.60 mg/L	10 g	0.604 mg/L	1					7/19/24 19:50:00	N	IV
KQ2411234-05	Sulfide, Total	CCB		Sediment	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			7/19/24 19:50:00	N	IV
KQ2411234-06	Sulfide, Total	CCB		Sediment	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			7/19/24 19:50:00	N	IV
KQ2411234-07	Sulfide, Total	CCB		Sediment	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			7/19/24 19:50:00	N	IV
KQ2411234-08	Sulfide, Total	CCB		Sediment	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			7/19/24 19:50:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

ALS Environmental
Kelso

SulfidePSEP_7_19_2024_7:50:00_PM

19-Jul-2024 08:15 PM
Method name: PSEP Sulfide 7-19-2024_C
Method created: 04-Oct-2022 07:45 AM
Method updated: 19-Jul-2024 07:54 PM

Instrument Serial #: 9A5A166041
Instrument model: GENESYS 150
Software Package Version: 2.6

Signature:

Sample	Absorbance(λ)	Concentration [mg/L]
ccv 1	0.219	0.605
ccb 1	0.002	out of range
mb 1	0.005	0.002
lcs 200x 1	0.143	0.391
7397-1 1	0.010	0.016
7397-2 1	0.011	0.018
7397-3 1	0.022	0.052
7397-4 1	0.025	0.060
7397-5 1	0.012	0.023
7397-6 1	0.017	0.035
7397-7 1	0.023	0.053
7397-8 1	0.025	0.058
ccv2 1	0.219	0.605
7397-9 1	0.018	0.039
ccv2 1	0.218	0.604
ccb2 1	0.002	out of range
7397-9 1	0.017	0.038
7397-10 1	0.033	0.082
7397-11 1	0.180	0.497
7397-12 1	0.027	0.064
7397-13 1	0.037	0.092
7397-14 1	0.031	0.076
7397-15 1	0.033	0.081
7397-16 1	0.024	0.057
7397-17 1	0.028	0.069
7397-17dup 1	0.021	0.047
ccv3 1	0.219	0.605
ccb3 1	0.002	out of range
7397-17trip 1	0.022	0.050
7397-17ms 200x 1	0.148	0.407
7397-17msd 200x 1	0.143	0.393
7397-18 1	0.016	0.034
7397-19 1	0.019	0.043
7397-20 1	0.029	0.072

> NR, skipped ccb2 - MAS 7/22/24

ALS Environmental
Kelso

SulfidePSEP_7_19_2024_7:50:00_PM

19-Jul-2024 08:15 PM
Method name: PSEP Sulfide 7-19-2024_C
Method created: 04-Oct-2022 07:45 AM
Method updated: 19-Jul-2024 07:54 PM

Instrument Serial #: 9A5A166041
Instrument model: GENESYS 150
Software Package Version: 2.6

Signature:

Sample	Absorbance(λ)	Concentration [mg/L]
ccv4 1	0.218	0.604
ccb4 1	0.001	out of range

ALS Environmental
Kelso

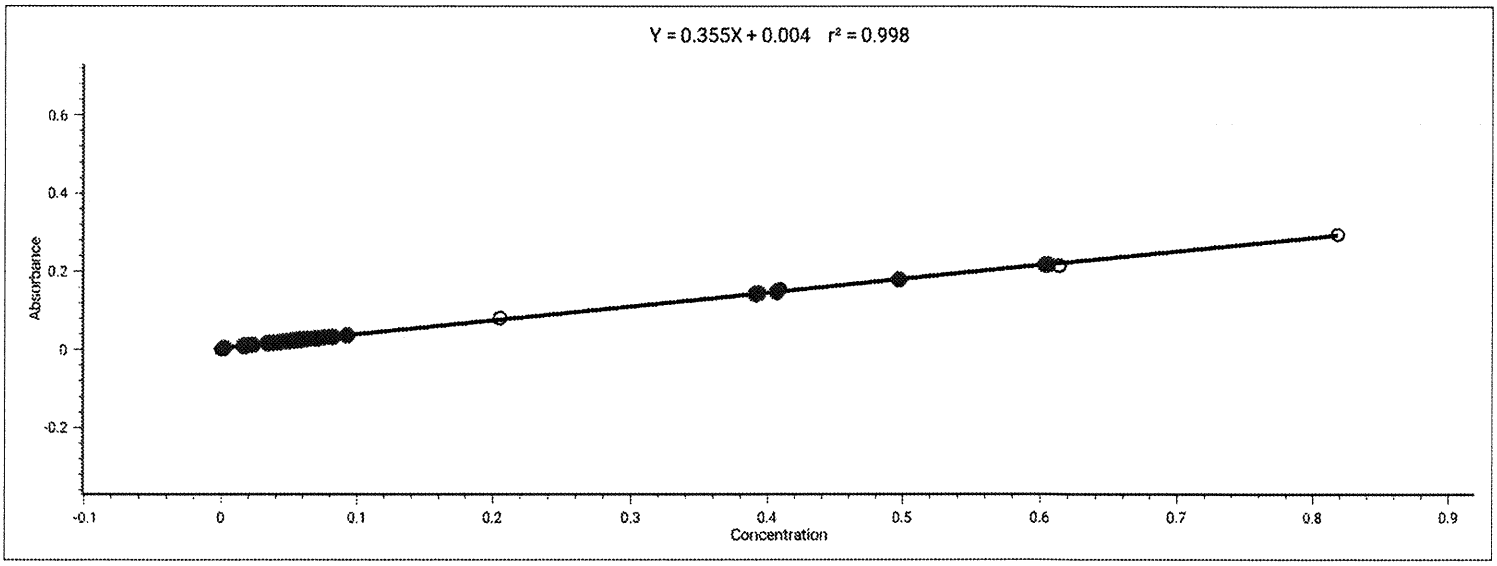
SulfidePSEP_7_19_2024_7:50:00_PM

19-Jul-2024 08:15 PM
Method name: PSEP Sulfide 7-19-2024_C
Method created: 04-Oct-2022 07:45 AM
Method updated: 19-Jul-2024 07:54 PM

Instrument Serial #: 9A5A166041
Instrument model: GENESYS 150
Software Package Version: 2.6

Signature:

Quant method parameters	
Equation	**Y = 0.355X + 0.004**
R^2:	**1.00**
λ	**650 nm**
Reference λ	



Standard	Absorbance(λ)	Concentration [mg/L]
Standard 1	0.000	out of range
Standard 2	0.017	0.041
Standard 3	0.081	0.205
Standard 4	0.155	0.409
Standard 5	0.215	0.614
Standard 6	0.295	0.818

Calibration Curve Relative Error Evaluation - Inorganics

Method:	PSEP SULFIDE
Run Number:	847982
Instrument:	K-UV-VIS-06
Date:	07/19/24

Instructions:

1) Enter slope (a) and intercept (b) from calibration raw data.
2) Enter calibration true values (do not include the origin (0,0) as a clibration point).
3) Enter the measured response for each calibration point.
4) If different than ±10%, update the %RE criteria to the method's CCV criteria.
   (Note that the low point criteria is ± 50% for all methods)
5) Reject the calibration if any standard point "Fail".

Y = aX + b

a =	0.355
b =	0.004

Standard #	True Value	Measured Response	Calculated Concetration	Percent Relative Error (%RE)	%RE Criteria	Pass/Fail
1	0.041	0.017	0.0366	-10.7	50	Pass
2	0.205	0.081	0.2169	5.8	10	Pass
3	0.409	0.155	0.4254	4.0	10	Pass
4	0.614	0.215	0.5944	-3.2	10	Pass
5	0.818	0.295	0.8197	0.2	10	Pass
6					10	
7					10	
8					10	

PSEP Curve		
Amount (mL)	**Conc (mg/L)**	**S2 WSTD (mg/L) 200x dilution**
0.00	0.0000	**20.45**
0.10	0.0409	
0.50	0.2045	
1.00	0.4090	
1.50	0.6135	
2.00	0.8180	

Change WL to 650 nm

CCV S2 mg/L:	4092

CCV Standardization Check	
Ml S203 Check 1:	0.8
Ml S203 Check 2:	0.78
Avg ml S203:	**0.79**

ICV Standardization Check		S2 mg/L RPD	(+/- 10%)
Ml S203 Check:	0.77	#VALUE! →	0.2%
ICV S2 mg/L:	4100		

MAS
7/19/24

ALS ENVIRONMENTAL

Work Order #.: K2407397

Analysis: 9030/ 9030M/ AVS/PSEP

Date Prepared	Sample Name / Lab Code	Initial Wt./Vol. (g) or (ml)	Final Volume (ml)	mg/L - mg/kg As Rec'd	% Solids	mg/kg Dry Wt.
7.19.24	MB	10.0	50			
	LCS	10.0				
	7397-1	10.219				
	.2	10.549				
	.3	10.300				
	.4	10.274				
	.5	10.197				
	.6	10.066				
	.7	10.572				
	.8	10.892				
	.9	10.356				
	.10	10.025				
	.11	10.224				
	.12	10.067				
	.13	10.552				
	.14	10.453				
	.15	10.148				
	.16	10.596				
	.17	10.781				
	.17dup	10.357				
	.17trip	10.634				
	.17MS	10.570				
	.17MSd	10.215				
	.18	10.615				
	.19	10.405				
	.20	10.535				
			N/A	MAS 7-19-24		

Prepared By: MAS		7.19.24
Analyzed By: MAS		7.19.24
Reviewed By:		07/22/24

Preparation Information Benchsheet

Prep Run#: 441856
Team: GenChem/MSPECHT
Number of Copies to make: 1

Prep WorkFlow: GenDistSulfide7
Prep Method:

Status: Prepped
Prep Date/Time: 7/19/24 15:55

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411100-05	MB		PSEP Sulfide/PSEP Sulfide		Solid	10g	50.00mL	
2	KQ2411100-06	LCS		PSEP Sulfide/PSEP Sulfide		Solid	10g	50.00mL	
3	K2407397-001	2024GCMCCS1	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.2190g	50.00mL	
4	K2407397-002	2024GCMCCS2	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.5490g	50.00mL	
5	K2407397-003	2024GCMCCS3	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.3000g	50.00mL	
6	K2407397-004	2024GCMFCS1	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.2740g	50.00mL	
7	K2407397-005	2024GCMFCS2	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.1970g	50.00mL	
8	K2407397-006	2024GCMFCS3	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.0660g	50.00mL	
9	K2407397-007	2024GCMZC371S1	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.5720g	50.00mL	
10	K2407397-008	2024GCMZC371S2	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.8920g	50.00mL	
11	K2407397-009	2024GCMZC371S3	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.3560g	50.00mL	
12	K2407397-010	2024GCMTC808S1	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.0250g	50.00mL	
13	K2407397-011	2024GCMTC808S2	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.2240g	50.00mL	
14	K2407397-012	2024GCMTC808S3	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.0670g	50.00mL	
15	K2407397-013	2024GCMTC808S4	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.5520g	50.00mL	
16	K2407397-014	2024GCMTC808S5	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.4530g	50.00mL	
17	K2407397-015	2024GCMTC9S1	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.1480g	50.00mL	
18	K2407397-016	2024GCMTC9S2	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.5960g	50.00mL	
19	K2407397-017	2024GCMTC9S3	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.7810g	50.00mL	
20	KQ2411100-03	K2407397-017 DUP	.04	PSEP Sulfide/PSEP Sulfide		Solid	10.3570g	50.00mL	
21	KQ2411100-04	K2407397-017 TRP	.04	PSEP Sulfide/PSEP Sulfide		Solid	10.6340g	50.00mL	
22	KQ2411100-01	K2407397-017 MS	.04	PSEP Sulfide/PSEP Sulfide		Solid	10.5700g	50.00mL	
23	KQ2411100-02	K2407397-017 DMS	.04	PSEP Sulfide/PSEP Sulfide		Solid	10.2150g	50.00mL	
24	K2407397-018	2024GCMGC63S1	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.6150g	50.00mL	
25	K2407397-019	2024GCMGC63S2	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.4050g	50.00mL	
26	K2407397-020	2024GCMGC63S3	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.5350g	50.00mL	

Preparation Steps

Step: Distillation
Started: 7/19/24 15:55
Finished: 7/19/24 18:10
By: MSPECHT
Comments

Preparation Information Benchsheet

Prep Run#: 441856
Team: GenChem/MSPECHT

Prep WorkFlow: GenDistSulfide7
Prep Method:

Status: Prepped
Prep Date/Time: 7/19/24 15:55

Comments: _____

Reviewed By: _____ Date: 07/22/24

Chain of Custody

Relinquished By:		Date:	
Received By:		Date:	

Extracts Examined
Yes No

StarLims Run #: 847982

Analysis: **Sulfide**

Method: **PSEP**

Al Treated HCl: 24-GEN-05-15K Stock Amine Solution (DPD): 24-GEN-05-16K

Iodine Solution: 24-GEN-05-15H DPD Working Solution: 24-GEN-05-16L

Ferric Chloride: 24-GEN-05-15J

Sodium Hydroxide 0.5N: 24-GEN-05-17A

(CCV) Sodium Thiosulfate 0.025N: 23-GEN-06-17F HCl (6N): 24-GEN-05-15I

(ICV) Sodium Thiosulfate 0.025N: 23-GEN-06-09I

Starch Indicator Solution: 24-GEN-05-11J H2SO4 (50%): 23-GEN-1-96L

Sulfide Stock Standard: 21-GEN-S2/4-3A

Sulfide Working Standard: 21-GEN-S2/4-83H

Equipment: K-HOTBLOCK-03,K-HOTBLOCK-04, K-UV-VIS-06

Pipettes: Ophos-Alfred, TOC-AGENT SMITH, TEALY

Analyzed By: MAS	Date Analyzed: 7/19/2024
Reviewed By:	Date Reviewed:

Work Request # K2407397
IV

Date Analyzed: 7.23.24

Analyst: MAS

Run # 848303

Analysis: PSEP Sulfide

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	(yes)/no/NA
2.	Holding times met for all analyses and for all samples?	yes/(no)/NA
3.	Are calculations correct?	(yes)/no/NA
4.	Is the reporting basis correct? (Dry Weight)	(yes)/no/NA
5.	All quality control criteria met?	(yes)/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	(yes)/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	(yes)/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	(yes)/no/NA
9.	Are results for methods blanks all ND?	(yes)/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	(yes)/no/NA
11.	Are all exceptions explained?	(yes)/no/NA
12.	Have all applicable service requests been reviewed?	(yes)/no/NA
13.	Are all samples labeled correctly?	(yes)/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	(yes)/no/NA
15.	Are detection limits and units reported correctly?	(yes)/no/NA
16.	Is the unused space on the bench sheet crossed out?	(yes)/no/NA
17.	Was analysis turned in by the data due date? (If not record SR#)	(yes)/no/NA

COMMENTS:

- Samples were either received past hold and/or received without adequate lead time to meet hold time.

Secondary Approved by: _____ Date: 07/29/24

DQREPORT

Analytical Results Summary

Instrument Name: K-UV-VIS-06 **Analyst:** MSPECHT **Analysis Lot:** 848303 **Method/Testcode:** PSEP Sulfide/PSEP Sulfide

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407397-021	Sulfide, Total	N/A		Sediment	0.05 mg/L	10.1810 g	1.3 mg/Kg U	1	0.5	1.3			7/23/24 17:10:00	N	IV
K2407397-022	Sulfide, Total	N/A		Sediment	0.05 mg/L	10.9170 g	1.2 mg/Kg U	1	0.4	1.2			7/23/24 17:10:00	N	IV
K2407397-023	Sulfide, Total	N/A		Sediment	0.06 mg/L	10.7530 g	1.2 mg/Kg U	1	0.4	1.2			7/23/24 17:10:00	N	IV
K2407397-024	Sulfide, Total	N/A		Sediment	0.06 mg/L	10.5810 g	1.1 mg/Kg U	1	0.4	1.1			7/23/24 17:10:00	N	IV
K2407397-025	Sulfide, Total	N/A		Sediment	0.11 mg/L	10.0870 g	0.8 mg/Kg J	1	0.5	1.5			7/23/24 17:10:00	N	IV
K2407397-026	Sulfide, Total	N/A		Sediment	0.04 mg/L	10.3620 g	1.4 mg/Kg U	1	0.5	1.4			7/23/24 17:10:00	N	IV
K2407397-027	Sulfide, Total	N/A		Sediment	0.04 mg/L	10.1330 g	1.4 mg/Kg U	1	0.5	1.4			7/23/24 17:10:00	N	IV
K2407397-028	Sulfide, Total	N/A		Sediment	0.05 mg/L	10.8800 g	1.3 mg/Kg U	1	0.4	1.3			7/23/24 17:10:00	N	IV
K2407397-029	Sulfide, Total	N/A		Sediment	0.04 mg/L	10.3250 g	1.3 mg/Kg U	1	0.4	1.3			7/23/24 17:10:00	N	IV
KQ2411288-01	Sulfide, Total	MS	K2407397-021	Sediment	0.39 mg/L	10.6220 g	500 mg/Kg	200	80	260	99		7/23/24 17:10:00	N	IV
KQ2411288-02	Sulfide, Total	DMS	K2407397-021	Sediment	0.38 mg/L	10.9410 g	470 mg/Kg	200	80	250	95	7	7/23/24 17:10:00	N	IV
KQ2411288-03	Sulfide, Total	DUP	K2407397-021	Sediment	0.07 mg/L	10.6200 g	0.4 mg/Kg J	1	0.4	1.3		NC	7/23/24 17:10:00	N	IV
KQ2411288-04	Sulfide, Total	TRP	K2407397-021	Sediment	0.12 mg/L	10.0340 g	0.8 mg/Kg J	1	0.5	1.4		NC	7/23/24 17:10:00	N	IV
KQ2411288-05	Sulfide, Total	MB		Sediment	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			7/23/24 17:10:00	N	IV
KQ2411288-06	Sulfide, Total	LCS		Sediment	0.41 mg/L	10 g	407 mg/Kg	200	60	200	102		7/23/24 17:10:00	N	IV
KQ2411575-01	Sulfide, Total	CCV		Sediment	0.60 mg/L	10 g	0.603 mg/L	1					7/23/24 17:10:00	N	IV
KQ2411575-02	Sulfide, Total	CCV		Sediment	0.60 mg/L	10 g	0.602 mg/L	1					7/23/24 17:10:00	N	IV
KQ2411575-03	Sulfide, Total	CCV		Sediment	0.60 mg/L	10 g	0.601 mg/L	1					7/23/24 17:10:00	N	IV
KQ2411575-04	Sulfide, Total	CCB		Sediment	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			7/23/24 17:10:00	N	IV
KQ2411575-05	Sulfide, Total	CCB		Sediment	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			7/23/24 17:10:00	N	IV
KQ2411575-06	Sulfide, Total	CCB		Sediment	0.00 mg/L	10 g	1.0 mg/Kg U	1	0.3	1.0			7/23/24 17:10:00	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

SulfidePSEP_7_23_2024_5:10:00_PM

23-Jul-2024 05:46 PM
Method name: PSEP Sulfide 7-23-2024_C
Method created: 04-Oct-2022 07:45 AM
Method updated: 23-Jul-2024 05:31 PM

Instrument Serial #: 9A5A166041
Instrument model: GENESYS 150
Software Package Version: 2.6

Signature:

Sample	Absorbance(λ)	Concentration [mg/L]
ccv 1	0.220	0.603
ccb 1	0.000	out of range
mb 1	0.006	0.002
lcs 200x 1	0.150	0.407
7397-21 1	0.024	0.053
7397-21dup 1	0.030	0.070
7397-21trip 1	0.049	0.124
7397-21ms 200x 1	0.145	0.394
7397-21msd 200x 1	0.140	0.379
7397-22 1	0.023	0.052
7397-23 1	0.027	0.063
7397-24 1	0.025	0.056
ccv2 1	0.220	0.602
ccb2 1	0.001	out of range
7397-25 1	0.044	0.109
7397-26 1	0.020	0.041
7397-27 1	0.018	0.036
7397-28 1	0.022	0.048
7397-29 1	0.018	0.037
ccv3 1	0.219	0.601
ccb3 1	0.001	out of range

ALS Environmental
Kelso

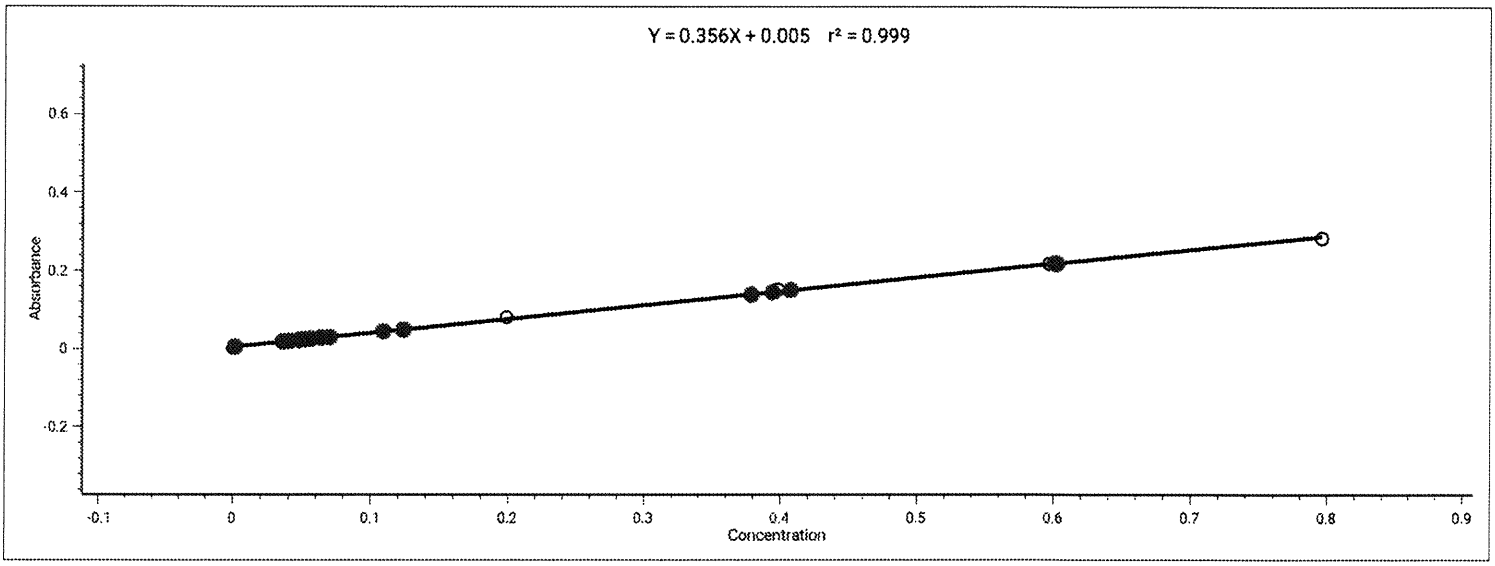
SulfidePSEP_7_23_2024_5:10:00_PM

23-Jul-2024 05:46 PM
Method name: PSEP Sulfide 7-23-2024_C
Method created: 04-Oct-2022 07:45 AM
Method updated: 23-Jul-2024 05:31 PM

Instrument Serial #: 9A5A166041
Instrument model: GENESYS 150
Software Package Version: 2.6

Signature:

Quant method parameters	
Equation	**Y = 0.356X + 0.005**
R^2:	**1.00**
λ	**650 nm**
Reference λ	



Standard	Absorbance(λ)	Concentration [mg/L]
Standard 1	0.001	out of range
Standard 2	0.017	0.040
Standard 3	0.081	0.199
Standard 4	0.152	0.398
Standard 5	0.218	0.597
Standard 6	0.284	0.796

Calibration Curve Relative Error Evaluation - Inorganics

Method:	PSEP SULFIDE
Run Number:	848303
Instrument:	K-UV-VIS-06
Date:	07/23/24

Instructions:

1) Enter slope (a) and intercept (b) from calibration raw data.
2) Enter calibration true values (do not include the origin (0,0) as a clibration point).
3) Enter the measured response for each calibration point.
4) If different than ±10%, update the %RE criteria to the method's CCV criteria.
   (Note that the low point criteria is ± 50% for all methods)
5) Reject the calibration if any standard point "Fail".

Y = aX + b

a =	0.356
b =	0.005

Standard #	True Value	Measured Response	Calculated Concetration	Percent Relative Error (%RE)	%RE Criteria	Pass/Fail
1	0.040	0.017	0.0337	-15.7	50	Pass
2	0.199	0.081	0.2135	7.3	10	Pass
3	0.398	0.152	0.4129	3.7	10	Pass
4	0.597	0.218	0.5983	0.2	10	Pass
5	0.796	0.284	0.7837	-1.5	10	Pass
6					10	
7					10	
8					10	

PSEP Curve		
Amount (mL)	**Conc (mg/L)**	**S2 WSTD (mg/L) 200x dilution**
0.00	0.0000	**19.90**
0.10	0.0398	
0.50	0.1990	
1.00	0.3980	
1.50	0.5970	
2.00	0.7960	

Change WL to 650 nm

CCV S2 mg/L:	3975

CCV Standardization Check	
Ml S203 Check 1:	1.1
Ml S203 Check 2:	1.06
Avg ml S203:	**1.08**

ICV Standardization Check		S2 mg/L RPD	(+/- 10%)
Ml S203 Check:	1.06	0.6	
ICV S2 mg/L:	3983		

ALS ENVIRONMENTAL

Work Order #.: K2407397

Analysis: 9030/ 9030M/ AVS/ PSEP

Date Prepared	Sample Name / Lab Code	Initial Wt./Vol. (g) or (ml)	Final Volume (ml)	mg/L - mg/kg As Rec'd	% Solids	mg/kg Dry Wt.
7-23-24	MB	10.0	50			
	LCS	10.0				
	7397-21	10.181				
	-21dup	10.620				
	-21trip	10.034				
	-21MS	10.622				
	-21msd	10.941				
	-22	10.917				
	-23	10.753				
	-24	10.581				
	-25	10.087				
	-26	10.362				
	-27	10.133				
	-28	10.880				
	-29	10.325				
			N/A			
				MAS 7-23-24		

Prepared By: MAS	7-23-24
Analyzed By: MAS	7-23-24
Reviewed By:	07/29/24

Preparation Information Benchsheet

Prep Run#: 442025
Team: GenChem/MSPECHT
Number of Copies to make: 1

Prep WorkFlow: GenDistSulfide7
Prep Method:

Status: Prepped
Prep Date/Time: 7/23/24 14:25

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411288-05	MB		PSEP Sulfide/PSEP Sulfide		Solid	10g	50.00mL	
2	KQ2411288-06	LCS		PSEP Sulfide/PSEP Sulfide		Solid	10g	50.00mL	
3	K2407397-021	2024GCMTC1847S1	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.1810g	50.00mL	
4	KQ2411288-03	K2407397-021 DUP	.04	PSEP Sulfide/PSEP Sulfide		Solid	10.6200g	50.00mL	
5	KQ2411288-04	K2407397-021 TRP	.04	PSEP Sulfide/PSEP Sulfide		Solid	10.0340g	50.00mL	
6	KQ2411288-01	K2407397-021 MS	.04	PSEP Sulfide/PSEP Sulfide		Solid	10.6220g	50.00mL	
7	KQ2411288-02	K2407397-021 DMS	.04	PSEP Sulfide/PSEP Sulfide		Solid	10.9410g	50.00mL	
8	K2407397-022	2024GCMTC1847S2	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.9170g	50.00mL	
9	K2407397-023	2024GCMTC1847S3	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.7530g	50.00mL	PPRICE K-BALANCE-49
10	K2407397-024	2024GCMGCDS1	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.5810g	50.00mL	
11	K2407397-025	2024GCMGCDS2	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.0870g	50.00mL	
12	K2407397-026	2024GCMGCDS3	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.3620g	50.00mL	
13	K2407397-027	2024GCMZC10S1	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.1330g	50.00mL	
14	K2407397-028	2024GCMZC10S2	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.8800g	50.00mL	
15	K2407397-029	2024GCMZC10S3	.04	PSEP Sulfide/PSEP Sulfide		Sediment	10.3250g	50.00mL	

Preparation Steps

Step: Distillation
Started: 7/23/24 14:25
Finished: 7/23/24 16:00
By: MSPECHT
Comments

Comments: _____

Reviewed By: _____ Date: 07/29/24

Chain of Custody

Relinquished By: _____ Date: _____

Received By: _____ Date: _____

Extracts Examined
Yes No

ALS Environmental - Laboratory Note Sheet

Service Request Number(s):
K2407397

Sample Number	Initial Volume	Final Volume	Dilution Factor		
LCS	0.125mL	25mL	200X		
7397-21MS	1	1	1		
1-21MSD	1	1	1		
		N			
		A			
			MAS		
			7.26.24		

Comments/Notes:

Analyst: MAS Date: 7-23-24

Reviewed: Date: 07/29/24

R:\WET\ANALYSES\Dilution Benchsheet 2022

StarLims Run #: 848303

Analysis: **Sulfide**

Method: **PSEP**

Al Treated HCl: 24-GEN-05-15K Stock Amine Solution (DPD): 24-GEN-05-16K

Iodine Solution: 24-GEN-05-15H DPD Working Solution: 24-GEN-05-17C

Ferric Chloride: 24-GEN-05-15J

Sodium Hydroxide 0.5N: 24-GEN-05-17B

(CCV) Sodium Thiosulfate 0.025N: 23-GEN-06-17F HCl (6N): 24-GEN-05-15I

(ICV) Sodium Thiosulfate 0.025N: 23-GEN-06-09I

Starch Indicator Solution: 24-GEN-05-11J H2SO4 (50%): 23-GEN-1-96L

Sulfide Stock Standard: 21-GEN-S2/4-3A

Sulfide Working Standard: 21-GEN-S2/4-83J

Equipment: K-HOTBLOCK-03,K-HOTBLOCK-04, K-UV-VIS-06

Pipettes: Ophos-Alfred, TOC-AGENT SMITH, TEALY

Analyzed By: MAS	Date Analyzed: 7/23/2024
Reviewed By:	Date Reviewed: 07/29/24

Work Request # K 2407397

Date Analyzed: 7/23/24

Analyst: ARun

Run # 848167

Analysis: TOC PSEP soil

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	(yes)/no/NA
2.	Holding times met for all analyses and for all samples?	(yes)/no/NA
3.	Are calculations correct?	(yes)/no/NA
4.	Is the reporting basis correct? (Dry Weight)	(yes)/no/NA
5.	All quality control criteria met?	(yes)/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	(yes)/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	(yes)/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	(yes)/no/NA
9.	Are results for methods blanks all ND?	(yes)/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	(yes)/no/NA
11.	Are all exceptions explained?	yes/no/(NA)
12.	Have all applicable service requests been reviewed?	(yes)/no/NA
13.	Are all samples labeled correctly?	(yes)/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	(yes)/no/NA
15.	Are detection limits and units reported correctly?	(yes)/no/NA
16.	Is the unused space on the benchsheet crossed out?	(yes)/no/NA
17.	Was analysis turned in by the data due date? (If not record SR#)	(yes)/no/NA

COMMENTS:

Final Approved by: _____ Date: 07/29/24

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-04 **Analyst:** AMCKORNEY **Analysis Lot:** 848167 **Method/Testcode:** PSEP TOC/PSEP TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407397-001	Carbon, Total Organic (TOC)	N/A		Sediment	0.94 Percent	250.4 mg	0.94 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
K2407397-002	Carbon, Total Organic (TOC)	N/A		Sediment	0.61 Percent	250.0 mg	0.61 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
K2407397-003	Carbon, Total Organic (TOC)	N/A		Sediment	0.65 Percent	250.0 mg	0.65 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
K2407397-004	Carbon, Total Organic (TOC)	N/A		Sediment	0.52 Percent	250.0 mg	0.52 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
K2407397-005	Carbon, Total Organic (TOC)	N/A		Sediment	0.47 Percent	250.0 mg	0.47 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
K2407397-006	Carbon, Total Organic (TOC)	N/A		Sediment	0.50 Percent	250.7 mg	0.50 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
K2407397-010	Carbon, Total Organic (TOC)	N/A		Sediment	2.12 Percent	250.3 mg	2.12 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
K2407397-011	Carbon, Total Organic (TOC)	N/A		Sediment	3.52 Percent	250.9 mg	3.52 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
K2407397-012	Carbon, Total Organic (TOC)	N/A		Sediment	2.76 Percent	250.3 mg	2.76 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
K2407397-013	Carbon, Total Organic (TOC)	N/A		Sediment	2.10 Percent	250.0 mg	2.10 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
K2407397-014	Carbon, Total Organic (TOC)	N/A		Sediment	4.06 Percent	250.2 mg	4.06 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
K2407397-015	Carbon, Total Organic (TOC)	N/A		Sediment	1.29 Percent	250.0 mg	1.29 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
K2407397-016	Carbon, Total Organic (TOC)	N/A		Sediment	1.87 Percent	250.0 mg	1.87 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
K2407397-017	Carbon, Total Organic (TOC)	N/A		Sediment	1.60 Percent	250.0 mg	1.60 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
K2407397-023	Carbon, Total Organic (TOC)	N/A		Sediment	0.39 Percent	250.6 mg	0.39 Percent	1	0.005	0.10			7/23/24 10:23:13	N	IV
KQ2411571-01	Carbon, Total Organic (TOC)	DUP	K2407397-001	Sediment	0.93 Percent	250.0 mg	0.93 Percent	1	0.005	0.10		1	7/23/24 10:23:13	N	IV
KQ2411571-02	Carbon, Total Organic (TOC)	TRP	K2407397-001	Sediment	0.93 Percent	250.4 mg	0.93 Percent	1	0.005	0.10		<1	7/23/24 10:23:13	N	IV
KQ2411571-03	Carbon, Total Organic (TOC)	MS	K2407397-001	Sediment	3.22 Percent	125.0 mg	3.22 Percent	1	0.005	0.10	95		7/23/24 10:23:13	N	IV
KQ2411571-04	Carbon, Total Organic (TOC)	DMS	K2407397-001	Sediment	3.33 Percent	125.4 mg	3.33 Percent	1	0.005	0.10	98	3	7/23/24 10:23:13	N	IV
KQ2411571-05	Carbon, Total Organic (TOC)	LCS		Sediment	3.17 Percent	250.0 mg	3.17 Percent	1	0.005	0.10	106		7/23/24 10:23:13	N	IV
KQ2411571-06	Carbon, Total Organic (TOC)	MB		Sediment	0.00 Percent	250.0 mg	0.10 Percent U	1	0.005	0.10			7/23/24 10:23:13	N	IV
KQ2411572-01	Carbon, Total Organic (TOC)	CCV		Sediment	12.00 Percent	25.2 mg	12.0 Percent	1					7/23/24 10:23:13	N	IV
KQ2411572-02	Carbon, Total Organic (TOC)	CCV		Sediment	11.79 Percent	25.5 mg	11.8 Percent	1					7/23/24 10:23:13	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-04 **Analyst:** AMCKORNEY **Analysis Lot:** 848167 **Method/Testcode:** PSEP TOC/PSEP TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2411572-03	Carbon, Total Organic (TOC)	CCV		Sediment	11.78 Percent	25.0 mg	11.8 Percent	1					7/23/24 10:23:13	N	IV
KQ2411572-04	Carbon, Total Organic (TOC)	CCV		Sediment	12.00 Percent	25.1 mg	12.0 Percent	1					7/23/24 10:23:13	N	IV
KQ2411572-05	Carbon, Total Organic (TOC)	CCB		Sediment	0.00 Percent	250.0 mg	0.10 Percent U	1	0.005	0.10			7/23/24 10:23:13	N	IV
KQ2411572-06	Carbon, Total Organic (TOC)	CCB		Sediment	0.00 Percent	250.0 mg	0.10 Percent U	1	0.005	0.10			7/23/24 10:23:13	N	IV
KQ2411572-07	Carbon, Total Organic (TOC)	CCB		Sediment	0.00 Percent	250.0 mg	0.10 Percent U	1	0.005	0.10			7/23/24 10:23:13	N	IV
KQ2411572-08	Carbon, Total Organic (TOC)	CCB		Sediment	0.00 Percent	250.0 mg	0.10 Percent U	1	0.005	0.10			7/23/24 10:23:13	N	IV

DAB 7/26/24

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Run # 848167

AnalysisGroup

AnalysisGroup: % TOC 2024E

Remark: EPA 9060 - Total Organic Carbon (K-TOC-04)

Created on: 7/12/2024 11:11:53 AM
Last modification: 7/23/2024 2:39:09 PM
State: solid

Analysis name	Result	Sample quantity	Time of analysis	Remark
CCV	TC: 12.00% 100%	25.200mg	7/23/2024 10:23:13 AM	
CCB	TC: 0.00000%	250.000mg	7/23/2024 10:31:59 AM	TC: Out of the calibrated ranges
LCS	TC: 3.17% 106%	250.000mg	7/23/2024 10:38:48 AM	
MB	TC: 0.00000%	250.000mg	7/23/2024 10:48:16 AM	TC: Out of the calibrated ranges
K2407397-001	TC: 0.94%	250.400mg	7/23/2024 10:55:00 AM	
K2407397-001D	TC: 0.93%	250.000mg	7/23/2024 11:03:18 AM	
K2407397-001TR	TC: 0.93%	250.400mg	7/23/2024 11:12:24 AM	
K2407397-001MS	TC: 3.22% 95%	125.000mg	7/23/2024 11:21:14 AM	
K2407397-001MSD	TC: 3.33% 100%	125.400mg	7/23/2024 11:30:08 AM	
K2407397-002	TC: 0.61%	250.000mg	7/23/2024 11:39:17 AM	
K2407397-003	TC: 0.65%	250.000mg	7/23/2024 11:48:27 AM	
K2407397-004	TC: 0.52%	250.000mg	7/23/2024 11:57:39 AM	
CCV	TC: 11.79% 98%	25.500mg	7/23/2024 12:06:35 PM	
CCB	TC: 0.00000%	250.000mg	7/23/2024 12:15:31 PM	TC: Out of the calibrated ranges
K2407397-005	TC: 0.47%	250.000mg	7/23/2024 12:22:21 PM	
K2407397-006	TC: 0.50%	250.700mg	7/23/2024 12:31:28 PM	
K2407397-010	TC: 2.12%	250.300mg	7/23/2024 12:40:45 PM	
K2407397-011	TC: 3.52%	250.900mg	7/23/2024 12:50:32 PM	
K2407397-012	TC: 2.76%	250.300mg	7/23/2024 1:00:14 PM	
K2407397-013	TC: 2.10%	250.000mg	7/23/2024 1:10:16 PM	
K2407397-014	TC: 4.06%	250.200mg	7/23/2024 1:19:59 PM	
K2407397-015	TC: 1.29%	250.000mg	7/23/2024 1:30:09 PM	
K2407397-016	TC: 1.87%	250.000mg	7/23/2024 1:39:27 PM	
K2407397-017	TC: 1.60%	250.000mg	7/23/2024 1:48:17 PM	

7/23/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

AnalysisGroup

AnalysisGroup: % TOC 2024E

Analysis name	Result	Sample quantity	Time of analysis	Remark
CCV	TC: 11.78% 98%	25.000mg	7/23/2024 1:58:29 PM	
CCB	TC: 0.00000%	250.000mg	7/23/2024 2:07:16 PM	TC: Out of the calibrated ranges
K2407397-023	TC: 0.39%	250.600mg	7/23/2024 2:14:08 PM	
CCV	TC: 12.00% 100%	25.100mg	7/23/2024 2:23:18 PM	
CCB	TC: 0.00000%	250.000mg	7/23/2024 2:32:01 PM	TC: Out of the calibrated ranges

7/23/24

Service Request: K2407397 **Method:** 9060 TOC Modified

Date Weighed: 7/23/2024 **Analysis:** Total Organic Carbon in Soil

Analyst: AEM **Prep Run / Run #** 441984 / 848167

Sample Position	Sample ID	Weight (mg)
1	Clean	NA
2	CCV	25.2
3	CCB	250.0
4	LCS	250.0
5	MB	250.0
6	K2407397-001	250.4
7	K2407397-001D	250.0
8	K2407397-001TR	250.4
9	K2407397-001MS	125.0
10	K2407397-001MSD	125.4
11	K2407397-002	250.0
12	K2407397-003	250.0
13	K2407397-004	250.0
14	CCV	25.5
15	CCB	250.0
16	K2407397-005	250.0
17	K2407397-006	250.7
18	K2407397-010	250.3
19	K2407397-011	250.9
20	K2407397-012	250.3
21	K2407397-013	250.0
22	K2407397-014	250.2
23	K2407397-015	250.0
24	K2407397-016	250.0

Sample Position	Sample ID	Weight (mg)
25	K2407397-017	250.0
26	CCV	25.0
27	CCB	250.0
28	K2407397-023	250.6
29	CCV	25.1
30	CCB	250.0
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		

MS CaCO3 (mg)	K2407397-001MS	25.0
MSD CaCO3 (mg)	K2407397-001MSD	25.4

Equipment: K-TOC-04 **HCL ID:** 19-GEN-12-~~4-C~~ 8-K DAB 7/26/24

Calibration Expires: 3/14/25 **Oven ID:** K-OVEN-11

Balance ID: K-BALANCE-38 **Thermometer ID:** 96977

DAB 7/26/24 JT Baker, ID: 19-GEN-13-71-A, Lot # 228636, Exp 2/20/26, TV = 12.02 C

CCV: CaCO3, ~~EMD, ID: 13-TOC-01-1F, Lot # 3145C508, Exp: 6/26/23, TV = 12.0 % C~~

LCS: NIST SRM, Lot # ~~1944, New York/New Jersey Waterway Sediment, ID: 19-GEN-13-74-E, Exp: 3/31/27, TV = 4.40 % TOC~~

DAB 7/26/24 1941b, Organics in Marine Sediment, ID: 19-GEN-13-97-J, Exp. 9/14/32, TV = 2.99% TOC

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration QC Check

AnalysisGroup

AnalysisGroup: % TOC 2024b

Remark: EPA 9060 - Total Organic Carbon (K-TOC-04)

Created on: 2/23/2024 5:07:30 PM
Last modification: 3/15/2024 2:02:58 PM
State: solid

Analysis name	Result	Sample quantity	Time of analysis	Remark
ICV - 25mg	TC: 11.81%	25.200mg	3/15/2024 12:12:46 PM	
ICV - 100mg	TC: 11.99%	100.300mg	3/15/2024 12:22:18 PM	
ICB	TC: 0.0014%	250.000mg	3/15/2024 12:32:34 PM	TC: Out of the calibrated ranges
CCV	TC: 11.85%	25.100mg	3/15/2024 12:41:07 PM	
CCB	TC: 0.00000%	250.000mg	3/15/2024 12:50:16 PM	TC: Out of the calibrated ranges
LCS	TC: 3.14%	250.300mg	3/15/2024 12:58:11 PM	
DLCS	TC: 3.12%	250.300mg	3/15/2024 1:09:41 PM	
MB	TC: 0.0053%	250.000mg	3/15/2024 1:20:59 PM	TC: Out of the calibrated ranges
LOQ - 0.1% C	TC: 0.099%	253.300mg	3/15/2024 1:29:28 PM	
LOD - 0.01% C	TC: 0.014%	251.100mg	3/15/2024 1:37:55 PM	
CCV	TC: 11.90%	25.200mg	3/15/2024 1:46:25 PM	
CCB	TC: 0.00000%	250.000mg	3/15/2024 1:55:32 PM	TC: Out of the calibrated ranges

ICV: 19-GEN-13-94-A (TV = 12% C)
CCV: 19-GEN-13-71-A (TV = 12% C)
LCS: 19-GEN-13-97-J (TV = 2.99% C / TOC)
LOQ: 19-GEN-12-7-G (TV = 0.1% C)
LOD: 19-GEN-12-7-H (TV = 0.01% C)

MB/LCS/DLCS → Acidified w/ 19-GEN-12-8-K

DAB 3/15/24

Method

Method: TOC by Manual Acidification - 3/14/24 **Version** 3

Created on: 3/14/2024 1:39:46 PM **of:** User
Last modification: 3/14/2024 5:28:48 PM **of:** User

Status: authorized
State: solid
Furnace: Ceramic tube (CS) - horizontal

Determinations:
Determinations: 1 - 1
Calculation algorithm: Conc_solid_EA4000_%
Operands:
Weight 1mg

Process:
FPG EA4000 (Default)
Furnace temperature 1100°C

Detection:

	TC
Detector	C_C201
Maximum integration time	600s
Stability	3
Start	0.12ppm
Threshold	5ppm

CalibrationData:

Calibration parameters TC		**[CR1]3,932AU - 47,966AU**	**[CR2]47,966AU - 3,627,304AU**
Type		Measurement	Measurement
Linked on		3/14/2024	3/14/2024
Name		Cal_TOC by Manual Acidification - 3/14/24_20240314_161842	Cal_TOC by Manual Acidification - 3/14/24_20240314_142421
Regression	**Type**	linear	linear
	K0	-3.118e+0	2.144e+1
	K1	6.357e-3	6.62e-3
Daily factor		1	1
	Type	Default	Default
	Date	3/14/2024	3/14/2024

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_142421 **Version** 1

Calibration of: 3/14/2024 2:34:16 PM **of:** User
Last modification: 3/14/2024 3:51:20 PM **of:** User
Type: Constant concentration

Calibration parameters TC
Linear regression: c*m = 6.62e-3*I+2.144e+1
K0: 2.144e+1
K1: 6.62e-3
Calibration range: 42,076AU - 3,627,304AU

Residual standard deviation: 10,941AU
Method standard deviation: 72.44211
Method variation coefficient: 0.97368%
Quality of replicates: 0.99994
Correlation coefficient: 0.99997

Linearity: linear
Variance homogeneity: non homogeneous
Detection limit: 150.59µg
Identification limit: 301.18µg
Quantification limit: 560.69µg

Constant concentration: 12.00%

Measuring points	Rep.	Operands	I-net	c-act.	c-delta	Blank value
1	1/1	Weight: 2.500mg	48,075AU	13.59%	13.2%	0.000AU
2	1/1	Weight: 5.200mg	90,273AU	11.91%	-0.79%	0.000AU
3	1/1	Weight: 10.200mg	177,764AU	11.75%	-2.10%	0.000AU
4	1/1	Weight: 15.100mg	262,109AU	11.63%	-3.05%	0.000AU
5	1/1	Weight: 24.900mg	441,009AU	11.81%	-1.57%	0.000AU
6	1/1	Weight: 50.100mg	912,060AU	12.10%	0.79%	0.000AU
7	1/1	Weight: 99.900mg	1,812,969AU	12.04%	0.30%	0.000AU
8	1/1	Weight: 149.800mg	2,729,736AU	12.08%	0.65%	0.000AU
9	1/1	Weight: 200.300mg	3,610,903AU	11.95%	-0.45%	0.000AU

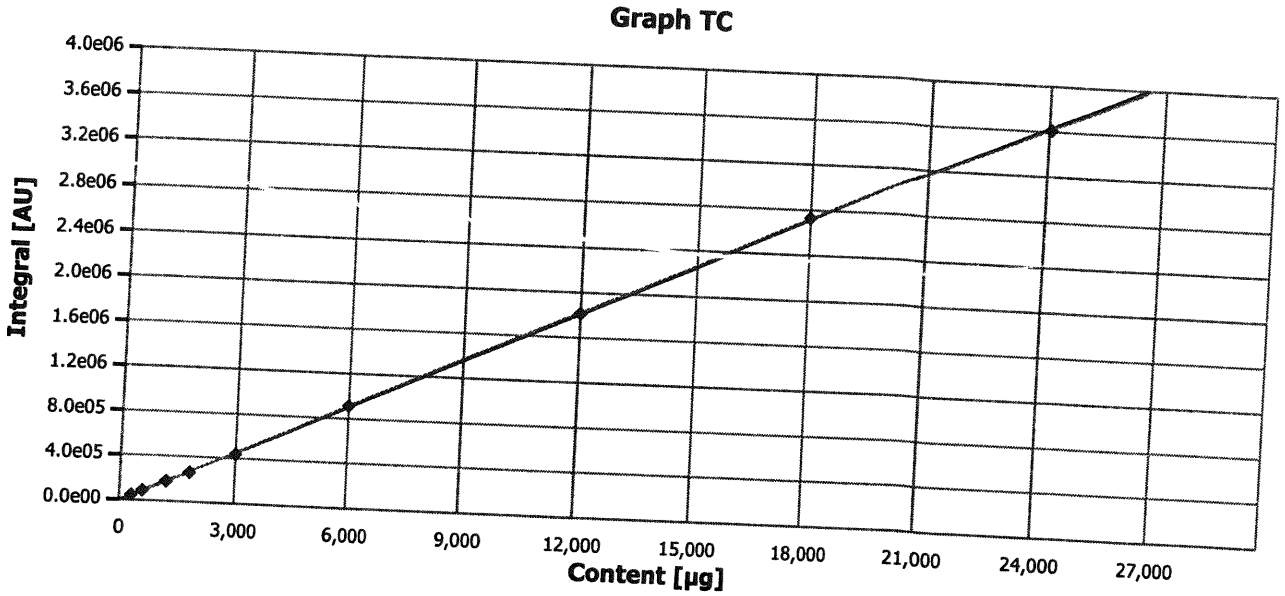
Calcium Carbonate ID: 19-GEN-13-71-A (TV= 12% C)

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_142421 **Version** 1



Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_161842 **Version** 1

Calibration of: 3/14/2024 4:26:04 PM **of:** User
Last modification: 3/14/2024 5:27:01 PM **of:** User
Type: Constant concentration

Calibration parameters TC
Linear regression: c*m = 6.357e-3*I-3.118e+0
K0: -3.118e+0
K1: 6.357e-3
Calibration range: 3,932AU - 47,966AU

Residual standard deviation: 1,350AU
Method standard deviation: 8.63664
Method variation coefficient: 5.99715%
Quality of replicates: 0.99354
Correlation coefficient: 0.99676

Linearity: linear
Variance homogeneity: non homogeneous
Detection limit: 20.04µg
Identification limit: 40.09µg
Quantification limit: 69.61µg

Constant concentration: 0.100%

Measuring points	Rep.	Operands	I-net	c-act.	c-delta	Blank value
1	1/1	Weight: 25.400mg	3,932AU	0.086%	-13.9%	0.000AU
2	1/1	Weight: 50.300mg	8,913AU	0.11%	6.44%	0.000AU
3	1/1	Weight: 75.000mg	11,596AU	0.094%	-5.87%	0.000AU
4	1/1	Weight: 99.800mg	15,331AU	0.095%	-5.47%	0.000AU
5	1/1	Weight: 149.900mg	26,864AU	0.11%	11.8%	0.000AU
6	1/1	Weight: 200.100mg	32,001AU	0.10%	0.11%	0.000AU
7	1/1	Weight: 249.800mg	39,745AU	0.100%	-0.11%	0.000AU
8	1/1	Weight: 301.800mg	46,777AU	0.097%	-2.50%	0.000AU

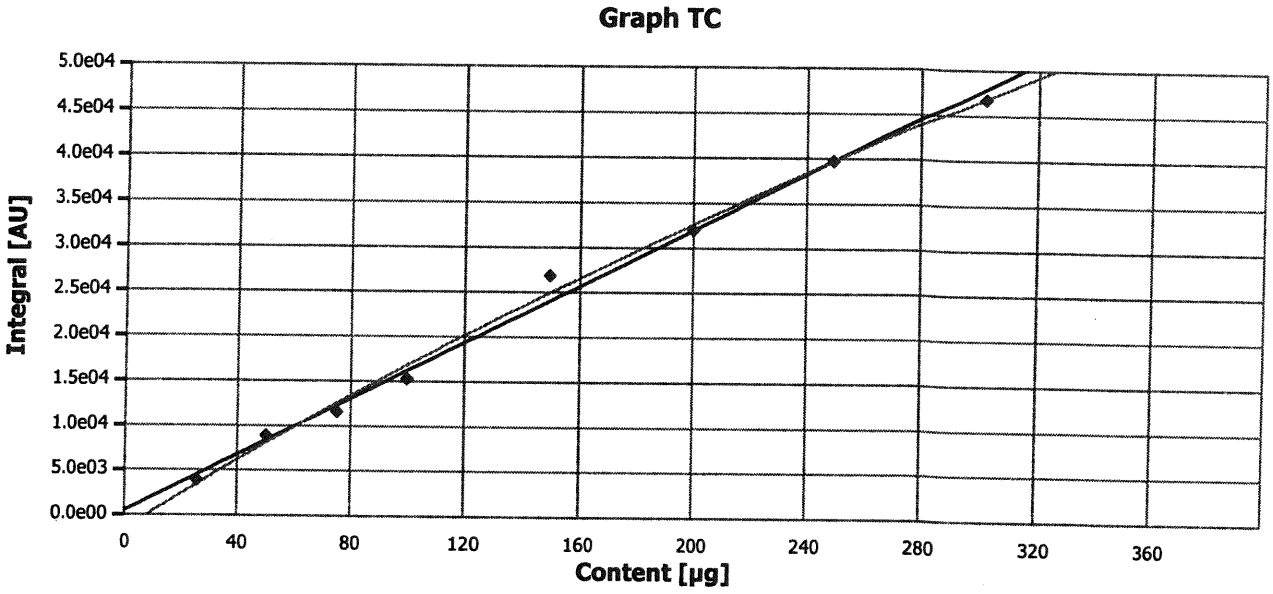
KHP (0.1% C) ID: 19-GEN-12-7-6

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_161842 **Version** 1



Work Request # K2407397

Date Analyzed: 7/22/24

Analyst: ARun

Run # 848223

Analysis: TOC PSEP Soil

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	(yes)/no/NA
2.	Holding times met for all analyses and for all samples?	(yes)/no/NA
3.	Are calculations correct?	(yes)/no/NA
4.	Is the reporting basis correct? (Dry Weight)	(yes)/no/NA
5.	All quality control criteria met?	(yes)/no
6.	Is the calibration curve correlation coefficient ≥ 0.995?	(yes)/no/NA
7.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	(yes)/no/NA
8.	Are ICVs, CCVs, and CCBs all within acceptance limits?	(yes)/no/NA
9.	Are results for methods blanks all ND?	(yes)/no/NA
10.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	(yes)/no/NA
11.	Are all exceptions explained?	yes/no/(NA)
12.	Have all applicable service requests been reviewed?	(yes)/no/NA
13.	Are all samples labeled correctly?	(yes)/no/NA
14.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample, Form V)	(yes)/no/NA
15.	Are detection limits and units reported correctly?	(yes)/no/NA
16.	Is the unused space on the benchsheet crossed out?	(yes)/no/NA
17.	Was analysis turned in by the data due date? (If not record SR#)	(yes)/no/NA

COMMENTS:

Final Approved by: _____ Date: 07/29/24

DQREPORT

Analytical Results Summary

Instrument Name: K-TOC-04 **Analyst:** AMCKORNEY **Analysis Lot:** 848223 **Method/Testcode:** PSEP TOC/PSEP TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K2407397-007	Carbon, Total Organic (TOC)	N/A		Sediment	0.64 Percent	250.6 mg	0.64 Percent	1	0.005	0.10			7/22/24 10:34:43	N	IV
K2407397-008	Carbon, Total Organic (TOC)	N/A		Sediment	0.79 Percent	250.0 mg	0.79 Percent	1	0.005	0.10			7/22/24 10:34:43	N	IV
K2407397-009	Carbon, Total Organic (TOC)	N/A		Sediment	0.65 Percent	250.0 mg	0.65 Percent	1	0.005	0.10			7/22/24 10:34:43	N	IV
K2407397-018	Carbon, Total Organic (TOC)	N/A		Sediment	0.52 Percent	250.7 mg	0.52 Percent	1	0.005	0.10			7/22/24 10:34:43	N	IV
K2407397-019	Carbon, Total Organic (TOC)	N/A		Sediment	0.39 Percent	250.6 mg	0.39 Percent	1	0.005	0.10			7/22/24 10:34:43	N	IV
K2407397-020	Carbon, Total Organic (TOC)	N/A		Sediment	0.25 Percent	250.7 mg	0.25 Percent	1	0.005	0.10			7/22/24 10:34:43	N	IV
K2407397-021	Carbon, Total Organic (TOC)	N/A		Sediment	1.02 Percent	250.2 mg	1.02 Percent	1	0.005	0.10			7/22/24 10:34:43	N	IV
K2407397-022	Carbon, Total Organic (TOC)	N/A		Sediment	0.73 Percent	250.0 mg	0.73 Percent	1	0.005	0.10			7/22/24 10:34:43	N	IV
K2407397-024	Carbon, Total Organic (TOC)	N/A		Sediment	0.53 Percent	250.5 mg	0.53 Percent	1	0.005	0.10			7/22/24 10:34:43	N	IV
K2407397-025	Carbon, Total Organic (TOC)	N/A		Sediment	1.04 Percent	250.4 mg	1.04 Percent	1	0.005	0.10			7/22/24 10:34:43	N	IV
K2407397-026	Carbon, Total Organic (TOC)	N/A		Sediment	0.62 Percent	250.0 mg	0.62 Percent	1	0.005	0.10			7/22/24 10:34:43	N	IV
K2407397-027	Carbon, Total Organic (TOC)	N/A		Sediment	0.72 Percent	250.0 mg	0.72 Percent	1	0.005	0.10			7/22/24 10:34:43	N	IV
K2407397-028	Carbon, Total Organic (TOC)	N/A		Sediment	0.83 Percent	250.3 mg	0.83 Percent	1	0.005	0.10			7/22/24 10:34:43	N	IV
K2407397-029	Carbon, Total Organic (TOC)	N/A		Sediment	0.67 Percent	250.6 mg	0.67 Percent	1	0.005	0.10			7/22/24 10:34:43	N	IV
KQ2411569-01	Carbon, Total Organic (TOC)	DUP	K2407397-007	Sediment	0.63 Percent	250.0 mg	0.63 Percent	1	0.005	0.10		2	7/22/24 10:34:43	N	IV
KQ2411569-02	Carbon, Total Organic (TOC)	TRP	K2407397-007	Sediment	0.65 Percent	250.2 mg	0.65 Percent	1	0.005	0.10		2	7/22/24 10:34:43	N	IV
KQ2411569-03	Carbon, Total Organic (TOC)	MS	K2407397-007	Sediment	2.98 Percent	125.4 mg	2.98 Percent	1	0.005	0.10	98		7/22/24 10:34:43	N	IV
KQ2411569-04	Carbon, Total Organic (TOC)	DMS	K2407397-007	Sediment	3.00 Percent	125.2 mg	3.00 Percent	1	0.005	0.10	96	2	7/22/24 10:34:43	N	IV
KQ2411569-05	Carbon, Total Organic (TOC)	LCS		Sediment	3.22 Percent	250.0 mg	3.22 Percent	1	0.005	0.10	108		7/22/24 10:34:43	N	IV
KQ2411569-06	Carbon, Total Organic (TOC)	MB		Sediment	0.00 Percent	250.0 mg	0.10 Percent U	1	0.005	0.10			7/22/24 10:34:43	N	IV
KQ2411570-01	Carbon, Total Organic (TOC)	CCV		Sediment	12.15 Percent	25.3 mg	12.2 Percent	1					7/22/24 10:34:43	N	IV
KQ2411570-02	Carbon, Total Organic (TOC)	CCV		Sediment	12.05 Percent	25.7 mg	12.1 Percent	1					7/22/24 10:34:43	N	IV
KQ2411570-03	Carbon, Total Organic (TOC)	CCV		Sediment	11.84 Percent	25.0 mg	11.8 Percent	1					7/22/24 10:34:43	N	IV

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-TOC-04 **Analyst:** AMCKORNEY **Analysis Lot:** 848223 **Method/Testcode:** PSEP TOC/PSEP TOC T

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
KQ2411570-04	Carbon, Total Organic (TOC)	CCB		Sediment	0.00 Percent	250.0 mg	0.10 Percent U	1	0.005	0.10			7/22/24 10:34:43	N	IV
KQ2411570-05	Carbon, Total Organic (TOC)	CCB		Sediment	0.00 Percent	250.0 mg	0.10 Percent U	1	0.005	0.10			7/22/24 10:34:43	N	IV
KQ2411570-06	Carbon, Total Organic (TOC)	CCB		Sediment	0.00 Percent	250.0 mg	0.10 Percent U	1	0.005	0.10			7/22/24 10:34:43	N	IV

DAB 7/26/24

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Run # 848223

AnalysisGroup

AnalysisGroup: % TOC 2024E

Remark: EPA 9060 - Total Organic Carbon (K-TOC-04)

Created on: 7/12/2024 11:11:53 AM
Last modification: 7/22/2024 2:30:46 PM
State: solid

Analysis name	Result	Sample quantity	Time of analysis	Remark
CCV	TC: 12.15% 101%	25.300mg	7/22/2024 10:34:43 AM	
CCB	TC: 0.00000%	250.000mg	7/22/2024 10:45:38 AM	TC: Out of the calibrated ranges
LCS	TC: 3.22% 108%	250.000mg	7/22/2024 10:52:25 AM	
MB	TC: 0.00000%	250.000mg	7/22/2024 11:02:27 AM	TC: Out of the calibrated ranges
K2407397-007	TC: 0.64%	250.600mg	7/22/2024 11:09:09 AM	
K2407397-007D	TC: 0.63%	250.000mg	7/22/2024 11:17:59 AM	
K2407397-007TR	TC: 0.65%	250.200mg	7/22/2024 11:26:56 AM	
K2407397-007MS	TC: 2.98% 98%	125.400mg	7/22/2024 11:36:22 AM	
K2407397-007MSD	TC: 3.00% 98%	125.200mg	7/22/2024 11:45:51 AM	
K2407397-008	TC: 0.79%	250.000mg	7/22/2024 11:55:00 AM	
K2407397-009	TC: 0.65%	250.000mg	7/22/2024 12:04:22 PM	
K2407397-018	TC: 0.52%	250.700mg	7/22/2024 12:14:14 PM	
CCV	TC: 12.05% 100%	25.700mg	7/22/2024 12:23:47 PM	
CCB	TC: 0.00000%	250.000mg	7/22/2024 12:32:38 PM	TC: Out of the calibrated ranges
K2407397-019	TC: 0.39%	250.600mg	7/22/2024 12:40:19 PM	
K2407397-020	TC: 0.25%	250.700mg	7/22/2024 12:50:02 PM	
K2407397-021	TC: 1.02%	250.200mg	7/22/2024 12:58:53 PM	
K2407397-022	TC: 0.73%	250.000mg	7/22/2024 1:08:59 PM	
K2407397-024	TC: 0.53%	250.500mg	7/22/2024 1:18:42 PM	
K2407397-025	TC: 1.04%	250.400mg	7/22/2024 1:27:20 PM	
K2407397-026	TC: 0.62%	250.000mg	7/22/2024 1:36:40 PM	
K2407397-027	TC: 0.72%	250.000mg	7/22/2024 1:45:30 PM	
K2407397-028	TC: 0.83%	250.300mg	7/22/2024 1:55:25 PM	
K2407397-029	TC: 0.67%	250.600mg	7/22/2024 2:05:21 PM	

AR 7/22/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

AnalysisGroup

AnalysisGroup: % TOC 2024E

Analysis name	Result	Sample quantity	Time of analysis	Remark
CCV	TC: 11.84% 99%	25.000mg	7/22/2024 2:14:47 PM	
CCB	TC: 0.00000%	250.000mg	7/22/2024 2:24:02 PM	TC: Out of the calibrated ranges

7/22/24

Service Request: K2407397 **Method:** 9060 TOC Modified

Date Weighed: 7/22/2024 **Analysis:** Total Organic Carbon in Soil

Analyst: AEM **Prep Run / Run #** 441995 / 848223

Sample Position	Sample ID	Weight (mg)
1	Clean	NA
2	CCV	25.3
3	CCB	250.0
4	LCS	250.0
5	MB	250.0
6	K2407397-007	250.6
7	K2407397-007D	250.0
8	K2407397-007T	250.2
9	K2407397-007MS	125.4
10	K2407397-007MSD	125.2
11	K2407397-008	250.0
12	K2407397-009	250.0
13	K2407397-018	250.7
14	CCV	25.7
15	CCB	250.0
16	K2407397-019	250.6
17	K2407397-020	250.7
18	K2407397-021	250.2
19	K2407397-022	250.0
20	K2407397-024	250.5
21	K2407397-025	250.4
22	K2407397-026	250.0
23	K2407397-027	250.0
24	K2407397-028	250.3

Sample Position	Sample ID	Weight (mg)
25	K2407397-029	250.6
26	CCV	25.0
27	CCB	250.0
28		
29		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		

MS CaCO3 (mg)	K2407397-007MS	25.0
MSD CaCO3 (mg)	K2407397-007MSD	25.7

Equipment: K-TOC-04 **HCL ID:** 19-GEN-12-~~4-C~~ 8-K DAB 7/26/24

Calibration Expires: 3/14/25 **Oven ID:** K-OVEN-11

Balance ID: K-BALANCE-38 **Thermometer ID:** 96977

DAB 7/26/24 JT Baker, ID: 19-GEN-13-71-A, Lot # 228036, Exp. 2/20/26, TV = 12.0%C

CCV: CaCO3, ~~EMD, ID: 13-TOC-01-1F, Lot # 3145C508, Exp: 6/26/23, TV = 12.0 % C~~

LCS: NIST SRM, Lot # ~~1944, New York/New Jersey Waterway Sediment, ID: 19-GEN-13-74-E, Exp: 3/31/27, TV = 4.40 % TOC~~ 1941b, Organics in Marine Sediments, ID: GEN-13-97-5, Exp. 9/14/32, TV = 2.99 % Toc

DAB 7/26/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration QC Check

AnalysisGroup

AnalysisGroup: % TOC 2024b

Remark: EPA 9060 - Total Organic Carbon (K-TOC-04)

Created on: 2/23/2024 5:07:30 PM
Last modification: 3/15/2024 2:02:58 PM
State: solid

Analysis name	Result	Sample quantity	Time of analysis	Remark
ICV - 25mg	TC: 11.81%	25.200mg	3/15/2024 12:12:46 PM	
ICV - 100mg	TC: 11.99%	100.300mg	3/15/2024 12:22:18 PM	
ICB	TC: 0.0014%	250.000mg	3/15/2024 12:32:34 PM	TC: Out of the calibrated ranges
CCV	TC: 11.85%	25.100mg	3/15/2024 12:41:07 PM	
CCB	TC: 0.00000%	250.000mg	3/15/2024 12:50:16 PM	TC: Out of the calibrated ranges
LCS	TC: 3.14%	250.300mg	3/15/2024 12:58:11 PM	
DLCS	TC: 3.12%	250.300mg	3/15/2024 1:09:41 PM	
MB	TC: 0.0053%	250.000mg	3/15/2024 1:20:59 PM	TC: Out of the calibrated ranges
LOQ - 0.1% C	TC: 0.099%	253.300mg	3/15/2024 1:29:28 PM	
LOD - 0.01% C	TC: 0.014%	251.100mg	3/15/2024 1:37:55 PM	
CCV	TC: 11.90%	25.200mg	3/15/2024 1:46:25 PM	
CCB	TC: 0.00000%	250.000mg	3/15/2024 1:55:32 PM	TC: Out of the calibrated ranges

ICV: 19-GEN-13-94-A (TV = 12% C)
CCV: 19-GEN-13-71-A (TV = 12% C)
LCS: 19-GEN-13-97-J (TV = 2.99% C / TOC)
LOQ: 19-GEN-12-7-G (TV = 0.1% C)
LOD: 19-GEN-12-7-H (TV = 0.01% C)

MB/LCS/DLCS → Acidified w/ 19-GEN-12-8-K

DAB 3/15/24

Method

Method: TOC by Manual Acidification - 3/14/24 **Version** 3

Created on: 3/14/2024 1:39:46 PM **of:** User
Last modification: 3/14/2024 5:28:48 PM **of:** User

Status: authorized
State: solid
Furnace: Ceramic tube (CS) - horizontal

Determinations:
Determinations: 1 - 1
Calculation algorithm: Conc_solid_EA4000_%
Operands:
Weight 1mg

Process:
FPG EA4000 (Default)
Furnace temperature 1100°C

Detection:

	TC
Detector	C_C201
Maximum integration time	600s
Stability	3
Start	0.12ppm
Threshold	5ppm

CalibrationData:

Calibration parameters TC		**[CR1]3,932AU - 47,966AU**	**[CR2]47,966AU - 3,627,304AU**
Type		Measurement	Measurement
Linked on		3/14/2024	3/14/2024
Name		Cal_TOC by Manual Acidification - 3/14/24_20240314_161842	Cal_TOC by Manual Acidification - 3/14/24_20240314_142421
Regression	**Type**	linear	linear
	K0	-3.118e+0	2.144e+1
	K1	6.357e-3	6.62e-3
Daily factor		1	1
	Type	Default	Default
	Date	3/14/2024	3/14/2024

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_142421 **Version** 1

Calibration of: 3/14/2024 2:34:16 PM **of:** User
Last modification: 3/14/2024 3:51:20 PM **of:** User
Type: Constant concentration

Calibration parameters TC
Linear regression: c*m = 6.62e-3*I+2.144e+1
K0: 2.144e+1
K1: 6.62e-3
Calibration range: 42,076AU - 3,627,304AU

Residual standard deviation: 10,941AU
Method standard deviation: 72.44211
Method variation coefficient: 0.97368%
Quality of replicates: 0.99994
Correlation coefficient: 0.99997

Linearity: linear
Variance homogeneity: non homogeneous
Detection limit: 150.59µg
Identification limit: 301.18µg
Quantification limit: 560.69µg

Constant concentration: 12.00%

Measuring points	Rep.	Operands	I-net	c-act.	c-delta	Blank value
1	1/1	Weight: 2.500mg	48,075AU	13.59%	13.2%	0.000AU
2	1/1	Weight: 5.200mg	90,273AU	11.91%	-0.79%	0.000AU
3	1/1	Weight: 10.200mg	177,764AU	11.75%	-2.10%	0.000AU
4	1/1	Weight: 15.100mg	262,109AU	11.63%	-3.05%	0.000AU
5	1/1	Weight: 24.900mg	441,009AU	11.81%	-1.57%	0.000AU
6	1/1	Weight: 50.100mg	912,060AU	12.10%	0.79%	0.000AU
7	1/1	Weight: 99.900mg	1,812,969AU	12.04%	0.30%	0.000AU
8	1/1	Weight: 149.800mg	2,729,736AU	12.08%	0.65%	0.000AU
9	1/1	Weight: 200.300mg	3,610,903AU	11.95%	-0.45%	0.000AU

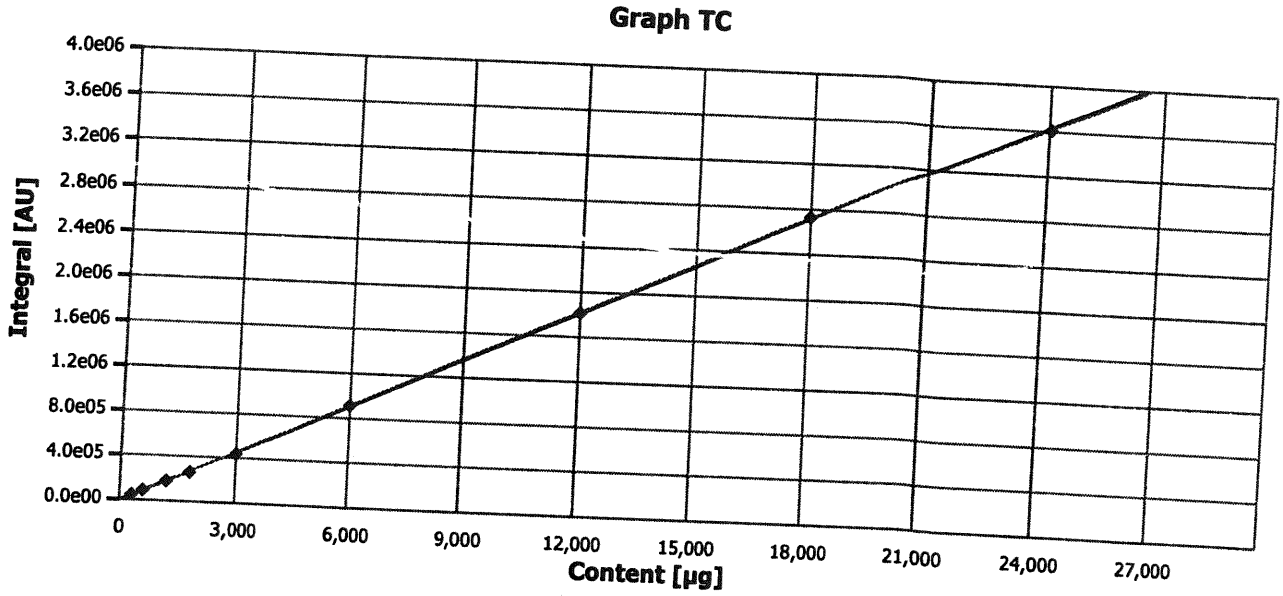
Calcium Carbonate ID: 19-6EN-13-71-A (TV= 12% C)

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_142421 **Version** 1



aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_161842 **Version** 1

Calibration of: 3/14/2024 4:26:04 PM **of:** User
Last modification: 3/14/2024 5:27:01 PM **of:** User
Type: Constant concentration

Calibration parameters TC
Linear regression: c*m = 6.357e-3*I-3.118e+0
K0: -3.118e+0
K1: 6.357e-3
Calibration range: 3,932AU - 47,966AU

Residual standard deviation: 1,350AU
Method standard deviation: 8.63664
Method variation coefficient: 5.99715%
Quality of replicates: 0.99354
Correlation coefficient: 0.99676

Linearity: linear
Variance homogeneity: non homogeneous
Detection limit: 20.04µg
Identification limit: 40.09µg
Quantification limit: 69.61µg

Constant concentration: 0.100%

Measuring points	Rep.	Operands	I-net	c-act.	c-delta	Blank value
1	1/1	Weight: 25.400mg	3,932AU	0.086%	-13.9%	0.000AU
2	1/1	Weight: 50.300mg	8,913AU	0.11%	6.44%	0.000AU
3	1/1	Weight: 75.000mg	11,596AU	0.094%	-5.87%	0.000AU
4	1/1	Weight: 99.800mg	15,331AU	0.095%	-5.47%	0.000AU
5	1/1	Weight: 149.900mg	26,864AU	0.11%	11.8%	0.000AU
6	1/1	Weight: 200.100mg	32,001AU	0.10%	0.11%	0.000AU
7	1/1	Weight: 249.800mg	39,745AU	0.100%	-0.11%	0.000AU
8	1/1	Weight: 301.800mg	46,777AU	0.097%	-2.50%	0.000AU

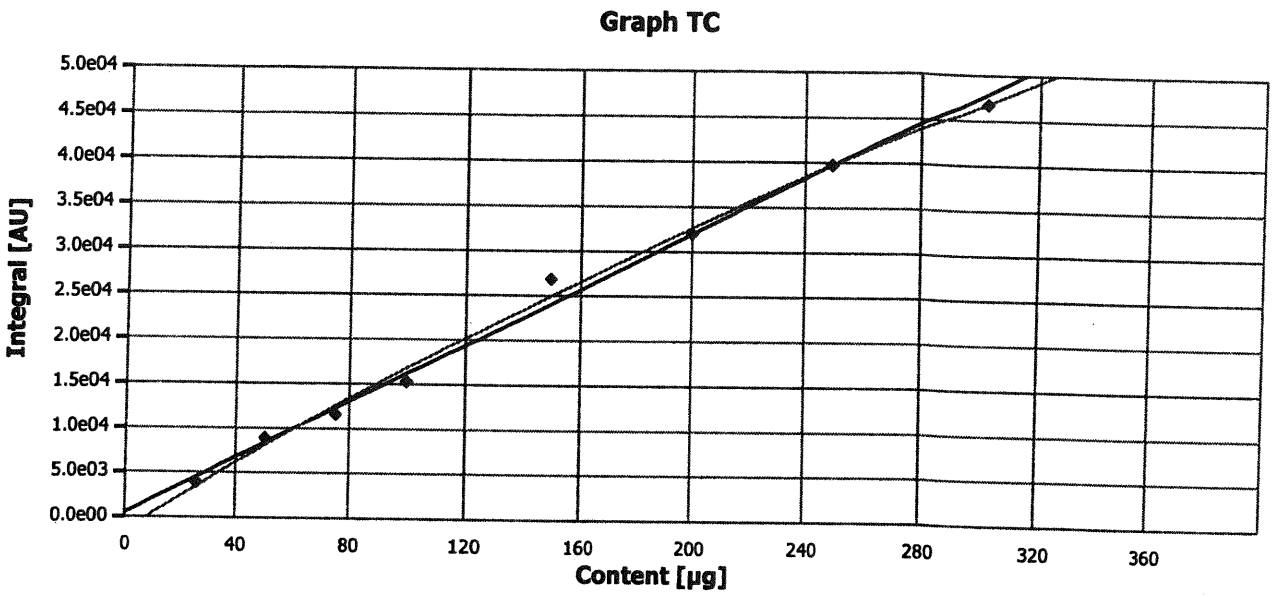
KHP (0.1% C) ID: 19-6EN-12-7-6

DAB 3/15/24

aj-analyzer multi EA 4000; multiWin 5.5; Serial number: N4-138/M
% TOTAL ORGANIC CARBON (K-TOC-04)

Calibration

Calibration: Cal_TOC by Manual Acidification - 3/14/24_20240314_161842 **Version** 1



Metals

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360)577-7222 Fax (360)636-1068
www.alsglobal.com

Preparation Information Benchsheet

Prep Run#: 441812
Team: Metals/MSOLADEY
Number of Copies to make: 1

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 7/24/24 11:41

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411059-05	MB		200.8/Metals T		Solid	1g	100.00mL	10%HNO3, 10%HCl
2	KQ2411059-06	LCS		200.8/Metals T		Solid	1g	100.00mL	10%HNO3, 10%HCl
3	K2407397-001	2024GCMCCS1	.01	200.8/Metals T		Sediment	1.153g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
4	KQ2411059-01	K2407397-001 DUP	.01	200.8/Metals T		Solid	1.107g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
5	KQ2411059-02	K2407397-001 MS	.01	200.8/Metals T		Solid	1.143g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
6	K2407397-002	2024GCMCCS2	.01	200.8/Metals T		Sediment	1.193g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
7	K2407397-003	2024GCMCCS3	.01	200.8/Metals T		Sediment	1.110g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
8	K2407397-004	2024GCMFCS1	.01	200.8/Metals T		Sediment	1.140g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
9	K2407397-005	2024GCMFCS2	.01	200.8/Metals T		Sediment	1.151g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
10	K2407397-006	2024GCMFCS3	.01	200.8/Metals T		Sediment	1.164g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
11	K2407397-007	2024GCMZC371S1	.01	200.8/Metals T		Sediment	1.189g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
12	K2407397-008	2024GCMZC371S2	.01	200.8/Metals T		Sediment	1.320g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
13	K2407397-009	2024GCMZC371S3	.01	200.8/Metals T		Sediment	1.257g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
14	K2407397-010	2024GCMTC808S1	.01	200.8/Metals T		Sediment	1.1250g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
15	KQ2411059-03	K2407397-010 DUP	.01	200.8/Metals T		Solid	1.1160g	100.00mL	10%HNO3, 10%HCl
16	KQ2411059-04	K2407397-010 MS	.01	200.8/Metals T		Solid	1.1190g	100.00mL	10%HNO3, 10%HCl
17	K2407397-011	2024GCMTC808S2	.01	200.8/Metals T		Sediment	1.156g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
18	K2407397-012	2024GCMTC808S3	.01	200.8/Metals T		Sediment	1.294g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
19	K2407397-013	2024GCMTC808S4	.01	200.8/Metals T		Sediment	1.165g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
20	K2407397-014	2024GCMTC808S5	.01	200.8/Metals T		Sediment	1.075g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
21	K2407397-015	2024GCMTC9S1	.01	200.8/Metals T		Sediment	1.397g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
22	K2407397-016	2024GCMTC9S2	.01	200.8/Metals T		Sediment	1.186g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
23	K2407397-017	2024GCMTC9S3	.01	200.8/Metals T		Sediment	1.169g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
24	K2407397-018	2024GCMGC63S1	.01	200.8/Metals T		Sediment	1.139g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
25	K2407397-019	2024GCMGC63S2	.01	200.8/Metals T		Sediment	1.122g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl
26	K2407397-020	2024GCMGC63S3	.01	200.8/Metals T		Sediment	1.114g	100.00mL	ZBIBI k-balance-50 / 10%HNO3, 10%HCl

Spiking Solutions

Name: K-MET SS1 Inventory ID 234271 Logbook Ref: MET4-59-L Expires On: 03/22/2025

KQ2411059-02 2.00mL KQ2411059-04 2.00mL KQ2411059-06 2.00mL

Name: K-MET SS3 Inventory ID 234899 Logbook Ref: MET4-62-A Expires On: 09/30/2024

KQ2411059-02 1.00mL KQ2411059-04 1.00mL KQ2411059-06 1.00mL

Preparation Information Benchsheet

Prep Run#: 441812
Team: Metals/MSOLADEY

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 7/24/24 11:41

Preparation Materials

K-MET 100ml Centrifuge Tube	L223102601 (235884)	K-MET HCL	22K0862007 (233698)	K-MET H2O2	62182240 (234486)
K-MET HNO3	23H1462003 (236022)	K-METPTFE Boiling chips	29036769 (234578)		

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	7/24/24 11:41	Started:	7/24/24 11:41
Finished:	7/24/24 15:05	Finished:	7/24/24 15:05
By:	MSOLADEY	By:	MSOLADEY
Comments		Comments	

Preparation Equipment

K-BlockDigester-02	Digestion	IR Thermometer ID: IR03		K-BlockDigester-02	Digestion	Temperature	94.3 deg C
K-BlockDigester-02	Digestion	Temperature Check Location	19	K-Balance-21B	Weigh	Date Checked	7/24/24
K-DGV 100-1000B	Digestion			K-41585306	Digestion		

Comments: R1:15 min, R2:120 min, R3:15 min

Reviewed By: AB Date: 7/25/24

METALS SPIKING SOLUTIONS CONCENTRATIONS FORM

Solution Name	Element	mLs of 1000ppm Solution	Final Volume	Solution Conc. mg/L	Enter mls Added
K-MET SS1 *** Add after HNO3 and before ALS-89 when making the solution	HNO3	50.0	1000ml	-	
	Al	100*	1000ml	200	
	Ag	100*	1000ml	5	
	Ba	100*	1000ml	100	
	Be	100*	1000ml	5	
	Cd	100*	1000ml	5	
	Co	100*	1000ml	50	
	Cr	100*	1000ml	20	
	Cu	100*	1000ml	25	
	Fe	100*	1000ml	100	
	Pb	100*	1000ml	50	
	Mn	100*	1000ml	50	
	Ni	100*	1000ml	50	
	Sb***	50.0	1000ml	50	
	V	100*	1000ml	50	
	Zn	100*	1000ml	50	
K-MET SS3	HNO3	25.0	500ml	-	
	As	50.0	500ml	100	
	Se	50.0	500ml	100	
	Tl	10.0	500ml	20	
	Hg	6.00	500ml	12	
K-MET SS4	HNO3	25.0	500ml	-	
	B	25.0	500ml	50	
	Mo	50.0	500ml	100	
	U	10.0	500ml	20	
K-MET SS5	HNO3	25.0	500ml	-	
	K**	50.0	500ml	1000	
	Na**	50.0	500ml	1000	
	Mg**	50.0	500ml	1000	
	Ca**	50.0	500ml	1000	

K-MET QCP-CICV-1	Ca, Mg, Na, K	no dilution	-	2500	
	Al, Ba	no dilution	-	1000	
	Fe	no dilution	-	500	
	Co, Mn, Ni, V, Zn	no dilution	-	250	
	Cu, Ag	no dilution	-	125	
	Cr	no dilution	-	100	
	Be	no dilution	-	25	
K-MET QCP-CICV-3	As, Pb, Se, Tl	no dilution	-	500	
	Cd	no dilution	-	250	

* Denotes volume of mixed stock standard.
** Denotes 10,000 ppm individual stock standards.

Standard	mls of standard	ppm	Logbook #	Exp. Date

Preparation Information Benchsheet

Prep Run#: 441812
Team: Metals/ZBIBI
Number of Copies to make: 1

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Draft
Prep Date/Time: 7/18/24 14:39 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2411059-05**	MB			200.8 / Metals T	Solid						
2	**KQ2411059-06**	LCS			200.8 / Metals T	Solid						
3	**K2407397-001**	2024GCMCCS1	.01		200.8 / Metals T	Sediment						
4	**KQ2411059-01**	K2407397-001 DUP	.01		200.8 / Metals T	Solid						
5	**KQ2411059-02**	K2407397-001 MS	.01		200.8 / Metals T	Solid						
6	**K2407397-002**	2024GCMCCS2	.01		200.8 / Metals T	Sediment						
7	**K2407397-003**	2024GCMCCS3	.01		200.8 / Metals T	Sediment						
8	**K2407397-004**	2024GCMFCS1	.01		200.8 / Metals T	Sediment						
9	**K2407397-005**	2024GCMFCS2	.01		200.8 / Metals T	Sediment						
10	**K2407397-006**	2024GCMFCS3	.01		200.8 / Metals T	Sediment						
11	**K2407397-007**	2024GCMZC371S1	.01		200.8 / Metals T	Sediment						
12	**K2407397-008**	2024GCMZC371S2	.01		200.8 / Metals T	Sediment						
13	**K2407397-009**	2024GCMZC371S3	.01		200.8 / Metals T	Sediment						
14	**K2407397-010**	2024GCMTC808S1	.01		200.8 / Metals T	Sediment	1.125					
15	**KQ2411059-03**	K2407397-010 DUP	.01		200.8 / Metals T	Solid	1.116					
16	**KQ2411059-04**	K2407397-010 MS	.01		200.8 / Metals T	Solid	1.119					
17	**K2407397-011**	2024GCMTC808S2	.01		200.8 / Metals T	Sediment						
18	**K2407397-012**	2024GCMTC808S3	.01		200.8 / Metals T	Sediment						
19	**K2407397-013**	2024GCMTC808S4	.01		200.8 / Metals T	Sediment						
20	**K2407397-014**	2024GCMTC808S5	.01		200.8 / Metals T	Sediment						
21	**K2407397-015**	2024GCMTC9S1	.01		200.8 / Metals T	Sediment						
22	**K2407397-016**	2024GCMTC9S2	.01		200.8 / Metals T	Sediment						
23	**K2407397-017**	2024GCMTC9S3	.01		200.8 / Metals T	Sediment						
24	**K2407397-018**	2024GCMGC63S1	.01		200.8 / Metals T	Sediment						
25	**K2407397-019**	2024GCMGC63S2	.01		200.8 / Metals T	Sediment						
26	**K2407397-020**	2024GCMGC63S3	.01		200.8 / Metals T	Sediment						

K-Balance-2lb 7/24/24 mtb

R1 - 11:41 - 11:56
R2 - 12:05 - 12:45
H_2O_2 - 1:31 - 2:46
R3 - 2:50 - 3:05

Comments: BD - 2 TL: 19 T: 94.3

Surrogate ID:

Spike ID: SS1, 3

Witnessed By:

Analyst:

Assisted By:

Pre-Prep Information Benchsheet

Prep Run #: 441812 **Container Lot No:** 2206050 **Prep Due Date:** Jul-26-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407397-001	.01	Metals T : 200.8/	1.153g		ZBIBI k-balance-50
2	K2407397-001 DUP KQ2411059-01	.01	Metals T : 200.8/	1.107g		ZBIBI k-balance-50
3	K2407397-001 MS KQ2411059-02	.01	Metals T : 200.8/	1.143g		ZBIBI k-balance-50
4	K2407397-002	.01	Metals T : 200.8/	1.193g		ZBIBI k-balance-50
5	K2407397-003	.01	Metals T : 200.8/	1.110g		ZBIBI k-balance-50
6	K2407397-004	.01	Metals T : 200.8/	1.140g		ZBIBI k-balance-50
7	K2407397-005	.01	Metals T : 200.8/	1.151g		ZBIBI k-balance-50
8	K2407397-006	.01	Metals T : 200.8/	1.164g		ZBIBI k-balance-50
9	K2407397-007	.01	Metals T : 200.8/	1.189g		ZBIBI k-balance-50
10	K2407397-008	.01	Metals T : 200.8/	1.320g		ZBIBI k-balance-50
11	K2407397-009	.01	Metals T : 200.8/	1.257g		ZBIBI k-balance-50
12	K2407397-010	.01	Metals T : 200.8/	1.172g		ZBIBI k-balance-50
13	K2407397-011	.01	Metals T : 200.8/	1.156g		ZBIBI k-balance-50
14	K2407397-012	.01	Metals T : 200.8/	1.294g		ZBIBI k-balance-50
15	K2407397-013	.01	Metals T : 200.8/	1.165g		ZBIBI k-balance-50
16	K2407397-014	.01	Metals T : 200.8/	1.075g		ZBIBI k-balance-50
17	K2407397-015	.01	Metals T : 200.8/	1.397g		ZBIBI k-balance-50
18	K2407397-016	.01	Metals T : 200.8/	1.186g		ZBIBI k-balance-50
19	K2407397-017	.01	Metals T : 200.8/	1.169g		ZBIBI k-balance-50
20	K2407397-018	.01	Metals T : 200.8/	1.139g		ZBIBI k-balance-50
21	K2407397-019	.01	Metals T : 200.8/	1.122g		ZBIBI k-balance-50
22	K2407397-020	.01	Metals T : 200.8/	1.114g		ZBIBI k-balance-50

7/18/24 14-44

Relinquished By:	22B	Date/Time:	Received By:	Date/Time: 7/24/24 9:44

Preparation Information Benchsheet

Prep Run#: 441808
Team: Metals/MSOLADEY
Number of Copies to make: 1

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 7/24/24 11:43

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411055-03	MB		200.8/Metals T		Solid	1g	100.00mL	10%HNO3, 10%HCl
2	KQ2411055-04	LCS		200.8/Metals T		Solid	1g	100.00mL	10%HNO3, 10%HCl
3	K2407397-021	2024GCMTC1847S1	.02	200.8/Metals T		Sediment	1.387g	100.00mL	PPRICE K-BALANCE-49 / 10%HNO3, 10%HCl
4	K2407397-022	2024GCMTC1847S2	.02	200.8/Metals T		Sediment	1.097g	100.00mL	PPRICE K-BALANCE-49 / 10%HNO3, 10%HCl
5	K2407397-023	2024GCMTC1847S3	.02	200.8/Metals T		Sediment	1.105g	100.00mL	PPRICE K-BALANCE-49 / 10%HNO3, 10%HCl
6	K2407397-024	2024GCMGCDS1	.02	200.8/Metals T		Sediment	1.165g	100.00mL	PPRICE K-BALANCE-49 / 10%HNO3, 10%HCl
7	KQ2411055-01	K2407397-024 DUP	.02	200.8/Metals T		Solid	1.227g	100.00mL	PPRICE K-BALANCE-49 / 10%HNO3, 10%HCl
8	KQ2411055-02	K2407397-024 MS	.02	200.8/Metals T		Solid	1.243g	100.00mL	PPRICE K-BALANCE-49 / 10%HNO3, 10%HCl
9	K2407397-025	2024GCMGCDS2	.02	200.8/Metals T		Sediment	1.220g	100.00mL	PPRICE K-BALANCE-49 / 10%HNO3, 10%HCl
10	K2407397-026	2024GCMGCDS3	.02	200.8/Metals T		Sediment	1.172g	100.00mL	PPRICE K-BALANCE-49 / 10%HNO3, 10%HCl
11	K2407397-027	2024GCMZC10S1	.02	200.8/Metals T		Sediment	1.192g	100.00mL	PPRICE K-BALANCE-49 / 10%HNO3, 10%HCl
12	K2407397-028	2024GCMZC10S2	.02	200.8/Metals T		Sediment	1.101g	100.00mL	PPRICE K-BALANCE-49 / 10%HNO3, 10%HCl
13	K2407397-029	2024GCMZC10S3	.02	200.8/Metals T		Sediment	1.077g	100.00mL	PPRICE K-BALANCE-49 / 10%HNO3, 10%HCl

Spiking Solutions

Name: K-MET SS1 Inventory ID 234271 Logbook Ref: MET4-59-L Expires On: 03/22/2025

KQ2411055-02 2.00mL KQ2411055-04 2.00mL

Name: K-MET SS3 Inventory ID 234899 Logbook Ref: MET4-62-A Expires On: 09/30/2024

KQ2411055-02 1.00mL KQ2411055-04 1.00mL

Preparation Materials

K-MET 100ml Centrifuge Tube	L223102601 (235884)	K-MET HCL	22K0862007 (233698)	K-MET H2O2	62182240 (234486)
K-MET HNO3	23H1462003 (236022)	K-METPTFE Boiling chips	29036769 (234578)		

Preparation Steps

Step: Weigh
Started: 7/24/24 11:43
Finished: 7/24/24 15:09
By: MSOLADEY
Comments

Step: Digestion
Started: 7/24/24 11:43
Finished: 7/24/24 15:09
By: MSOLADEY
Comments

Preparation Information Benchsheet

Prep Run#: 441808
Team: Metals/MSOLADEY

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Prepped
Prep Date/Time: 7/24/24 11:43

Preparation Equipment

K-BlockDigester-04	Digestion	IR Thermometer ID: IR03		K-BlockDigester-04	Digestion	Temperature	95.5 deg C
K-BlockDigester-04	Digestion	Temperature Check Location	19	K-DGV 100-1000B	Digestion		
K-41585306	Digestion						

Comments: R1:15 min, R2:120 min, R3:15 min

Reviewed By: AB Date: 7/25/24

METALS SPIKING SOLUTIONS CONCENTRATIONS FORM

Solution Name	Element	mLs of 1000ppm Solution	Final Volume	Solution Conc. mg/L	Enter mls Added
K-MET SS1 *** Add after HNO3 and before ALS-89 when making the solution	HNO3	50.0	1000ml	-	
	Al	100*	1000ml	200	
	Ag	100*	1000ml	5	
	Ba	100*	1000ml	100	
	Be	100*	1000ml	5	
	Cd	100*	1000ml	5	
	Co	100*	1000ml	50	
	Cr	100*	1000ml	20	
	Cu	100*	1000ml	25	
	Fe	100*	1000ml	100	
	Pb	100*	1000ml	50	
	Mn	100*	1000ml	50	
	Ni	100*	1000ml	50	
	Sb***	50.0	1000ml	50	
	V	100*	1000ml	50	
	Zn	100*	1000ml	50	
K-MET SS3	HNO3	25.0	500ml	-	
	As	50.0	500ml	100	
	Se	50.0	500ml	100	
	Tl	10.0	500ml	20	
	Hg	6.00	500ml	12	
K-MET SS4	HNO3	25.0	500ml	-	
	B	25.0	500ml	50	
	Mo	50.0	500ml	100	
	U	10.0	500ml	20	
K-MET SS5	HNO3	25.0	500ml	-	
	K**	50.0	500ml	1000	
	Na**	50.0	500ml	1000	
	Mg**	50.0	500ml	1000	
	Ca**	50.0	500ml	1000	

K-MET QCP-CICV-1	Ca, Mg, Na, K	no dilution	-	2500	
	Al, Ba	no dilution	-	1000	
	Fe	no dilution	-	500	
	Co, Mn, Ni, V, Zn	no dilution	-	250	
	Cu, Ag	no dilution	-	125	
	Cr	no dilution	-	100	
	Be	no dilution	-	25	
K-MET QCP-CICV-3	As, Pb, Se, Tl	no dilution	-	500	
	Cd	no dilution	-	250	

* Denotes volume of mixed stock standard.
** Denotes 10,000 ppm individual stock standards.

Standard	mls of standard	ppm	Logbook #	Exp. Date

Preparation Information Benchsheet

Prep Run#: 441808
Team: Metals/PPRICE
Number of Copies to make: 1

Prep WorkFlow: MetDigSICP
Prep Method: EPA 3050B

Status: Draft
Prep Date/Time: 7/18/24 13:52 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2411055-03**	MB			200.8 / Metals T	Solid						
2	**KQ2411055-04**	LCS			200.8 / Metals T	Solid						
3	**K2407397-021**	2024GCMTC1847S1	.02		200.8 / Metals T	Sediment						
4	**K2407397-022**	2024GCMTC1847S2	.02		200.8 / Metals T	Sediment						
5	**K2407397-023**	2024GCMTC1847S3	.02		200.8 / Metals T	Sediment						
6	**K2407397-024**	2024GCMGCDS1	.02		200.8 / Metals T	Sediment						
7	**KQ2411055-01**	K2407397-024 DUP	.02		200.8 / Metals T	Solid						
8	**KQ2411055-02**	K2407397-024 MS	.02		200.8 / Metals T	Solid						
9	**K2407397-025**	2024GCMGCDS2	.02		200.8 / Metals T	Sediment						
10	**K2407397-026**	2024GCMGCDS3	.02		200.8 / Metals T	Sediment						
11	**K2407397-027**	2024GCMZC10S1	.02		200.8 / Metals T	Sediment						
12	**K2407397-028**	2024GCMZC10S2	.02		200.8 / Metals T	Sediment						
13	**K2407397-029**	2024GCMZC10S3	.02		200.8 / Metals T	Sediment						

A1 - 11:47 - 11:58
R2 - 12:03 - 12:48
H_2O_2 - 1:33 - 2:48
R3 - 2:54 - 3:09

Comments: BD - 4 TL: 19 T: 95.5

Surrogate ID: _____ Spike ID: SS1, 3

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 441808 **Container Lot No:** 2111109 **Prep Due Date:** Jul-26-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407397-021	.02	Metals T : 200.8/	1.387g		PPRICE K-BALANCE-49
2	K2407397-022	.02	Metals T : 200.8/	1.097g		PPRICE K-BALANCE-49
3	K2407397-023	.02	Metals T : 200.8/	1.105g		PPRICE K-BALANCE-49
4	K2407397-024	.02	Metals T : 200.8/	1.165g		PPRICE K-BALANCE-49
5	K2407397-024 DUP KQ2411055-01	.02	Metals T : 200.8/	1.227g		PPRICE K-BALANCE-49
6	K2407397-024 MS KQ2411055-02	.02	Metals T : 200.8/	1.243g		PPRICE K-BALANCE-49
7	K2407397-025	.02	Metals T : 200.8/	1.220g		PPRICE K-BALANCE-49
8	K2407397-026	.02	Metals T : 200.8/	1.172g		PPRICE K-BALANCE-49
9	K2407397-027	.02	Metals T : 200.8/	1.192g		PPRICE K-BALANCE-49
10	K2407397-028	.02	Metals T : 200.8/	1.101g		PPRICE K-BALANCE-49
11	K2407397-029	.02	Metals T : 200.8/	1.077g		PPRICE K-BALANCE-49

Relinquished By: PDP	Date/Time: 7/18/24 1355	Received By: MR	Date/Time: 7/24/24 9:44

Service Request # K2407397
Instrument ID # K-ICP-MS-05
Calibration 080624AICPMS05
ALS LIMS Run # 849736
Cal Std: MS34-14-B ICSA Std: MS34-12-C
ICV Std: MS34-5-C ICSAB Std: MS34-12-D
LLICV Std: MS34-12-B
I.S. Solution: MS33-40-A
EPA Tune Solution: MS33-39-E
Pipette IDs: 38480473, 42390072, 44183886

ICP-MS Data Review Form

	Yes	No	NA
1. Appropriate standardization completed	X		
2. ICV in control (+/- 10%)	X		
3. CCV's in control (+/- 10%)	X		
4. ICB/CCB's below MRL	X		
5. LLICV standard analyzed and in control	X		
6. ICS standards within 20% of true value			X
7. All analytes within instrument linear range	X		
8. Adequate rinse out time allowed	X		
9. Internal standards in control	X		
10. Interferences checked	X		
11. Was the run terminated? If so, why.		X	

See Benchsheet exception report for sample batch QC information.
Comments:

Prep Batch: 441812, 441808

Primary Review by 3C Date 8/6/24

Secondary Review by RRM Date 8/6/24

Data Review Form

Instrument ID#: **K-ICP-MS-05**
DataFile Name: **R:\ICP\WIP\DATA\K-ICP-MS-05 (Agilent)\080624A.csv**
RUNNO: **849736**

K2407397

K2407397-001DUP - Metals T -
DUP RPD
200.8/Metals T - 52 Cr [He] - RPD: 46 Limit: 30
200.8/Metals T - 75 As [He] - RPD: 31 Limit: 30

K2407397-010DUP - Metals T -
DUP RPD
200.8/Metals T - 75 As [He] - RPD: 31 Limit: 30

K2407397-024DUP - Metals T -
DUP RPD
200.8/Metals T - 52 Cr [He] - RPD: 46 Limit: 30

K2407397-024MS - Metals T -
MS Recovery
200.8/Metals T - 52 Cr [He] - Recovery: 159 Limits: 70 - 130
200.8/Metals T - 66 Zn [He] - Recovery: 68 Limits: 70 - 130

Primary Approver: 8/16/24
Secondary Approver: 8/16/24

	Sample								
		Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	Comment	Vial Number
1			001CALB.	2024-08-06 07:50:35	CalBlk		Prime		2
2			002CALB.	2024-08-06 07:53:09	CalBlk		Rinse		3
3			003CALB.	2024-08-06 07:55:45	CalBlk	1	Blank		3
4			004CALS.	2024-08-06 07:58:20	CalStd	2	25ppb		2
5			005_ICV.d	2024-08-06 08:02:30	ICV		ICV		1103
6			006_CCV.	2024-08-06 08:05:04	CCV		CCV		2
7			007_ICB.d	2024-08-06 08:07:39	ICB		ICB		3
8			008_CCB.	2024-08-06 08:10:14	CCB		CCB		3
9			009LICV.d	2024-08-06 08:12:49	LLICV		LLICVS		1104
10			010SMPL.	2024-08-06 08:19:21	Sample		MoSTD		1107
11			011_PB.d	2024-08-06 08:23:56	PB		KQ2411059-05	5X	2101
12			012_LCS.d	2024-08-06 08:26:31	LCS		KQ2411059-06	20X	2102
13			013_ARF.d	2024-08-06 08:29:04	AllRef		K2407397-001	5X	2103
14			014_Dup.d	2024-08-06 08:31:38	Dup		KQ2411059-01	5X	2104
15			015_Spk.d	2024-08-06 08:34:12	Spike		KQ2411059-02	5X	2105
16			016SMPL.	2024-08-06 08:36:43	Sample		K2407397-002	5X	2106
17			017SMPL.	2024-08-06 08:39:17	Sample		K2407397-003	5X	2107
18			018SMPL.	2024-08-06 08:41:50	Sample		K2407397-004	5X	2108
19			019SMPL.	2024-08-06 08:44:25	Sample		K2407397-005	5X	2109
20			020SMPL.	2024-08-06 08:46:59	Sample		K2407397-006	5X	2110
21			021_CCV.	2024-08-06 08:49:33	CCV		CCV		2
22			022_CCB.	2024-08-06 08:52:07	CCB		CCB		3
23			023SMPL.	2024-08-06 08:54:43	Sample		K2407397-007	5X	2111
24			024SMPL.	2024-08-06 08:57:17	Sample		K2407397-008	5X	2112
25			025SMPL.	2024-08-06 08:59:50	Sample		K2407397-009	5X	2201
26			026_ARF.d	2024-08-06 09:02:24	AllRef		K2407397-010	5X	2202
27			027_Dup.d	2024-08-06 09:04:57	Dup		KQ2411059-03	5X	2203
28			028_Spk.d	2024-08-06 09:07:31	Spike		KQ2411059-04	5X	2204
29			029SMPL.	2024-08-06 09:10:02	Sample		K2407397-011	5X	2205
30			030SMPL.	2024-08-06 09:12:36	Sample		K2407397-012	5X	2206
31			031SMPL.	2024-08-06 09:15:10	Sample		K2407397-013	5X	2207
32			032SMPL.	2024-08-06 09:17:44	Sample		K2407397-014	5X	2208
33			033_CCV.	2024-08-06 09:20:18	CCV		CCV		2
34			034_CCB.	2024-08-06 09:22:53	CCB		CCB		3
35			035SMPL.	2024-08-06 09:25:28	Sample		K2407397-015	5X	2209
36			036SMPL.	2024-08-06 09:28:02	Sample		K2407397-016	5X	2210
37			037SMPL.	2024-08-06 09:30:36	Sample		K2407397-017	5X	2211
38			038SMPL.	2024-08-06 09:33:11	Sample		K2407397-018	5X	2212
39			039SMPL.	2024-08-06 09:35:45	Sample		K2407397-019	5X	2301

Sample

		Rjct	Data File	Acq. Date-Time	Type	Level	Sample Name	Comment	Vial Number
40			040SMPL.	2024-08-06 09:38:19	Sample		K2407397-020	5X	2302
41			041_CCV.	2024-08-06 09:45:50	CCV		CCV		2
42			042_CCB.	2024-08-06 09:48:25	CCB		CCB		3
43			043_PB.d	2024-08-06 09:51:00	PB		KQ2411055-03	5X	2401
44			044_LCS.d	2024-08-06 09:53:35	LCS		KQ2411055-04	20X	2402
45			045_ARF.d	2024-08-06 09:56:09	AllRef		K2407397-024	5X	2403
46			046_Dup.d	2024-08-06 09:58:43	Dup		KQ2411055-01	5X	2404
47			047_Spk.d	2024-08-06 10:01:17	Spike		KQ2411055-02	5X	2405
48			048SMPL.	2024-08-06 10:03:48	Sample		K2407397-021	5X	2406
49			049SMPL.	2024-08-06 10:06:22	Sample		K2407397-022	5X	2407
50			050SMPL.	2024-08-06 10:08:56	Sample		K2407397-023	5X	2408
51			051SMPL.	2024-08-06 10:11:31	Sample		K2407397-025	5X	2409
52			052SMPL.	2024-08-06 10:14:05	Sample		K2407397-026	5X	2410
53			053_CCV.	2024-08-06 10:16:39	CCV		CCV		2
54			054_CCB.	2024-08-06 10:19:13	CCB		CCB		3
55			055SMPL.	2024-08-06 10:21:49	Sample		K2407397-027	5X	2411
56			056SMPL.	2024-08-06 10:24:24	Sample		K2407397-028	5X	2412
57			057SMPL.	2024-08-06 10:26:58	Sample		K2407397-029	5X	2501
58			058_CCV.	2024-08-06 10:33:33	CCV		CCV		2
59			059_CCB.	2024-08-06 10:36:07	CCB		CCB		3

Analyte

	Name	Mass	ISTD	Tune Mode	Conc.	Units	Replicate
1	Al	27	6	No Gas	0.4030	ug/l	3
2	Cr	52	72	He	0.0070	ug/l	3
3	Cr	53	72	He	-0.2395	ug/l	3
4	Ni	60	72	He	0.0057	ug/l	3
5	Ni	62	72	He	0.0098	ug/l	3
6	Cu	63	72	He	0.0011	ug/l	3
7	Cu	65	72	He	0.0056	ug/l	3
8	Zn	66	72	He	0.0929	ug/l	3
9	As	75	72	He	0.0099	ug/l	3
10	Se	77	72	H2	-0.7353	ug/l	3
11	Se	78	72	H2	0.0027	ug/l	3
12	Mo	95	115	He	0.0032	ug/l	3
13	Mo	98	115	He	0.0023	ug/l	3
14	Ag	107	115	He	0.0005	ug/l	3
15	Ag	109	115	He	0.0021	ug/l	3
16	Cd	111	115	He	0.0038	ug/l	3
17	Cd	114	115	He	0.0036	ug/l	3

Analyte							
Name		Mass	ISTD	Tune Mode	Conc.	Units	Replicate
18	[Pb]	206	175	He	0.0046	ug/l	3
19	[Pb]	207	175	He	0.0071	ug/l	3
20	Pb	208	175	He	0.0055	ug/l	3
21	Li	6		No Gas			3
22	Sc	45		No Gas			3
23	Sc	45		He			3
24	Ge	72		H2			3
25	Ge	72		He			3
26	In	115		He			3
27	Lu	175		He			3
28	Th	232		He			3

US EPA Tune Check Report

Operator Name	ALKLS NoUser
Acq/Data Batch	D:\Agilent\ICPMH\1\DATA\080624.b
Acq. Date-Time	2024-08-06 06:45:57
Report Comment	ALS Tune
Instrument Name	G3281A JP13482848

[No Gas]

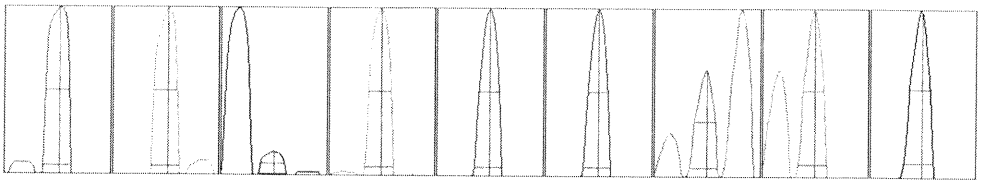
Sensitivity

Mass	CPS	RSD%	RSD% (Required)	RSD% (Flag)
7	89534.66	0.992	5.000	
9	24494.76	1.160	5.000	
24	171785.48	0.798	5.000	
59	396824.02	1.054	5.000	
115	634097.32	0.816	5.000	
140	686846.78	0.500	5.000	
208	344571.26	1.090	5.000	
209	539878.34	0.979	5.000	
238	682502.75	1.194	5.000	

Mass	Rep#1 Count	Rep#2 Count	Rep#3 Count	Rep#4 Count	Rep#5 Count
7	8811	9017	8954	9038	8948
9	2411	2490	2459	2446	2441
24	16944	17262	17238	17171	17277
59	38944	39949	39912	39780	39827
115	62815	63572	64180	63382	63101
140	68077	68889	68855	68754	68848
208	33838	34538	34522	34524	34864
209	53131	53930	54542	54233	54103
238	66888	68335	68615	69056	68356

Integration Time [sec] 0.1

Resolution/Axis



Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Flag)	W-5% (Required)
7	13873.17	7.10	6.90 - 7.10		0.785		0.900
9	3992.59	9.10	8.90 - 9.10		0.788		0.900
24	26908.29	24.00	23.90 - 24.10		0.789		0.900

US EPA Tune Check Report

Mass	Peak Height	Axis	Axis (Required)	Axis (Flag)	W-5%	W-5% (Flag)	W-5% (Required)
59	65375.09	59.00	58.90 - 59.10		0.819		0.900
115	117289.57	115.00	114.90 - 115.10		0.777		0.900
140	130655.95	140.00	139.90 - 140.10		0.773		0.900
208	63529.42	208.00	207.90 - 208.10		0.785		0.900
209	100155.88	209.00	208.90 - 209.10		0.816		0.900
238	121213.05	238.00	237.90 - 238.10		0.846		0.900

Integration Time [sec]	0.1
Acquisition Time [sec]	268.4
Y Axis	Linear

Tune Parameters

Plasma Parameters

Plasma Mode	---	Nebulizer Gas	0.57 L/min	Dilution Gas	0.50 L/min
RF Power	1600 W	Option Gas	---	Auxiliary Gas	0.90 L/min
RF Matching	1.76 V	Nebulizer Pump	0.10 rps	Plasma Gas	15.0 L/min
Sample Depth	8.0 mm	S/C Temp	2 °C		

Lens Parameters

Extract 1	0.0 V	Omega Lens	8.3 V	Deflect	13.6 V
Extract 2	-175.0 V	Cell Entrance	-30 V	Plate Bias	-40 V
Omega Bias	-85 V	Cell Exit	-50 V		

Cell Parameters

Use Gas	Yes	3rd Gas Flow	---	Energy Discrimination	5.0 V
He Flow	0.0 mL/min	OctP Bias	-8.0 V		
H2 Flow	0.0 mL/min	OctP RF	200 V		

QP Parameters

Mass Gain	126	Axis Gain	1.0005	QP Bias	-3.0 V
Mass Offset	125	Axis Offset	0.06		

Hardware Settings

Torch

Torch H	0.0 mm	Torch V	0.7 mm		

EM

Discriminator	4.5 mV	Analog HV	1849 V	Pulse HV	1612 V

Calibration Blank Report

Sample Name	Blank
File Name	003CALB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 07:55:45
Sample Type	CalBlk
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	CPS	CPS RSD
Al	27	6	No Gas	7849.58	2.2
Se	77	72	H2	1495.73	3.7
Se	78	72	H2	18.00	14.7
Cr	52	72	He	531.12	6.3
Cr	53	72	He	590.02	8.3
Ni	60	72	He	91.11	44.0
Ni	62	72	He	13.33	25.0
Cu	63	72	He	215.56	14.4
Cu	65	72	He	90.00	35.3
Zn	66	72	He	108.89	20.4
As	75	72	He	21.67	14.1
Mo	95	115	He	12.22	56.8
Mo	98	115	He	18.89	44.4
Ag	107	115	He	31.11	43.3
Ag	109	115	He	25.56	49.4
Cd	111	115	He	8.83	22.9
Cd	114	115	He	38.83	7.9
[Pb]	206	175	He	204.45	4.1
[Pb]	207	175	He	135.56	16.4
Pb	208	175	He	665.57	4.1

3L
8/6/24

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD
Li	6	No Gas	460914.70	2.2
Sc	45	No Gas	9182573.52	3.2
Ge	72	H2	1980316.94	2.8
Sc	45	He	200416.97	1.8
Ge	72	He	208867.09	0.9
In	115	He	2315438.09	1.2
Lu	175	He	6180206.14	2.3
Th	232	He	10768084.01	0.9

Calibration Standard Report

Sample Name	25ppb
File Name	004CALS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 07:58:20
Sample Type	CalStd
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	CPS	CPS RSD
Al	27	6	No Gas	6263706.56	3.8
Se	77	72	H2	9699.10	3.6
Se	78	72	H2	26885.47	2.4
Cr	52	72	He	155278.92	1.3
Cr	53	72	He	19642.29	1.5
Ni	60	72	He	84982.52	0.7
Ni	62	72	He	13546.49	1.3
Cu	63	72	He	253322.56	0.4
Cu	65	72	He	128533.44	0.5
Zn	66	72	He	34651.58	0.5
As	75	72	He	21760.84	1.2
Mo	95	115	He	63027.89	0.1
Mo	98	115	He	109344.40	1.0
Ag	107	115	He	244965.62	0.5
Ag	109	115	He	241696.97	0.3
Cd	111	115	He	58900.05	0.7
Cd	114	115	He	154298.63	0.1
[Pb]	206	175	He	395074.05	0.4
[Pb]	207	175	He	336195.60	1.1
Pb	208	175	He	1563873.35	0.6

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	456725.36	1.0	460914.7	99.09	
Sc	45	No Gas	9305866.57	4.4	9182573.52	101.34	
Ge	72	H2	1794640.42	1.7	1980316.94	90.62	
Sc	45	He	196117.58	0.3	200416.97	97.85	
Ge	72	He	209281.52	0.8	208867.09	100.2	
In	115	He	2271290.31	1.9	2315438.09	98.09	
Lu	175	He	6115226.56	1.1	6180206.14	98.95	
Th	232	He	10895119.01	1.6	10768084.01	101.18	

Initial Calibration Verification (ICV) Report

Sample Name	ICV
File Name	005_ICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 08:02:30
Sample Type	ICV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	6	No Gas	94.9525	ug/l	5.9	2459785.04	94.95	
Se	77	72	H2	22.4688	ug/l	1.4	8974.70	89.88	
Se	78	72	H2	23.1379	ug/l	1.1	25221.62	92.55	
Cr	52	72	He	9.8132	ug/l	0.8	61618.75	98.13	
Cr	53	72	He	9.4392	ug/l	3.4	7827.37	94.39	
Ni	60	72	He	24.9535	ug/l	1.0	85293.98	99.81	
Ni	62	72	He	24.9743	ug/l	1.9	13607.68	99.9	
Cu	63	72	He	12.3157	ug/l	0.6	125601.34	98.53	
Cu	65	72	He	12.1898	ug/l	0.5	63071.97	97.52	
Zn	66	72	He	24.4269	ug/l	2.9	34053.79	97.71	
As	75	72	He	24.4414	ug/l	0.6	21393.37	97.77	
Mo	95	115	He	23.1699	ug/l	1.2	124169.88	92.68	
Mo	98	115	He	23.1607	ug/l	0.4	215322.36	92.64	
Ag	107	115	He	11.3971	ug/l	1.8	237409.76	91.18	
Ag	109	115	He	11.5326	ug/l	1.7	237029.09	92.26	
Cd	111	115	He	12.1010	ug/l	1.4	30309.85	96.81	
Cd	114	115	He	12.0599	ug/l	1.2	79140.69	96.48	
[Pb]	206	175	He	24.9836	ug/l	0.7	388751.18	99.93	
[Pb]	207	175	He	24.1160	ug/l	1.1	319339.43	96.46	
Pb	208	175	He	24.4117	ug/l	0.9	1503677.32	97.65	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	471299.91	1.1	460914.7	102.25	
Sc	45	No Gas	9445162.96	2.4	9182573.52	102.86	
Ge	72	H2	1819346.11	1.7	1980316.94	91.87	
Sc	45	He	196809.81	1.2	200416.97	98.2	
Ge	72	He	210444.12	0.7	208867.09	100.76	
In	115	He	2413862.99	1.1	2315438.09	104.25	
Lu	175	He	6021061.15	1.0	6180206.14	97.42	
Th	232	He	10571180.47	1.4	10768084.01	98.17	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 006_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 08:05:04

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	6	No Gas	252.3626	ug/l	2.9	6495558.91	100.95	
Se	77	72	H2	23.9400	ug/l	1.6	9719.45	95.76	
Se	78	72	H2	24.4938	ug/l	2.3	27395.61	97.98	
Cr	52	72	He	25.7328	ug/l	0.6	164572.04	102.93	
Cr	53	72	He	24.9960	ug/l	0.9	20224.09	99.98	
Ni	60	72	He	25.7526	ug/l	0.7	90134.84	103.01	
Ni	62	72	He	25.4221	ug/l	1.6	14185.92	101.69	
Cu	63	72	He	25.6186	ug/l	1.4	267289.93	102.47	
Cu	65	72	He	24.9740	ug/l	0.9	132214.23	99.9	
Zn	66	72	He	25.2039	ug/l	0.4	35972.12	100.82	
As	75	72	He	25.7558	ug/l	0.3	23082.89	103.02	
Mo	95	115	He	12.2639	ug/l	1.4	65731.30	98.11	
Mo	98	115	He	12.2710	ug/l	1.4	114105.74	98.17	
Ag	107	115	He	12.0121	ug/l	1.1	250239.92	96.1	
Ag	109	115	He	12.1505	ug/l	1.8	249726.01	97.2	
Cd	111	115	He	24.3035	ug/l	1.6	60864.73	97.21	
Cd	114	115	He	24.2238	ug/l	1.0	158926.72	96.9	
[Pb]	206	175	He	24.7688	ug/l	0.9	399062.07	99.08	
[Pb]	207	175	He	24.5520	ug/l	0.6	336642.32	98.21	
Pb	208	175	He	24.7472	ug/l	0.3	1578355.23	98.99	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	468958.59	1.1	460914.7	101.75	
Sc	45	No Gas	9488214.62	2.1	9182573.52	103.33	
Ge	72	H2	1867020.62	1.6	1980316.94	94.28	
Sc	45	He	206740.87	0.7	200416.97	103.16	
Ge	72	He	215493.58	0.7	208867.09	103.17	
In	115	He	2413976.07	1.5	2315438.09	104.26	
Lu	175	He	6234154.20	0.4	6180206.14	100.87	
Th	232	He	10772306.51	1.5	10768084.01	100.04	

Initial Calibration Blank (ICB) Report

Sample Name	ICB
File Name	007_ICB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 08:07:39
Sample Type	ICB
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	0.0279	ug/l	26.3	8583.24	
Se	77	72	H2	-0.5620	ug/l	N/A	1163.71	
Se	78	72	H2	0.0157	ug/l	20.0	33.00	
Cr	52	72	He	0.0058	ug/l	216.5	567.79	
Cr	53	72	He	-0.4040	ug/l	N/A	283.34	
Ni	60	72	He	-0.0018	ug/l	N/A	85.55	
Ni	62	72	He	0.0021	ug/l	614.5	14.45	
Cu	63	72	He	-0.0012	ug/l	N/A	203.34	
Cu	65	72	He	0.0060	ug/l	122.6	121.11	
Zn	66	72	He	0.0143	ug/l	157.3	128.89	
As	75	72	He	-0.0062	ug/l	N/A	16.33	
Mo	95	115	He	0.0027	ug/l	73.7	25.56	
Mo	98	115	He	0.0018	ug/l	51.3	34.44	
Ag	107	115	He	0.0019	ug/l	44.4	67.78	
Ag	109	115	He	0.0013	ug/l	93.9	50.00	
Cd	111	115	He	0.0024	ug/l	5.9	14.50	
Cd	114	115	He	0.0043	ug/l	44.4	65.00	
[Pb]	206	175	He	0.0021	ug/l	164.2	235.56	
[Pb]	207	175	He	0.0029	ug/l	64.5	174.45	
Pb	208	175	He	0.0024	ug/l	47.0	813.35	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	462367.62	0.9	460914.7	100.32	
Sc	45	No Gas	9332463.52	0.6	9182573.52	101.63	
Ge	72	H2	1789309.58	2.9	1980316.94	90.35	
Sc	45	He	200779.03	0.3	200416.97	100.18	
Ge	72	He	209132.18	0.7	208867.09	100.13	
In	115	He	2284744.57	2.2	2315438.09	98.67	
Lu	175	He	6128452.67	1.6	6180206.14	99.16	
Th	232	He	10573031.51	1.2	10768084.01	98.19	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 008_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 08:10:14

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	0.0057	ug/l	43.4	7990.74	
Se	77	72	H2	-0.5262	ug/l	N/A	1153.04	
Se	78	72	H2	0.0044	ug/l	188.2	20.67	
Cr	52	72	He	-0.0001	ug/l	N/A	526.68	
Cr	53	72	He	-0.4638	ug/l	N/A	235.56	
Ni	60	72	He	-0.0045	ug/l	N/A	75.56	
Ni	62	72	He	0.0023	ug/l	313.0	14.45	
Cu	63	72	He	-0.0041	ug/l	N/A	173.34	
Cu	65	72	He	0.0023	ug/l	163.7	101.11	
Zn	66	72	He	0.0235	ug/l	118.2	140.00	
As	75	72	He	-0.0068	ug/l	N/A	15.67	
Mo	95	115	He	0.0023	ug/l	95.0	24.44	
Mo	98	115	He	0.0014	ug/l	101.2	32.22	
Ag	107	115	He	0.0000	ug/l	710.5	32.22	
Ag	109	115	He	-0.0006	ug/l	N/A	14.44	
Cd	111	115	He	-0.0012	ug/l	N/A	6.00	
Cd	114	115	He	-0.0001	ug/l	N/A	39.17	
[Pb]	206	175	He	-0.0003	ug/l	N/A	195.56	
[Pb]	207	175	He	-0.0002	ug/l	N/A	130.00	
Pb	208	175	He	0.0003	ug/l	463.6	673.34	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	460772.25	0.3	460914.7	99.97	
Sc	45	No Gas	9367899.63	0.8	9182573.52	102.02	
Ge	72	H2	1753550.31	1.9	1980316.94	88.55	
Sc	45	He	195779.01	1.0	200416.97	97.69	
Ge	72	He	207182.22	0.7	208867.09	99.19	
In	115	He	2355857.22	1.8	2315438.09	101.75	
Lu	175	He	6061055.59	0.1	6180206.14	98.07	
Th	232	He	10464785.47	0.1	10768084.01	97.18	

Low Level Initial Calibration Verification (LLICV) Report

Sample Name	LLICVS
File Name	009LICV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 08:12:49
Sample Type	LLICV
Comment	—
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc.RSD	CPS	% Rec	QC Flag
Al	27	6	No Gas	4.1465	ug/l	5.1	113008.75	103.66	
Se	77	72	H2	0.5295	ug/l	43.4	1493.07	-52.95	
Se	78	72	H2	1.0550	ug/l	4.3	1121.37	105.5	
Cr	52	72	He	0.4542	ug/l	6.4	3307.00	113.55	
Cr	53	72	He	0.0025	ug/l	2364.9	586.68	0.62	LLICV Failed
Ni	60	72	He	0.4639	ug/l	1.5	1647.87	115.97	
Ni	62	72	He	0.4567	ug/l	14.1	257.78	114.17	
Cu	63	72	He	0.2160	ug/l	3.8	2375.74	108	
Cu	65	72	He	0.2208	ug/l	7.0	1211.16	110.4	
Zn	66	72	He	1.3168	ug/l	6.0	1906.79	131.68	
As	75	72	He	0.5520	ug/l	1.4	496.01	110.4	
Mo	95	115	He	0.0979	ug/l	15.9	523.35	97.9	
Mo	98	115	He	0.0997	ug/l	4.2	923.36	99.7	
Ag	107	115	He	0.0400	ug/l	4.7	844.47	100	
Ag	109	115	He	0.0387	ug/l	6.0	801.14	96.75	
Cd	111	115	He	0.0430	ug/l	2.3	114.00	107.5	
Cd	114	115	He	0.0410	ug/l	7.3	301.33	102.5	
[Pb]	206	175	He	0.0981	ug/l	9.8	1752.34	98.1	
[Pb]	207	175	He	0.1036	ug/l	3.7	1525.65	103.6	
Pb	208	175	He	0.1005	ug/l	2.8	6941.79	100.5	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	462714.01	0.9	460914.7	100.39	
Sc	45	No Gas	9094994.36	2.9	9182573.52	99.05	
Ge	72	H2	1750233.75	2.4	1980316.94	88.38	
Sc	45	He	197742.84	0.4	200416.97	98.67	
Ge	72	He	206933.54	0.9	208867.09	99.07	
In	115	He	2354178.48	1.9	2315438.09	101.67	
Lu	175	He	6112304.62	1.5	6180206.14	98.9	
Th	232	He	10463042.76	1.0	10768084.01	97.17	

Sample Report

Sample Name	MoSTD
File Name	010SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 08:19:21
Sample Type	Sample
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	6.4587	ug/l	4.5	177965.39	
Se	77	72	H2	-0.3228	ug/l	N/A	1227.05	
Se	78	72	H2	-0.0079	ug/l	N/A	7.67	
Cr	52	72	He	0.2525	ug/l	8.0	2186.82	
Cr	53	72	He	-0.4014	ug/l	N/A	297.78	
Ni	60	72	He	0.4667	ug/l	1.7	1748.99	
Ni	62	72	He	0.4794	ug/l	7.6	284.45	
Cu	63	72	He	0.2200	ug/l	5.2	2549.10	
Cu	65	72	He	0.2290	ug/l	6.5	1321.17	
Zn	66	72	He	3.4840	ug/l	2.4	5135.25	
As	75	72	He	-0.0135	ug/l	N/A	10.33	
Mo	95	115	He	50.1388	ug/l	1.1	275388.00	
Mo	98	115	He	49.7842	ug/l	0.8	474328.73	
Ag	107	115	He	0.0002	ug/l	184.2	37.78	
Ag	109	115	He	0.0001	ug/l	1290.0	28.89	
Cd	111	115	He	0.0096	ug/l	22.4	34.17	
Cd	114	115	He	0.0074	ug/l	12.3	91.00	
[Pb]	206	175	He	0.0248	ug/l	7.5	616.69	
[Pb]	207	175	He	0.0223	ug/l	17.6	450.01	
Pb	208	175	He	0.0241	ug/l	6.3	2250.08	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	479647.36	0.2	460914.7	104.06	
Sc	45	No Gas	9074284.91	0.5	9182573.52	98.82	
Ge	72	H2	1765483.27	1.1	1980316.94	89.15	
Sc	45	He	213089.43	1.3	200416.97	106.32	
Ge	72	He	218322.75	1.4	208867.09	104.53	
In	115	He	2473891.49	0.5	2315438.09	106.84	
Lu	175	He	6348082.53	0.9	6180206.14	102.72	
Th	232	He	10738576.09	1.5	10768084.01	99.73	

Prep Blank (PB) Report

Sample Name KQ2411059-05

File Name 011_PB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 08:23:56

Sample Type PB

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	1.2363	ug/l	8.0	40860.67	
Se	77	72	H2	-0.4345	ug/l	N/A	1174.04	
Se	78	72	H2	-0.0004	ug/l	N/A	15.33	
Cr	52	72	He	0.0819	ug/l	2.1	1036.71	
Cr	53	72	He	-0.4296	ug/l	N/A	263.34	
Ni	60	72	He	0.0390	ug/l	2.4	223.34	
Ni	62	72	He	0.0350	ug/l	56.6	32.22	
Cu	63	72	He	0.0198	ug/l	25.8	415.56	
Cu	65	72	He	0.0224	ug/l	32.0	204.45	
Zn	66	72	He	0.1380	ug/l	16.0	298.89	
As	75	72	He	-0.0119	ug/l	N/A	11.33	
Mo	95	115	He	0.0294	ug/l	21.8	166.67	
Mo	98	115	He	0.0266	ug/l	6.5	261.12	
Ag	107	115	He	0.0018	ug/l	30.3	68.89	
Ag	109	115	He	0.0030	ug/l	41.0	85.56	
Cd	111	115	He	-0.0014	ug/l	N/A	5.50	
Cd	114	115	He	0.1049	ug/l	0.9	712.85	Flag
[Pb]	206	175	He	0.0053	ug/l	45.1	287.78	
[Pb]	207	175	He	0.0044	ug/l	45.7	195.56	
Pb	208	175	He	0.0058	ug/l	8.4	1027.80	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	482239.96	1.6	460914.7	104.63	
Sc	45	No Gas	9400175.46	0.5	9182573.52	102.37	
Ge	72	H2	1740802.78	1.4	1980316.94	87.91	
Sc	45	He	203894.73	1.8	200416.97	101.74	
Ge	72	He	208713.00	0.1	208867.09	99.93	
In	115	He	2361044.87	1.1	2315438.09	101.97	
Lu	175	He	6143626.70	2.7	6180206.14	99.41	
Th	232	He	10491873.80	1.4	10768084.01	97.43	

Laboratory Control Sample (LCS) Report

Sample Name	KQ2411059-06
File Name	012_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 08:26:31
Sample Type	LCS
Comment	20X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Al	27	6	No Gas	205.0959	ug/l	5.4	5163003.41	200	102.55	
Se	77	72	H2	50.2212	ug/l	0.9	17938.08	50	100.44	
Se	78	72	H2	50.6268	ug/l	1.0	53893.44	50	101.25	
Cr	52	72	He	21.3678	ug/l	0.7	133212.61	20	106.84	
Cr	53	72	He	21.1174	ug/l	2.6	16734.81	20	105.59	
Ni	60	72	He	54.0532	ug/l	1.1	184196.85	50	108.11	
Ni	62	72	He	53.0891	ug/l	0.5	28841.95	50	106.18	
Cu	63	72	He	26.3730	ug/l	0.5	268051.32	25	105.49	
Cu	65	72	He	26.0209	ug/l	0.7	134195.14	25	104.08	
Zn	66	72	He	51.1771	ug/l	0.3	71039.72	50	102.35	
As	75	72	He	52.9000	ug/l	0.5	46160.38	50	105.8	
Mo	95	115	He	0.0120	ug/l	17.5	73.33	50	0.02	LCS Main CR1 Failed
Mo	98	115	He	0.0119	ug/l	13.3	124.44	50	0.02	LCS Main CR1 Failed
Ag	107	115	He	5.1820	ug/l	2.4	102825.91	5	103.64	
Ag	109	115	He	5.1715	ug/l	2.0	101249.25	5	103.43	
Cd	111	115	He	5.2721	ug/l	1.1	12583.92	5	105.44	
Cd	114	115	He	5.1375	ug/l	0.9	32135.50	5	102.75	
[Pb]	206	175	He	50.7827	ug/l	0.4	801685.05	50	101.57	
[Pb]	207	175	He	51.0388	ug/l	1.0	685657.58	50	102.08	
Pb	208	175	He	52.2433	ug/l	2.7	3264218.57	50	104.49	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	458797.24	1.5	460914.7	99.54	
Sc	45	No Gas	9156662.69	3.2	9182573.52	99.72	
Ge	72	H2	1777224.93	0.7	1980316.94	89.74	
Sc	45	He	197732.81	1.2	200416.97	98.66	
Ge	72	He	209917.70	0.4	208867.09	100.5	
In	115	He	2299302.22	1.9	2315438.09	99.3	
Lu	175	He	6109781.42	1.1	6180206.14	98.86	
Th	232	He	10467205.26	1.2	10768084.01	97.21	

Reference Sample Report

Sample Name	K2407397-001
File Name	013_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 08:29:04
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	18031.0658	ug/l	2.6	467232034.77	
Se	77	72	H2	0.6467	ug/l	46.2	1532.41	
Se	78	72	H2	0.9645	ug/l	4.2	1027.36	
Cr	52	72	He	46.8727	ug/l	1.4	284588.64	
Cr	53	72	He	46.6719	ug/l	2.5	35401.64	
Ni	60	72	He	46.8051	ug/l	2.4	155665.76	
Ni	62	72	He	47.1599	ug/l	1.1	25008.24	
Cu	63	72	He	41.0738	ug/l	1.2	407333.44	
Cu	65	72	He	40.3888	ug/l	2.1	203228.73	
Zn	66	72	He	199.6107	ug/l	1.2	270131.58	
As	75	72	He	52.7868	ug/l	2.0	44953.20	
Mo	95	115	He	4.5294	ug/l	1.8	23003.61	
Mo	98	115	He	4.6129	ug/l	1.8	40633.70	
Ag	107	115	He	0.1129	ug/l	8.6	2259.06	
Ag	109	115	He	0.1104	ug/l	0.8	2174.60	
Cd	111	115	He	1.1980	ug/l	2.8	2849.91	
Cd	114	115	He	1.2577	ug/l	1.4	7852.03	
[Pb]	206	175	He	22.2054	ug/l	1.0	349171.67	
[Pb]	207	175	He	21.3523	ug/l	0.4	285734.16	
Pb	208	175	He	21.6662	ug/l	0.7	1348660.42	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	472806.11	0.4	460914.7	102.58	
Sc	45	No Gas	9394522.40	0.8	9182573.52	102.31	
Ge	72	H2	1752858.16	3.5	1980316.94	88.51	
Sc	45	He	198661.27	2.8	200416.97	99.12	
Ge	72	He	204910.53	1.8	208867.09	98.11	
In	115	He	2286374.13	0.7	2315438.09	98.74	
Lu	175	He	6084010.31	0.1	6180206.14	98.44	
Th	232	He	10823411.09	0.9	10768084.01	100.51	

Duplicate Sample Report

Sample Name	KQ2411059-01
File Name	014_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 08:31:38
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	013_
Default Text	ARE ALRLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	490782469.39	19406.5782	ug/l	5.0	7.35	
Se	77	H2	1481.73	1.6396	ug/l	16.4		< 5X MRL
Se	78	H2	1108.04	1.3084	ug/l	5.5		< 5X MRL
Cr	52	He	152190.82	28.0527	ug/l	1.1	50.24	Dup Fail
Cr	53	He	18927.12	27.6371	ug/l	1.6	51.23	Dup Fail
Ni	60	He	118043.29	39.7446	ug/l	0.6	16.32	
Ni	62	He	18909.34	39.9428	ug/l	0.6	16.57	
Cu	63	He	378217.43	42.7274	ug/l	0.6	3.95	
Cu	65	He	188981.69	42.0708	ug/l	0.3	4.08	
Zn	66	He	246090.56	203.6977	ug/l	0.7	2.03	
As	75	He	52576.75	69.1506	ug/l	0.7	26.84	Dup Fail
Mo	95	He	22356.12	4.8638	ug/l	1.2	7.12	
Mo	98	He	39154.75	4.9125	ug/l	1.1	6.29	
Ag	107	He	2392.41	0.1325	ug/l	1.4		< 5X MRL
Ag	109	He	2447.98	0.1382	ug/l	12.4		< 5X MRL
Cd	111	He	2604.37	1.2107	ug/l	3.5	1.06	
Cd	114	He	7232.58	1.2798	ug/l	0.8	1.74	
[Pb]	206	He	335909.22	23.2959	ug/l	0.7	4.79	
[Pb]	207	He	275916.21	22.4868	ug/l	1.6	5.18	
Pb	208	He	1305560.77	22.8735	ug/l	1.1	5.42	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	461458.99	0.7	460914.7	100.12	59.55	125.44	
Sc	45	No Gas	9364677.96	1.1	9182573.52	101.98	59.55	125.44	
Ge	72	H2	1397989.49	0.8	1980316.94	70.59	59.55	125.44	
Sc	45	He	177659.93	4.0	200416.97	88.65	59.55	125.44	
Ge	72	He	182897.26	4.0	208867.09	87.57	59.55	125.44	
In	115	He	2069330.99	5.1	2315438.09	89.37	59.55	125.44	
Lu	175	He	5580017.70	4.8	6180206.14	90.29	59.55	125.44	
Th	232	He	9837559.44	2.6	10768084.01	91.36	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name KQ2411059-02

File Name 015_Spk.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 08:34:12

Sample Type Spike

Comment 5X

ISTD Ref FileName 003CALB.d

QC Ref File Name 013_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	17158.2986	ug/l	4.9	417377796.75	800	-109.1	Flag
Se	77	H2	203.2274	ug/l	2.3	64701.41	200	101.29	
Se	78	H2	201.9076	ug/l	2.5	202979.17	200	100.47	
Cr	52	He	103.0167	ug/l	0.9	599560.82	80	70.18	Flag
Cr	53	He	102.7384	ug/l	0.1	74109.61	80	70.08	Flag
Ni	60	He	251.2530	ug/l	1.5	801483.11	200	102.22	
Ni	62	He	249.3296	ug/l	1.4	126802.15	200	101.08	
Cu	63	He	124.6525	ug/l	0.7	1185763.49	100	83.58	
Cu	65	He	123.4973	ug/l	0.5	596198.50	100	83.11	
Zn	66	He	380.0675	ug/l	0.3	493458.78	200	90.23	
As	75	He	250.8595	ug/l	0.5	204932.41	200	99.04	
Mo	95	He	4.3033	ug/l	0.1	20904.17	200	-0.11	Flag
Mo	98	He	4.3697	ug/l	0.6	36819.29	200	-0.12	Flag
Ag	107	He	19.9313	ug/l	0.6	376149.85	20	99.09	
Ag	109	He	20.1014	ug/l	1.5	374280.40	20	99.95	
Cd	111	He	22.5720	ug/l	0.8	51215.26	20	106.87	
Cd	114	He	21.8205	ug/l	1.0	129696.44	20	102.81	
[Pb]	206	He	243.0087	ug/l	2.0	3711429.71	200	110.4	
[Pb]	207	He	243.7764	ug/l	2.4	3168556.96	200	111.21	
Pb	208	He	240.9271	ug/l	2.4	14566396.92	200	109.63	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	443964.53	1.0	460914.7	96.32	
Sc	45	No Gas	9196987.41	1.9	9182573.52	100.16	
Ge	72	H2	1679414.79	2.7	1980316.94	84.81	
Sc	45	He	190591.02	1.3	200416.97	95.1	
Ge	72	He	196601.06	1.2	208867.09	94.13	
In	115	He	2186833.18	1.1	2315438.09	94.45	
Lu	175	He	5913505.32	1.8	6180206.14	95.68	
Th	232	He	10770552.34	2.1	10768084.01	100.02	

Sample Report

Sample Name K2407397-002

File Name 016SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 08:36:43

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	18301.7999	ug/l	3.8	442812986.85	
Se	77	72	H2	0.6977	ug/l	37.0	1466.07	
Se	78	72	H2	0.9301	ug/l	4.9	938.03	
Cr	52	72	He	29.6879	ug/l	1.9	171873.00	
Cr	53	72	He	29.0486	ug/l	2.9	21195.22	
Ni	60	72	He	29.8904	ug/l	0.4	94738.64	
Ni	62	72	He	29.7794	ug/l	1.0	15046.65	
Cu	63	72	He	45.7197	ug/l	1.2	431880.79	
Cu	65	72	He	45.3307	ug/l	2.1	217275.13	
Zn	66	72	He	185.3401	ug/l	1.4	238920.83	
As	75	72	He	81.9625	ug/l	1.4	66481.92	
Mo	95	115	He	4.2934	ug/l	1.7	21181.23	
Mo	98	115	He	4.2566	ug/l	0.9	36425.07	
Ag	107	115	He	0.1200	ug/l	4.6	2330.18	
Ag	109	115	He	0.1260	ug/l	4.1	2407.97	
Cd	111	115	He	0.6328	ug/l	1.5	1466.57	
Cd	114	115	He	0.7086	ug/l	0.6	4313.73	
[Pb]	206	175	He	24.1540	ug/l	0.8	375938.11	
[Pb]	207	175	He	23.2237	ug/l	0.2	307606.48	
Pb	208	175	He	23.6516	ug/l	0.3	1457237.61	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	441564.20	1.3	460914.7	95.8	
Sc	45	No Gas	9021690.48	1.6	9182573.52	98.25	
Ge	72	H2	1656992.75	0.8	1980316.94	83.67	
Sc	45	He	185299.71	2.3	200416.97	92.46	
Ge	72	He	195168.15	0.5	208867.09	93.44	
In	115	He	2220977.55	0.7	2315438.09	95.92	
Lu	175	He	6022176.01	0.4	6180206.14	97.44	
Th	232	He	10833779.84	0.7	10768084.01	100.61	

Sample Report

Sample Name	K2407397-003
File Name	017SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 08:39:17
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	14278.2398	ug/l	4.4	339029755.42	
Se	77	72	H2	0.6582	ug/l	5.0	1451.06	
Se	78	72	H2	0.6700	ug/l	4.8	678.68	
Cr	52	72	He	14.6145	ug/l	1.9	85009.07	
Cr	53	72	He	14.0934	ug/l	2.4	10586.62	
Ni	60	72	He	26.9920	ug/l	0.5	85710.39	
Ni	62	72	He	26.7191	ug/l	0.1	13525.38	
Cu	63	72	He	16.9555	ug/l	0.7	160575.25	
Cu	65	72	He	16.9174	ug/l	0.4	81285.44	
Zn	66	72	He	177.4372	ug/l	1.2	229136.01	
As	75	72	He	101.5592	ug/l	0.9	82516.29	
Mo	95	115	He	5.5404	ug/l	1.7	27508.18	
Mo	98	115	He	5.5578	ug/l	1.9	47860.47	
Ag	107	115	He	0.0371	ug/l	13.5	744.47	
Ag	109	115	He	0.0389	ug/l	1.8	765.58	
Cd	111	115	He	0.9915	ug/l	2.7	2307.50	
Cd	114	115	He	1.0565	ug/l	0.7	6455.92	
[Pb]	206	175	He	19.2757	ug/l	1.1	300929.05	
[Pb]	207	175	He	18.4338	ug/l	1.2	244903.56	
Pb	208	175	He	18.6498	ug/l	0.9	1152569.91	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	433222.76	1.4	460914.7	93.99	
Sc	45	No Gas	8870680.48	1.9	9182573.52	96.6	
Ge	72	H2	1653417.85	1.8	1980316.94	83.49	
Sc	45	He	192259.64	0.8	200416.97	95.93	
Ge	72	He	195508.51	0.6	208867.09	93.6	
In	115	He	2235659.07	1.7	2315438.09	96.55	
Lu	175	He	6040189.90	0.9	6180206.14	97.73	
Th	232	He	10923248.59	0.7	10768084.01	101.44	

Sample Report

Sample Name	K2407397-004
File Name	018SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 08:41:50
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	18458.8639	ug/l	4.5	447612782.21	
Se	77	72	H2	-0.3195	ug/l	N/A	1175.38	
Se	78	72	H2	0.2333	ug/l	4.0	251.33	
Cr	52	72	He	47.6814	ug/l	2.0	276824.19	
Cr	53	72	He	47.3971	ug/l	2.6	34376.30	
Ni	60	72	He	35.7744	ug/l	0.4	113830.44	
Ni	62	72	He	35.6433	ug/l	1.8	18077.33	
Cu	63	72	He	26.8981	ug/l	0.4	255203.51	
Cu	65	72	He	26.6862	ug/l	1.5	128456.06	
Zn	66	72	He	105.4265	ug/l	0.3	136506.01	
As	75	72	He	38.2166	ug/l	0.6	31135.27	
Mo	95	115	He	0.9842	ug/l	4.6	4878.52	
Mo	98	115	He	1.0217	ug/l	4.1	8782.36	
Ag	107	115	He	0.0677	ug/l	8.1	1331.17	
Ag	109	115	He	0.0667	ug/l	1.8	1288.95	
Cd	111	115	He	0.2268	ug/l	4.2	532.68	
Cd	114	115	He	0.3218	ug/l	4.1	1984.79	
[Pb]	206	175	He	15.1373	ug/l	1.3	235356.32	
[Pb]	207	175	He	14.7997	ug/l	1.7	195806.13	
Pb	208	175	He	14.9795	ug/l	1.7	921885.07	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	442366.13	0.7	460914.7	95.98	
Sc	45	No Gas	9073893.81	0.3	9182573.52	98.82	
Ge	72	H2	1689016.74	0.6	1980316.94	85.29	
Sc	45	He	190571.73	1.0	200416.97	95.09	
Ge	72	He	195966.73	1.7	208867.09	93.82	
In	115	He	2227487.35	0.3	2315438.09	96.2	
Lu	175	He	6014676.98	1.2	6180206.14	97.32	
Th	232	He	10720198.17	1.1	10768084.01	99.56	

Sample Report

Sample Name K2407397-005

File Name 019SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 08:44:25

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	23526.6457	ug/l	4.5	580721025.81	
Se	77	72	H2	-0.2189	ug/l	N/A	1215.38	
Se	78	72	H2	0.1654	ug/l	14.1	183.67	
Cr	52	72	He	38.2745	ug/l	1.1	223392.61	
Cr	53	72	He	37.6392	ug/l	2.1	27545.25	
Ni	60	72	He	40.7207	ug/l	1.4	130170.46	
Ni	62	72	He	39.7635	ug/l	3.3	20260.93	
Cu	63	72	He	22.7148	ug/l	1.5	216561.55	
Cu	65	72	He	22.5223	ug/l	1.6	108949.42	
Zn	66	72	He	118.4305	ug/l	0.7	154056.69	
As	75	72	He	20.6297	ug/l	0.7	16897.36	
Mo	95	115	He	0.6428	ug/l	3.9	3223.66	
Mo	98	115	He	0.6564	ug/l	2.4	5707.67	
Ag	107	115	He	0.0348	ug/l	4.7	706.69	
Ag	109	115	He	0.0330	ug/l	7.9	656.68	
Cd	111	115	He	0.2358	ug/l	7.8	559.01	
Cd	114	115	He	0.3384	ug/l	1.4	2107.80	
[Pb]	206	175	He	10.3721	ug/l	1.6	159668.28	
[Pb]	207	175	He	10.1915	ug/l	1.7	133493.71	
Pb	208	175	He	10.2368	ug/l	1.7	623739.78	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	450344.29	0.2	460914.7	97.71	
Sc	45	No Gas	9144948.81	2.2	9182573.52	99.59	
Ge	72	H2	1701143.20	1.7	1980316.94	85.9	
Sc	45	He	192425.03	0.6	200416.97	96.01	
Ge	72	He	196892.57	0.9	208867.09	94.27	
In	115	He	2250789.32	0.5	2315438.09	97.21	
Lu	175	He	5953417.68	2.0	6180206.14	96.33	
Th	232	He	10849410.67	0.5	10768084.01	100.76	

Sample Report

Sample Name K2407397-006

File Name 020SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 08:46:59

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	18051.1633	ug/l	4.2	438789378.12	
Se	77	72	H2	-0.1547	ug/l	N/A	1211.38	
Se	78	72	H2	0.2148	ug/l	4.0	229.67	
Cr	52	72	He	41.7668	ug/l	0.6	242860.19	
Cr	53	72	He	41.7249	ug/l	0.9	30362.21	
Ni	60	72	He	30.3781	ug/l	1.5	96779.67	
Ni	62	72	He	30.7797	ug/l	2.6	15631.61	
Cu	63	72	He	23.7841	ug/l	1.2	225935.22	
Cu	65	72	He	23.6277	ug/l	1.3	113882.02	
Zn	66	72	He	101.0325	ug/l	1.1	130968.36	
As	75	72	He	33.0619	ug/l	0.7	26969.23	
Mo	95	115	He	0.7756	ug/l	2.5	3857.14	
Mo	98	115	He	0.8078	ug/l	2.2	6964.82	
Ag	107	115	He	0.0265	ug/l	2.1	541.12	
Ag	109	115	He	0.0266	ug/l	7.0	531.12	
Cd	111	115	He	0.1972	ug/l	4.3	465.18	
Cd	114	115	He	0.2984	ug/l	2.1	1847.77	
[Pb]	206	175	He	12.0394	ug/l	2.5	185735.70	
[Pb]	207	175	He	11.7169	ug/l	1.1	153835.95	
Pb	208	175	He	11.8148	ug/l	1.9	721522.96	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	443393.73	1.0	460914.7	96.2	
Sc	45	No Gas	9103868.53	3.0	9182573.52	99.14	
Ge	72	H2	1667420.70	0.8	1980316.94	84.2	
Sc	45	He	189669.00	1.0	200416.97	94.64	
Ge	72	He	196180.02	0.3	208867.09	93.93	
In	115	He	2232947.02	0.7	2315438.09	96.44	
Lu	175	He	5967547.26	1.5	6180206.14	96.56	
Th	232	He	10595559.01	0.7	10768084.01	98.4	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 021_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 08:49:33

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	6	No Gas	253.5747	ug/l	5.1	6031631.15	101.43	
Se	77	72	H2	23.6186	ug/l	4.5	8585.50	94.47	
Se	78	72	H2	24.3939	ug/l	2.7	24391.40	97.58	
Cr	52	72	He	25.6485	ug/l	1.4	148559.77	102.59	
Cr	53	72	He	25.3601	ug/l	1.1	18576.69	101.44	
Ni	60	72	He	25.8916	ug/l	0.5	82078.75	103.57	
Ni	62	72	He	25.6451	ug/l	2.6	12958.28	102.58	
Cu	63	72	He	25.6881	ug/l	0.9	242749.10	102.75	
Cu	65	72	He	25.1909	ug/l	1.1	120786.82	100.76	
Zn	66	72	He	25.4110	ug/l	1.4	32845.91	101.64	
As	75	72	He	25.3192	ug/l	0.7	20552.01	101.28	
Mo	95	115	He	12.5029	ug/l	2.5	60917.91	100.02	
Mo	98	115	He	12.5042	ug/l	1.7	105685.39	100.03	
Ag	107	115	He	12.2305	ug/l	1.7	231627.85	97.84	
Ag	109	115	He	12.4480	ug/l	2.3	232583.38	99.58	
Cd	111	115	He	24.5065	ug/l	2.1	55793.73	98.03	
Cd	114	115	He	24.6112	ug/l	1.5	146788.15	98.44	
[Pb]	206	175	He	24.6388	ug/l	1.0	376548.09	98.56	
[Pb]	207	175	He	24.5294	ug/l	1.2	319020.17	98.12	
Pb	208	175	He	24.6159	ug/l	1.0	1489216.09	98.46	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	433725.58	2.0	460914.7	94.1	
Sc	45	No Gas	8896113.54	0.4	9182573.52	96.88	
Ge	72	H2	1669352.57	2.8	1980316.94	84.3	
Sc	45	He	184359.56	2.0	200416.97	91.99	
Ge	72	He	195178.12	0.9	208867.09	93.45	
In	115	He	2194568.74	1.3	2315438.09	94.78	
Lu	175	He	5913786.85	1.1	6180206.14	95.69	
Th	232	He	10481336.10	1.9	10768084.01	97.34	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 022_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 08:52:07

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	0.5629	ug/l	6.1	19729.99	
Se	77	72	H2	-0.7148	ug/l	N/A	1022.70	
Se	78	72	H2	0.0089	ug/l	41.4	23.67	
Cr	52	72	He	0.0057	ug/l	109.6	514.45	
Cr	53	72	He	-0.4153	ug/l	N/A	248.89	
Ni	60	72	He	-0.0020	ug/l	N/A	76.67	
Ni	62	72	He	0.0114	ug/l	289.3	17.78	
Cu	63	72	He	-0.0018	ug/l	N/A	178.89	
Cu	65	72	He	-0.0010	ug/l	N/A	76.67	
Zn	66	72	He	0.0107	ug/l	103.1	112.22	
As	75	72	He	0.0073	ug/l	100.0	25.33	
Mo	95	115	He	0.0025	ug/l	26.6	23.33	
Mo	98	115	He	0.0014	ug/l	118.8	30.00	
Ag	107	115	He	0.0015	ug/l	86.4	57.78	
Ag	109	115	He	0.0005	ug/l	126.2	33.33	
Cd	111	115	He	0.0025	ug/l	81.0	14.00	
Cd	114	115	He	0.0037	ug/l	41.8	58.67	
[Pb]	206	175	He	-0.0034	ug/l	N/A	143.34	
[Pb]	207	175	He	0.0020	ug/l	75.6	155.56	
Pb	208	175	He	-0.0001	ug/l	N/A	630.02	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	412080.13	0.4	460914.7	89.4	
Sc	45	No Gas	8653686.32	0.3	9182573.52	94.24	
Ge	72	H2	1642946.18	0.6	1980316.94	82.96	
Sc	45	He	179765.97	1.2	200416.97	89.7	
Ge	72	He	189533.06	1.1	208867.09	90.74	
In	115	He	2177686.63	0.9	2315438.09	94.05	
Lu	175	He	5896887.82	2.0	6180206.14	95.42	
Th	232	He	10559251.09	1.0	10768084.01	98.06	

Sample Report

Sample Name K2407397-007

File Name 023SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 08:54:43

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator **ALKLS**
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	17944.9954	ug/l	3.9	422162018.78	
Se	77	72	H2	0.8669	ug/l	20.9	1533.74	
Se	78	72	H2	1.3504	ug/l	14.4	1368.06	
Cr	52	72	He	338.9196	ug/l	1.9	1935413.53	
Cr	53	72	He	314.4210	ug/l	0.9	221536.53	
Ni	60	72	He	229.4855	ug/l	0.6	718728.67	
Ni	62	72	He	226.5762	ug/l	0.3	113132.10	
Cu	63	72	He	56.4158	ug/l	0.3	526968.23	
Cu	65	72	He	55.5928	ug/l	0.3	263504.70	
Zn	66	72	He	472.3406	ug/l	0.2	602002.36	
As	75	72	He	65.8685	ug/l	0.6	52840.94	
Mo	95	115	He	2.0581	ug/l	2.9	10044.19	
Mo	98	115	He	2.1097	ug/l	2.5	17858.52	
Ag	107	115	He	0.1434	ug/l	4.3	2749.13	
Ag	109	115	He	0.1406	ug/l	3.9	2653.57	
Cd	111	115	He	3.0889	ug/l	2.5	7045.00	
Cd	114	115	He	3.0311	ug/l	2.1	18124.20	
[Pb]	206	175	He	17.1543	ug/l	1.8	263522.28	
[Pb]	207	175	He	16.5655	ug/l	2.0	216554.54	
Pb	208	175	He	16.8454	ug/l	1.7	1024369.91	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	429212.75	0.9	460914.7	93.12	
Sc	45	No Gas	9362689.90	1.7	9182573.52	101.96	
Ge	72	H2	1673737.43	0.6	1980316.94	84.52	
Sc	45	He	191585.79	2.2	200416.97	95.59	
Ge	72	He	193000.15	0.6	208867.09	92.4	
In	115	He	2196770.56	2.8	2315438.09	94.87	
Lu	175	He	5943759.49	1.5	6180206.14	96.17	
Th	232	He	10613416.51	0.6	10768084.01	98.56	

Sample Report

Sample Name K2407397-008

File Name 024SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 08:57:17

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	20929.4362	ug/l	2.8	483368105.24	
Se	77	72	H2	3.4699	ug/l	2.7	2178.81	
Se	78	72	H2	3.4156	ug/l	1.5	3196.30	
Cr	52	72	He	323.6950	ug/l	1.8	1722772.64	
Cr	53	72	He	296.9962	ug/l	1.3	195060.68	
Ni	60	72	He	301.9731	ug/l	0.9	881475.27	
Ni	62	72	He	298.3101	ug/l	0.5	138830.33	
Cu	63	72	He	168.9677	ug/l	5.4	1470627.61	
Cu	65	72	He	161.4354	ug/l	0.5	713073.58	
Zn	66	72	He	595.8359	ug/l	0.3	707809.88	
As	75	72	He	95.9030	ug/l	1.0	71701.86	
Mo	95	115	He	4.1365	ug/l	1.6	18849.52	
Mo	98	115	He	4.2278	ug/l	2.0	33417.83	
Ag	107	115	He	1.2512	ug/l	2.2	22178.22	
Ag	109	115	He	1.2466	ug/l	1.2	21798.86	
Cd	111	115	He	4.0053	ug/l	1.7	8532.02	
Cd	114	115	He	3.9697	ug/l	0.4	22164.08	
[Pb]	206	175	He	23.9350	ug/l	1.2	353807.73	
[Pb]	207	175	He	23.3228	ug/l	2.0	293360.66	
Pb	208	175	He	23.6572	ug/l	2.1	1384159.91	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	421456.78	1.2	460914.7	91.44	
Sc	45	No Gas	8682557.99	1.3	9182573.52	94.55	
Ge	72	H2	1555969.18	1.3	1980316.94	78.57	
Sc	45	He	176405.67	1.0	200416.97	88.02	
Ge	72	He	179899.39	0.9	208867.09	86.13	
In	115	He	2051502.16	0.6	2315438.09	88.6	
Lu	175	He	5720421.16	2.0	6180206.14	92.56	
Th	232	He	10343787.56	0.4	10768084.01	96.06	

Sample Report

Sample Name K2407397-009

File Name 025SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 08:59:50

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	24043.4707	ug/l	2.2	548525542.65	
Se	77	72	H2	1.9983	ug/l	19.7	1690.76	
Se	78	72	H2	2.1688	ug/l	5.9	1962.45	
Cr	52	72	He	398.6415	ug/l	1.1	2098281.58	
Cr	53	72	He	371.4184	ug/l	1.0	241129.30	
Ni	60	72	He	288.5840	ug/l	1.4	833079.48	
Ni	62	72	He	287.2362	ug/l	1.5	132191.74	
Cu	63	72	He	64.4290	ug/l	1.5	554689.55	
Cu	65	72	He	63.6831	ug/l	2.0	278206.41	
Zn	66	72	He	625.3101	ug/l	1.1	734581.79	
As	75	72	He	62.4934	ug/l	1.5	46210.18	
Mo	95	115	He	3.1765	ug/l	2.5	14432.92	
Mo	98	115	He	3.1779	ug/l	0.6	25051.01	
Ag	107	115	He	0.2506	ug/l	3.1	4449.52	
Ag	109	115	He	0.2475	ug/l	4.8	4331.70	
Cd	111	115	He	4.1480	ug/l	0.4	8810.00	
Cd	114	115	He	4.0935	ug/l	1.1	22785.58	
[Pb]	206	175	He	20.6173	ug/l	1.3	307749.71	
[Pb]	207	175	He	19.8797	ug/l	1.7	252495.86	
Pb	208	175	He	20.2737	ug/l	2.4	1197612.96	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	416248.48	1.5	460914.7	90.31	
Sc	45	No Gas	8667874.66	1.8	9182573.52	94.39	
Ge	72	H2	1502494.70	3.8	1980316.94	75.87	
Sc	45	He	174433.38	1.1	200416.97	87.04	
Ge	72	He	177915.50	1.1	208867.09	85.18	
In	115	He	2045479.73	1.3	2315438.09	88.34	
Lu	175	He	5776411.16	3.2	6180206.14	93.47	
Th	232	He	10448113.39	0.7	10768084.01	97.03	

Reference Sample Report

Sample Name	K2407397-010
File Name	026_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:02:24
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	12769.2029	ug/l	4.4	282554548.77	
Se	77	72	H2	-0.0098	ug/l	N/A	1162.37	
Se	78	72	H2	0.4561	ug/l	12.7	435.68	
Cr	52	72	He	59.4895	ug/l	0.7	325474.02	
Cr	53	72	He	60.2809	ug/l	1.0	41066.30	
Ni	60	72	He	36.2135	ug/l	1.3	108603.83	
Ni	62	72	He	36.0182	ug/l	2.3	17219.81	
Cu	63	72	He	17.0563	ug/l	0.3	152603.56	
Cu	65	72	He	16.9128	ug/l	1.3	76769.62	
Zn	66	72	He	115.8140	ug/l	0.5	141330.65	
As	75	72	He	24.2785	ug/l	2.4	18650.16	
Mo	95	115	He	1.3189	ug/l	3.4	6210.08	
Mo	98	115	He	1.3133	ug/l	1.1	10727.95	
Ag	107	115	He	0.1664	ug/l	4.2	3069.19	
Ag	109	115	He	0.1585	ug/l	3.9	2881.38	
Cd	111	115	He	0.4116	ug/l	4.3	912.03	
Cd	114	115	He	0.4929	ug/l	0.8	2871.75	
[Pb]	206	175	He	29.1808	ug/l	1.3	442995.40	
[Pb]	207	175	He	28.1582	ug/l	0.6	363807.75	
Pb	208	175	He	28.5631	ug/l	0.9	1716537.70	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	403837.48	1.5	460914.7	87.62	
Sc	45	No Gas	8314753.28	1.4	9182573.52	90.55	
Ge	72	H2	1542997.65	1.6	1980316.94	77.92	
Sc	45	He	177456.23	0.9	200416.97	88.54	
Ge	72	He	184704.78	0.6	208867.09	88.43	
In	115	He	2117549.16	1.0	2315438.09	91.45	
Lu	175	He	5874860.32	1.1	6180206.14	95.06	
Th	232	He	10407873.38	0.7	10768084.01	96.65	

Duplicate Sample Report

Sample Name	KQ2411059-03
File Name	027_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:04:57
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	026_
Default Text	ARF ALRLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	322733400.51	13713.8176	ug/l	2.8	7.13	
Se	77	H2	1247.05	0.0149	ug/l	1105.3		< 5X MRL
Se	78	H2	431.01	0.4223	ug/l	4.2		< 5X MRL
Cr	52	He	275609.75	48.4651	ug/l	1.2	20.42	Dup Fail
Cr	53	He	34534.37	48.6383	ug/l	1.8	21.38	Dup Fail
Ni	60	He	118787.06	38.1208	ug/l	1.7	5.13	
Ni	62	He	18761.40	37.7634	ug/l	0.8	4.73	
Cu	63	He	182076.47	19.5881	ug/l	0.4	13.82	
Cu	65	He	91716.55	19.4481	ug/l	1.2	13.95	
Zn	66	He	173022.53	136.4696	ug/l	1.3	16.37	
As	75	He	26367.29	33.0407	ug/l	0.7	30.57	Dup Fail
Mo	95	He	8162.06	1.7034	ug/l	2.6	25.45	Dup Fail
Mo	98	He	14153.82	1.7031	ug/l	1.7	25.84	Dup Fail
Ag	107	He	3074.75	0.1638	ug/l	2.9		< 5X MRL
Ag	109	He	3145.87	0.1701	ug/l	4.3		< 5X MRL
Cd	111	He	944.70	0.4188	ug/l	0.9	1.74	
Cd	114	He	2933.93	0.4948	ug/l	0.8	0.38	
[Pb]	206	He	462474.53	30.7274	ug/l	0.9	5.16	
[Pb]	207	He	383414.05	29.9335	ug/l	1.3	6.11	
Pb	208	He	1808491.04	30.3537	ug/l	0.8	6.08	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	429357.99	0.3	460914.7	93.15	59.55	125.44	
Sc	45	No Gas	9164659.64	4.9	9182573.52	99.8	59.55	125.44	
Ge	72	H2	1645993.61	2.1	1980316.94	83.12	59.55	125.44	
Sc	45	He	186414.10	1.1	200416.97	93.01	59.55	125.44	
Ge	72	He	191927.93	0.8	208867.09	91.89	59.55	125.44	
In	115	He	2155344.76	0.8	2315438.09	93.09	59.55	125.44	
Lu	175	He	5824338.93	0.6	6180206.14	94.24	59.55	125.44	
Th	232	He	10441216.93	0.4	10768084.01	96.96	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name KQ2411059-04

File Name 028_Spk.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 09:07:31

Sample Type Spike

Comment 5X

ISTD Ref FileName 003CALB.d

QC Ref File Name 026_
ARF.

Default Text ÁLKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	12694.8225	ug/l	4.6	294590583.85	800	-9.3	Flag
Se	77	H2	202.6480	ug/l	0.4	63368.42	200	101.33	
Se	78	H2	201.2026	ug/l	0.5	198666.94	200	100.37	
Cr	52	He	127.6714	ug/l	1.9	724985.46	80	85.23	
Cr	53	He	128.4473	ug/l	2.1	90278.85	80	85.21	
Ni	60	He	242.2891	ug/l	1.5	754310.72	200	103.04	
Ni	62	He	240.7388	ug/l	1.6	119487.05	200	102.36	
Cu	63	He	122.6315	ug/l	1.3	1138459.88	100	105.58	
Cu	65	He	120.3244	ug/l	1.4	566838.99	100	103.41	
Zn	66	He	327.5530	ug/l	0.7	415054.59	200	105.87	
As	75	He	250.9172	ug/l	1.4	200038.07	200	113.32	
Mo	95	He	1.8141	ug/l	2.7	8725.67	200	0.25	Flag
Mo	98	He	1.8354	ug/l	1.1	15312.64	200	0.26	Flag
Ag	107	He	19.8593	ug/l	0.7	370840.06	20	98.46	
Ag	109	He	19.8383	ug/l	1.3	365483.70	20	98.4	
Cd	111	He	20.9475	ug/l	0.9	47027.52	20	102.68	
Cd	114	He	20.3827	ug/l	0.6	119877.67	20	99.45	
[Pb]	206	He	250.1031	ug/l	1.6	3758209.43	200	110.46	
[Pb]	207	He	249.7651	ug/l	1.8	3194468.28	200	110.8	
Pb	208	He	249.8380	ug/l	1.5	14862796.84	200	110.64	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	423650.93	2.0	460914.7	91.92	
Sc	45	No Gas	9024599.09	0.9	9182573.52	98.28	
Ge	72	H2	1648803.03	0.7	1980316.94	83.26	
Sc	45	He	182969.03	0.8	200416.97	91.29	
Ge	72	He	191874.69	1.1	208867.09	91.86	
In	115	He	2163719.58	0.9	2315438.09	93.45	
Lu	175	He	5817872.69	1.5	6180206.14	94.14	
Th	232	He	10684107.76	0.1	10768084.01	99.22	

Sample Report

Sample Name	K2407397-011
File Name	029SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:10:02
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	12789.5095	ug/l	4.4	293598868.34	
Se	77	72	H2	0.0872	ug/l	104.3	1281.05	
Se	78	72	H2	0.6053	ug/l	0.6	617.01	
Cr	52	72	He	47.3360	ug/l	1.1	267010.66	
Cr	53	72	He	47.1634	ug/l	0.9	33231.87	
Ni	60	72	He	35.0047	ug/l	1.3	108197.84	
Ni	62	72	He	35.2860	ug/l	2.4	17387.78	
Cu	63	72	He	20.2657	ug/l	0.2	186832.18	
Cu	65	72	He	20.1900	ug/l	0.9	94438.04	
Zn	66	72	He	124.1928	ug/l	1.5	156184.54	
As	75	72	He	24.1787	ug/l	0.2	19143.71	
Mo	95	115	He	1.4463	ug/l	4.0	6870.33	
Mo	98	115	He	1.4578	ug/l	2.2	12015.50	
Ag	107	115	He	0.2409	ug/l	8.2	4465.08	
Ag	109	115	He	0.2410	ug/l	8.4	4401.73	
Cd	111	115	He	0.5209	ug/l	5.5	1161.87	
Cd	114	115	He	0.5988	ug/l	3.7	3511.21	
[Pb]	206	175	He	31.0285	ug/l	1.2	475593.56	
[Pb]	207	175	He	30.3498	ug/l	0.9	395899.74	
Pb	208	175	He	30.6298	ug/l	1.2	1858520.48	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	419239.56	3.2	460914.7	90.96	
Sc	45	No Gas	8769121.04	3.2	9182573.52	95.5	
Ge	72	H2	1660614.45	1.2	1980316.94	83.86	
Sc	45	He	181906.94	0.8	200416.97	90.76	
Ge	72	He	190361.26	0.5	208867.09	91.14	
In	115	He	2136912.81	2.7	2315438.09	92.29	
Lu	175	He	5931965.18	1.4	6180206.14	95.98	
Th	232	He	10505532.97	0.8	10768084.01	97.56	

Sample Report

Sample Name	K2407397-012
File Name	030SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:12:36
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	15289.7294	ug/l	3.4	359884119.04	
Se	77	72	H2	0.3704	ug/l	45.1	1379.73	
Se	78	72	H2	0.6636	ug/l	7.9	680.68	
Cr	52	72	He	57.7109	ug/l	1.6	328146.96	
Cr	53	72	He	57.3656	ug/l	0.8	40643.13	
Ni	60	72	He	44.0945	ug/l	0.9	137415.42	
Ni	62	72	He	44.7824	ug/l	0.4	22248.85	
Cu	63	72	He	24.1020	ug/l	0.8	224021.25	
Cu	65	72	He	23.8574	ug/l	0.7	112516.70	
Zn	66	72	He	161.1373	ug/l	0.2	204325.73	
As	75	72	He	34.9346	ug/l	1.1	27882.00	
Mo	95	115	He	1.7476	ug/l	3.1	8721.21	
Mo	98	115	He	1.6762	ug/l	2.2	14507.46	
Ag	107	115	He	0.2822	ug/l	1.7	5497.62	
Ag	109	115	He	0.2764	ug/l	2.6	5307.54	
Cd	111	115	He	0.6704	ug/l	1.4	1569.74	
Cd	114	115	He	0.7311	ug/l	2.0	4496.94	
[Pb]	206	175	He	39.1909	ug/l	0.9	608445.67	
[Pb]	207	175	He	38.0963	ug/l	0.3	503392.74	
Pb	208	175	He	38.5619	ug/l	0.5	2370142.67	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	429512.74	0.9	460914.7	93.19	
Sc	45	No Gas	8984994.92	1.6	9182573.52	97.85	
Ge	72	H2	1674314.21	0.6	1980316.94	84.55	
Sc	45	He	188198.98	1.1	200416.97	93.9	
Ge	72	He	191956.28	0.5	208867.09	91.9	
In	115	He	2245063.65	1.9	2315438.09	96.96	
Lu	175	He	6008715.32	1.1	6180206.14	97.23	
Th	232	He	10433062.55	0.8	10768084.01	96.89	

Sample Report

Sample Name K2407397-013

File Name 031SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 09:15:10

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	15283.4826	ug/l	4.7	364012865.54	
Se	77	72	H2	0.0803	ug/l	314.3	1291.72	
Se	78	72	H2	0.5620	ug/l	3.1	579.68	
Cr	52	72	He	62.3329	ug/l	1.5	357707.27	
Cr	53	72	He	61.6175	ug/l	3.2	44019.18	
Ni	60	72	He	43.9204	ug/l	1.5	138147.20	
Ni	62	72	He	43.0586	ug/l	3.0	21592.52	
Cu	63	72	He	20.1181	ug/l	0.4	188770.22	
Cu	65	72	He	19.9404	ug/l	0.6	94932.96	
Zn	66	72	He	146.2006	ug/l	0.3	187121.49	
As	75	72	He	34.0699	ug/l	0.7	27446.00	
Mo	95	115	He	1.5873	ug/l	5.1	7720.71	
Mo	98	115	He	1.6027	ug/l	2.2	13522.20	
Ag	107	115	He	0.2464	ug/l	1.8	4681.80	
Ag	109	115	He	0.2527	ug/l	1.1	4731.82	
Cd	111	115	He	0.5891	ug/l	2.3	1345.39	
Cd	114	115	He	0.6445	ug/l	0.7	3868.78	
[Pb]	206	175	He	34.8597	ug/l	0.3	539822.10	
[Pb]	207	175	He	34.0360	ug/l	1.4	448548.44	
Pb	208	175	He	34.4141	ug/l	0.7	2109660.00	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	434657.64	1.4	460914.7	94.3	
Sc	45	No Gas	9068866.59	0.9	9182573.52	98.76	
Ge	72	H2	1677594.48	0.7	1980316.94	84.71	
Sc	45	He	186359.49	2.6	200416.97	92.99	
Ge	72	He	193747.04	0.6	208867.09	92.76	
In	115	He	2187997.00	0.6	2315438.09	94.5	
Lu	175	He	5992813.65	0.6	6180206.14	96.97	
Th	232	He	10579249.84	0.6	10768084.01	98.25	

Sample Report

Sample Name K2407397-014
File Name 032SMPL.d
Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time 2024-08-06 09:17:44
Sample Type Sample
Comment 5X
ISTD Ref FileName 003CALB.d
Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	10062.1540	ug/l	5.7	235957972.85	
Se	77	72	H2	0.1266	ug/l	129.1	1301.05	
Se	78	72	H2	0.5809	ug/l	2.6	596.01	
Cr	52	72	He	37.1471	ug/l	0.5	213338.30	
Cr	53	72	He	36.6157	ug/l	1.9	26379.01	
Ni	60	72	He	28.4734	ug/l	1.3	89579.03	
Ni	62	72	He	28.6133	ug/l	3.4	14350.48	
Cu	63	72	He	20.7847	ug/l	1.2	194990.58	
Cu	65	72	He	20.7316	ug/l	1.3	98679.15	
Zn	66	72	He	102.0318	ug/l	1.4	130592.37	
As	75	72	He	18.9936	ug/l	2.0	15306.18	
Mo	95	115	He	1.1588	ug/l	3.0	5686.56	
Mo	98	115	He	1.1908	ug/l	3.1	10132.01	
Ag	107	115	He	0.3105	ug/l	2.8	5938.87	
Ag	109	115	He	0.3227	ug/l	2.6	6084.49	
Cd	111	115	He	0.5520	ug/l	3.1	1271.55	
Cd	114	115	He	0.6161	ug/l	2.0	3729.76	
[Pb]	206	175	He	29.1472	ug/l	3.0	452853.51	
[Pb]	207	175	He	28.1960	ug/l	3.0	372814.92	
Pb	208	175	He	28.5315	ug/l	2.8	1754898.36	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	427925.22	0.5	460914.7	92.84	
Sc	45	No Gas	8925445.75	1.4	9182573.52	97.2	
Ge	72	H2	1670047.05	2.7	1980316.94	84.33	
Sc	45	He	187593.32	1.1	200416.97	93.6	
Ge	72	He	193717.23	0.8	208867.09	92.75	
In	115	He	2205888.69	1.2	2315438.09	95.27	
Lu	175	He	6015838.79	3.1	6180206.14	97.34	
Th	232	He	10567102.76	0.3	10768084.01	98.13	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV
File Name	033_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:20:18
Sample Type	CCV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	6	No Gas	252.6960	ug/l	2.5	5921094.77	101.08	
Se	77	72	H2	23.5358	ug/l	1.7	8564.83	94.14	
Se	78	72	H2	24.2820	ug/l	0.5	24284.25	97.13	
Cr	52	72	He	25.7144	ug/l	0.7	147937.47	102.86	
Cr	53	72	He	25.4875	ug/l	3.0	18539.98	101.95	
Ni	60	72	He	26.0357	ug/l	2.0	81978.27	104.14	
Ni	62	72	He	26.0306	ug/l	2.3	13063.91	104.12	
Cu	63	72	He	25.6262	ug/l	0.9	240525.76	102.5	
Cu	65	72	He	25.3621	ug/l	1.5	120779.19	101.45	
Zn	66	72	He	25.5249	ug/l	1.8	32767.94	102.1	
As	75	72	He	25.5139	ug/l	0.6	20570.03	102.06	
Mo	95	115	He	12.3623	ug/l	1.9	59605.43	98.9	
Mo	98	115	He	12.3814	ug/l	1.2	103563.96	99.05	
Ag	107	115	He	12.2578	ug/l	2.1	229711.08	98.06	
Ag	109	115	He	12.4262	ug/l	1.6	229769.22	99.41	
Cd	111	115	He	24.6116	ug/l	1.5	55452.26	98.45	
Cd	114	115	He	24.6323	ug/l	1.5	145383.99	98.53	
[Pb]	206	175	He	24.5293	ug/l	1.1	373473.10	98.12	
[Pb]	207	175	He	24.2322	ug/l	2.0	313929.07	96.93	
Pb	208	175	He	24.3925	ug/l	2.3	1469904.44	97.57	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	427051.52	1.3	460914.7	92.65	
Sc	45	No Gas	9046350.48	2.7	9182573.52	98.52	
Ge	72	H2	1669049.17	0.6	1980316.94	84.28	
Sc	45	He	184163.82	0.5	200416.97	91.89	
Ge	72	He	193860.68	1.2	208867.09	92.82	
In	115	He	2171757.57	1.5	2315438.09	93.79	
Lu	175	He	5891524.63	1.8	6180206.14	95.33	
Th	232	He	10376066.72	1.1	10768084.01	96.36	

Continuing Calibration Blank (CCB) Report

Sample Name CCB

File Name 034_CCB.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 09:22:53

Sample Type CCB

Comment ---

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	0.8060	ug/l	3.3	25160.36	
Se	77	72	H2	-0.6830	ug/l	N/A	1027.37	
Se	78	72	H2	0.0063	ug/l	45.0	21.00	
Cr	52	72	He	0.0113	ug/l	87.9	541.12	
Cr	53	72	He	-0.5018	ug/l	N/A	187.78	
Ni	60	72	He	0.0032	ug/l	264.4	92.22	
Ni	62	72	He	0.0097	ug/l	143.5	16.67	
Cu	63	72	He	-0.0053	ug/l	N/A	145.56	
Cu	65	72	He	0.0008	ug/l	760.5	84.44	
Zn	66	72	He	0.0311	ug/l	51.8	136.67	
As	75	72	He	0.0096	ug/l	87.9	27.00	
Mo	95	115	He	0.0020	ug/l	149.9	21.11	
Mo	98	115	He	0.0027	ug/l	89.0	40.00	
Ag	107	115	He	0.0008	ug/l	141.2	43.33	
Ag	109	115	He	0.0004	ug/l	124.2	31.11	
Cd	111	115	He	0.0037	ug/l	41.5	16.33	
Cd	114	115	He	0.0024	ug/l	57.5	49.50	
[Pb]	206	175	He	0.0028	ug/l	17.2	235.56	
[Pb]	207	175	He	0.0053	ug/l	65.6	197.78	
Pb	208	175	He	0.0052	ug/l	9.6	940.02	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	411100.89	0.6	460914.7	89.19	
Sc	45	No Gas	8606752.99	2.2	9182573.52	93.73	
Ge	72	H2	1635805.11	1.6	1980316.94	82.6	
Sc	45	He	176469.97	1.3	200416.97	88.05	
Ge	72	He	188043.78	0.6	208867.09	90.03	
In	115	He	2134274.18	2.2	2315438.09	92.18	
Lu	175	He	5855520.05	1.5	6180206.14	94.75	
Th	232	He	10223733.18	1.4	10768084.01	94.94	

Sample Report

Sample Name	K2407397-015
File Name	035SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:25:28
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	22877.6769	ug/l	3.2	547671587.13	
Se	77	72	H2	0.3747	ug/l	26.7	1367.72	
Se	78	72	H2	0.4700	ug/l	2.5	481.68	
Cr	52	72	He	78.0820	ug/l	0.6	448469.74	
Cr	53	72	He	77.1241	ug/l	3.4	55015.82	
Ni	60	72	He	96.9539	ug/l	1.1	305205.06	
Ni	62	72	He	97.2862	ug/l	0.8	48828.98	
Cu	63	72	He	39.5427	ug/l	1.1	371245.34	
Cu	65	72	He	39.3073	ug/l	0.7	187271.14	
Zn	66	72	He	175.6370	ug/l	1.1	225044.90	
As	75	72	He	16.2907	ug/l	2.5	13147.06	
Mo	95	115	He	1.7410	ug/l	2.3	8473.31	
Mo	98	115	He	1.6899	ug/l	2.1	14266.16	
Ag	107	115	He	0.1320	ug/l	2.2	2523.55	
Ag	109	115	He	0.1305	ug/l	4.2	2457.98	
Cd	111	115	He	1.3866	ug/l	1.5	3157.97	
Cd	114	115	He	1.3969	ug/l	2.1	8346.77	
[Pb]	206	175	He	15.7221	ug/l	2.3	240382.71	
[Pb]	207	175	He	15.2164	ug/l	2.1	197983.64	
Pb	208	175	He	15.3630	ug/l	1.9	929849.75	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	436762.34	0.6	460914.7	94.76	
Sc	45	No Gas	9301446.85	1.7	9182573.52	101.29	
Ge	72	H2	1657703.27	1.0	1980316.94	83.71	
Sc	45	He	189292.22	1.3	200416.97	94.45	
Ge	72	He	193972.50	1.1	208867.09	92.87	
In	115	He	2189707.20	1.9	2315438.09	94.57	
Lu	175	He	5915746.71	1.7	6180206.14	95.72	
Th	232	He	10721662.34	0.2	10768084.01	99.57	

Sample Report

Sample Name K2407397-016

File Name 036SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 09:28:02

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	23327.0978	ug/l	4.7	563965239.81	
Se	77	72	H2	0.0797	ug/l	260.3	1269.39	
Se	78	72	H2	0.4691	ug/l	1.9	478.01	
Cr	52	72	He	83.5778	ug/l	0.1	472714.93	
Cr	53	72	He	82.3214	ug/l	0.7	57804.85	
Ni	60	72	He	57.6963	ug/l	1.1	178916.96	
Ni	62	72	He	57.3455	ug/l	2.0	28345.58	
Cu	63	72	He	36.0945	ug/l	0.4	333752.58	
Cu	65	72	He	35.8089	ug/l	0.4	168015.55	
Zn	66	72	He	140.0351	ug/l	1.0	176711.41	
As	75	72	He	17.1339	ug/l	1.1	13617.76	
Mo	95	115	He	1.9083	ug/l	1.6	9203.71	
Mo	98	115	He	1.9512	ug/l	0.8	16321.34	
Ag	107	115	He	0.0725	ug/l	4.3	1386.74	
Ag	109	115	He	0.0747	ug/l	1.2	1404.51	
Cd	111	115	He	0.4958	ug/l	1.9	1124.04	
Cd	114	115	He	0.5711	ug/l	1.2	3403.19	
[Pb]	206	175	He	12.5300	ug/l	1.2	188620.72	
[Pb]	207	175	He	12.0139	ug/l	1.7	153889.35	
Pb	208	175	He	12.1568	ug/l	1.4	724359.60	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	441342.97	1.7	460914.7	95.75	
Sc	45	No Gas	9264803.52	1.6	9182573.52	100.9	
Ge	72	H2	1648191.63	0.9	1980316.94	83.23	
Sc	45	He	189827.72	0.9	200416.97	94.72	
Ge	72	He	191019.95	0.9	208867.09	91.46	
In	115	He	2169676.06	1.8	2315438.09	93.7	
Lu	175	He	5822062.27	1.0	6180206.14	94.2	
Th	232	He	10448500.68	1.5	10768084.01	97.03	

Sample Report

Sample Name	K2407397-017
File Name	037SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:30:36
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	22841.7541	ug/l	2.8	542708493.99	
Se	77	72	H2	0.2491	ug/l	46.1	1292.72	
Se	78	72	H2	0.7160	ug/l	1.9	706.35	
Cr	52	72	He	100.2096	ug/l	1.1	561809.19	
Cr	53	72	He	100.5420	ug/l	0.8	69872.28	
Ni	60	72	He	59.9888	ug/l	1.0	184410.02	
Ni	62	72	He	58.6158	ug/l	2.2	28725.10	
Cu	63	72	He	36.4103	ug/l	1.4	333777.38	
Cu	65	72	He	35.6921	ug/l	0.9	166041.08	
Zn	66	72	He	147.4716	ug/l	0.7	184504.04	
As	75	72	He	17.4101	ug/l	2.5	13718.18	
Mo	95	115	He	2.5285	ug/l	3.0	12116.66	
Mo	98	115	He	2.5184	ug/l	2.6	20934.25	
Ag	107	115	He	0.1474	ug/l	4.4	2774.70	
Ag	109	115	He	0.1551	ug/l	5.4	2872.49	
Cd	111	115	He	0.5955	ug/l	1.1	1341.22	
Cd	114	115	He	0.6410	ug/l	1.1	3793.94	
[Pb]	206	175	He	17.4113	ug/l	0.6	267653.80	
[Pb]	207	175	He	16.6114	ug/l	1.3	217294.22	
Pb	208	175	He	16.9143	ug/l	0.8	1029235.43	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	433493.91	1.0	460914.7	94.05	
Sc	45	No Gas	9155394.64	1.5	9182573.52	99.7	
Ge	72	H2	1613072.75	2.0	1980316.94	81.46	
Sc	45	He	188012.80	0.8	200416.97	93.81	
Ge	72	He	189384.51	0.7	208867.09	90.67	
In	115	He	2157388.05	2.2	2315438.09	93.17	
Lu	175	He	5946963.09	1.1	6180206.14	96.23	
Th	232	He	10422053.38	0.7	10768084.01	96.79	

Sample Report

Sample Name	K2407397-018
File Name	038SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:33:11
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	15390.6199	ug/l	3.1	371413887.46	
Se	77	72	H2	2.3464	ug/l	14.7	1972.79	
Se	78	72	H2	2.6259	ug/l	0.8	2620.87	
Cr	52	72	He	27.0576	ug/l	1.0	154554.75	
Cr	53	72	He	26.5148	ug/l	3.9	19126.16	
Ni	60	72	He	43.0108	ug/l	0.1	134433.81	
Ni	62	72	He	43.2750	ug/l	2.1	21561.37	
Cu	63	72	He	49.8848	ug/l	1.4	464760.75	
Cu	65	72	He	49.1081	ug/l	1.0	232171.05	
Zn	66	72	He	263.3775	ug/l	0.1	334873.75	
As	75	72	He	15.8111	ug/l	2.0	12665.03	
Mo	95	115	He	4.5478	ug/l	2.1	22144.66	
Mo	98	115	He	4.5013	ug/l	1.2	38016.45	
Ag	107	115	He	0.4360	ug/l	1.1	8277.67	
Ag	109	115	He	0.4266	ug/l	4.1	7986.41	
Cd	111	115	He	1.7801	ug/l	1.4	4056.33	
Cd	114	115	He	1.8087	ug/l	0.7	10810.85	
[Pb]	206	175	He	14.0872	ug/l	1.5	215198.60	
[Pb]	207	175	He	13.5284	ug/l	0.9	175871.14	
Pb	208	175	He	13.7430	ug/l	0.7	831058.56	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	440192.78	1.9	460914.7	95.5	
Sc	45	No Gas	8949827.98	3.0	9182573.52	97.47	
Ge	72	H2	1656981.60	2.3	1980316.94	83.67	
Sc	45	He	186987.77	2.0	200416.97	93.3	
Ge	72	He	192516.16	1.4	208867.09	92.17	
In	115	He	2192093.85	0.8	2315438.09	94.67	
Lu	175	He	5909022.26	0.9	6180206.14	95.61	
Th	232	He	10487590.88	1.9	10768084.01	97.4	

Sample Report

Sample Name	K2407397-019
File Name	039SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:35:45
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	5526.9420	ug/l	2.9	132214728.08	
Se	77	72	H2	2.0788	ug/l	5.9	1927.45	
Se	78	72	H2	2.6774	ug/l	4.5	2721.23	
Cr	52	72	He	11.9372	ug/l	1.2	68713.28	
Cr	53	72	He	11.5296	ug/l	3.1	8656.66	
Ni	60	72	He	29.1064	ug/l	0.3	91335.58	
Ni	62	72	He	29.2570	ug/l	2.3	14632.95	
Cu	63	72	He	54.8140	ug/l	0.4	512586.21	
Cu	65	72	He	53.9880	ug/l	0.7	256175.58	
Zn	66	72	He	212.1295	ug/l	0.8	270723.07	
As	75	72	He	16.8737	ug/l	1.3	13566.39	
Mo	95	115	He	5.2897	ug/l	1.7	25745.38	
Mo	98	115	He	5.3901	ug/l	1.9	45500.56	
Ag	107	115	He	0.9845	ug/l	0.5	18650.53	
Ag	109	115	He	0.9607	ug/l	2.6	17945.33	
Cd	111	115	He	1.4095	ug/l	1.6	3212.48	
Cd	114	115	He	1.4357	ug/l	2.6	8584.22	
[Pb]	206	175	He	11.8267	ug/l	0.9	182980.96	
[Pb]	207	175	He	11.2065	ug/l	1.7	147534.75	
Pb	208	175	He	11.3601	ug/l	1.5	695696.07	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	436660.66	2.5	460914.7	94.74	
Sc	45	No Gas	9048130.75	3.3	9182573.52	98.54	
Ge	72	H2	1688363.96	1.9	1980316.94	85.26	
Sc	45	He	187347.40	2.0	200416.97	93.48	
Ge	72	He	193218.37	1.1	208867.09	92.51	
In	115	He	2191652.62	2.2	2315438.09	94.65	
Lu	175	He	5983507.54	1.0	6180206.14	96.82	
Th	232	He	10491232.76	1.5	10768084.01	97.43	

Sample Report

Sample Name	K2407397-020
File Name	040SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:38:19
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	12688.1160	ug/l	4.6	307670334.44	
Se	77	72	H2	1.0231	ug/l	28.3	1598.08	
Se	78	72	H2	1.4352	ug/l	5.4	1468.40	
Cr	52	72	He	19.7543	ug/l	1.0	115140.97	
Cr	53	72	He	19.2952	ug/l	0.7	14340.43	
Ni	60	72	He	36.4882	ug/l	1.3	116243.06	
Ni	62	72	He	37.0315	ug/l	3.1	18806.99	
Cu	63	72	He	54.0268	ug/l	0.8	513023.00	
Cu	65	72	He	53.0818	ug/l	0.6	255775.80	
Zn	66	72	He	231.4432	ug/l	0.7	299917.35	
As	75	72	He	7.8712	ug/l	2.7	6436.89	
Mo	95	115	He	2.0475	ug/l	0.7	10117.56	
Mo	98	115	He	2.0860	ug/l	1.5	17876.28	
Ag	107	115	He	0.1828	ug/l	3.1	3537.06	
Ag	109	115	He	0.1866	ug/l	0.4	3557.07	
Cd	111	115	He	0.9872	ug/l	1.1	2285.16	
Cd	114	115	He	1.0767	ug/l	1.2	6541.46	
[Pb]	206	175	He	13.3599	ug/l	1.8	205933.78	
[Pb]	207	175	He	12.8671	ug/l	1.4	168786.08	
Pb	208	175	He	13.0201	ug/l	1.4	794470.57	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	442535.70	0.9	460914.7	96.01	
Sc	45	No Gas	9123692.42	2.9	9182573.52	99.36	
Ge	72	H2	1692199.41	3.2	1980316.94	85.45	
Sc	45	He	195627.14	3.2	200416.97	97.61	
Ge	72	He	196200.77	0.1	208867.09	93.94	
In	115	He	2223112.70	1.1	2315438.09	96.01	
Lu	175	He	5963216.71	2.2	6180206.14	96.49	
Th	232	He	10360157.14	0.5	10768084.01	96.21	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV
File Name	041_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:45:50
Sample Type	CCV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	6	No Gas	251.2659	ug/l	3.5	6164007.25	100.51	
Se	77	72	H2	24.3860	ug/l	1.9	8814.95	97.54	
Se	78	72	H2	24.5493	ug/l	1.4	24513.92	98.2	
Cr	52	72	He	25.6079	ug/l	1.6	146981.82	102.43	
Cr	53	72	He	25.2095	ug/l	2.0	18301.95	100.84	
Ni	60	72	He	25.4151	ug/l	1.2	79834.85	101.66	
Ni	62	72	He	25.7841	ug/l	2.9	12910.45	103.14	
Cu	63	72	He	25.5526	ug/l	0.5	239309.14	102.21	
Cu	65	72	He	25.3904	ug/l	1.6	120639.72	101.56	
Zn	66	72	He	25.4862	ug/l	1.1	32644.44	101.94	
As	75	72	He	25.1389	ug/l	1.3	20220.95	100.56	
Mo	95	115	He	12.5061	ug/l	1.3	59746.01	100.05	
Mo	98	115	He	12.4022	ug/l	1.2	102779.93	99.22	
Ag	107	115	He	12.3329	ug/l	1.3	229009.89	98.66	
Ag	109	115	He	12.4072	ug/l	0.8	227315.06	99.26	
Cd	111	115	He	24.5499	ug/l	0.6	54806.28	98.2	
Cd	114	115	He	24.4027	ug/l	0.6	142710.06	97.61	
[Pb]	206	175	He	24.2858	ug/l	1.4	366377.83	97.14	
[Pb]	207	175	He	24.0723	ug/l	1.9	309032.07	96.29	
Pb	208	175	He	24.2154	ug/l	1.9	1446026.41	96.86	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	447104.91	2.0	460914.7	97	
Sc	45	No Gas	9116667.70	1.8	9182573.52	99.28	
Ge	72	H2	1666638.44	1.0	1980316.94	84.16	
Sc	45	He	182326.05	2.5	200416.97	90.97	
Ge	72	He	193415.28	1.3	208867.09	92.6	
In	115	He	2151618.68	1.0	2315438.09	92.92	
Lu	175	He	5838163.38	1.8	6180206.14	94.47	
Th	232	He	10204677.97	0.4	10768084.01	94.77	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	042_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:48:25
Sample Type	CCB
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	0.0416	ug/l	25.3	8074.11	
Se	77	72	H2	-0.5656	ug/l	N/A	1082.04	
Se	78	72	H2	0.0032	ug/l	217.2	18.33	
Cr	52	72	He	0.0055	ug/l	153.6	511.12	
Cr	53	72	He	-0.1748	ug/l	N/A	413.34	
Ni	60	72	He	-0.0034	ug/l	N/A	72.22	
Ni	62	72	He	0.0186	ug/l	118.5	21.11	
Cu	63	72	He	-0.0011	ug/l	N/A	184.45	
Cu	65	72	He	-0.0015	ug/l	N/A	74.44	
Zn	66	72	He	0.0280	ug/l	62.0	133.33	
As	75	72	He	0.0048	ug/l	162.3	23.33	
Mo	95	115	He	0.0006	ug/l	533.7	14.44	
Mo	98	115	He	0.0024	ug/l	126.3	37.78	
Ag	107	115	He	0.0005	ug/l	52.3	37.78	
Ag	109	115	He	0.0009	ug/l	56.0	40.00	
Cd	111	115	He	0.0013	ug/l	126.8	11.00	
Cd	114	115	He	0.0017	ug/l	28.3	46.17	
[Pb]	206	175	He	0.0011	ug/l	72.4	205.56	
[Pb]	207	175	He	0.0039	ug/l	74.9	175.56	
Pb	208	175	He	0.0024	ug/l	26.6	760.01	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	418202.96	1.9	460914.7	90.73	
Sc	45	No Gas	8724020.49	1.4	9182573.52	95.01	
Ge	72	H2	1664232.88	2.0	1980316.94	84.04	
Sc	45	He	179771.00	1.2	200416.97	89.7	
Ge	72	He	188832.27	0.2	208867.09	90.41	
In	115	He	2145510.25	1.2	2315438.09	92.66	
Lu	175	He	5728178.24	0.7	6180206.14	92.69	
Th	232	He	10089379.02	1.5	10768084.01	93.7	

Prep Blank (PB) Report

Sample Name	KQ2411055-03
File Name	043_PB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:51:00
Sample Type	PB
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	1.1854	ug/l	6.9	33945.92	
Se	77	72	H2	-0.7425	ug/l	N/A	996.70	
Se	78	72	H2	-0.0010	ug/l	N/A	13.67	
Cr	52	72	He	0.0997	ug/l	1.8	1036.70	
Cr	53	72	He	-0.1424	ug/l	N/A	435.56	
Ni	60	72	He	0.0533	ug/l	19.3	245.56	
Ni	62	72	He	0.0778	ug/l	38.4	50.00	
Cu	63	72	He	0.0147	ug/l	17.6	328.89	
Cu	65	72	He	0.0144	ug/l	16.6	147.78	
Zn	66	72	He	0.0843	ug/l	23.6	203.34	
As	75	72	He	-0.0016	ug/l	N/A	18.33	
Mo	95	115	He	0.0147	ug/l	18.1	82.22	
Mo	98	115	He	0.0132	ug/l	29.9	127.78	
Ag	107	115	He	-0.0001	ug/l	N/A	27.78	
Ag	109	115	He	-0.0004	ug/l	N/A	15.56	
Cd	111	115	He	-0.0012	ug/l	N/A	5.67	
Cd	114	115	He	0.1118	ug/l	4.3	695.35	Flag
[Pb]	206	175	He	0.0011	ug/l	201.5	208.89	
[Pb]	207	175	He	0.0047	ug/l	32.6	187.78	
Pb	208	175	He	0.0042	ug/l	16.1	877.80	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	414114.46	1.0	460914.7	89.85	
Sc	45	No Gas	8606744.66	1.9	9182573.52	93.73	
Ge	72	H2	1615755.70	1.3	1980316.94	81.59	
Sc	45	He	179788.98	1.9	200416.97	89.71	
Ge	72	He	188758.73	1.5	208867.09	90.37	
In	115	He	2170321.44	1.4	2315438.09	93.73	
Lu	175	He	5817673.24	2.0	6180206.14	94.13	
Th	232	He	10311641.09	1.8	10768084.01	95.76	

Laboratory Control Sample (LCS) Report

Sample Name	KQ2411055-04
File Name	044_LCS.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:53:35
Sample Type	LCS
Comment	20X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	ExpValue	% Rec	QC Flag
Al	27	6	No Gas	213.2246	ug/l	4.1	4781953.42	200	106.61	
Se	77	72	H2	50.8655	ug/l	2.6	16658.80	50	101.73	
Se	78	72	H2	50.5488	ug/l	1.9	49391.55	50	101.1	
Cr	52	72	He	21.6383	ug/l	1.3	121417.82	20	108.19	
Cr	53	72	He	21.3482	ug/l	0.8	15223.42	20	106.74	
Ni	60	72	He	54.4031	ug/l	1.3	166872.94	50	108.81	
Ni	62	72	He	54.7310	ug/l	0.9	26764.20	50	109.46	
Cu	63	72	He	26.8985	ug/l	1.1	246082.46	25	107.59	
Cu	65	72	He	26.3196	ug/l	0.4	122178.69	25	105.28	
Zn	66	72	He	52.1820	ug/l	1.4	65197.85	50	104.36	
As	75	72	He	52.9535	ug/l	0.9	41594.08	50	105.91	
Mo	95	115	He	0.0182	ug/l	95.8	96.67	50	0.04	LCS Main CR1 Failed
Mo	98	115	He	0.0086	ug/l	14.4	87.78	50	0.02	LCS Main CR1 Failed
Ag	107	115	He	5.1803	ug/l	1.6	94877.75	5	103.61	
Ag	109	115	He	5.1621	ug/l	1.3	93280.43	5	103.24	
Cd	111	115	He	5.2523	ug/l	1.0	11569.52	5	105.05	
Cd	114	115	He	5.1133	ug/l	0.8	29516.66	5	102.27	
[Pb]	206	175	He	50.3345	ug/l	0.7	745591.58	50	100.67	
[Pb]	207	175	He	50.7385	ug/l	0.3	639646.05	50	101.48	
Pb	208	175	He	50.5800	ug/l	0.5	2966061.63	50	101.16	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	408733.41	1.3	460914.7	88.68	
Sc	45	No Gas	8380893.56	1.0	9182573.52	91.27	
Ge	72	H2	1631433.27	1.2	1980316.94	82.38	
Sc	45	He	177313.13	1.5	200416.97	88.47	
Ge	72	He	188956.04	0.4	208867.09	90.47	
In	115	He	2121751.40	0.6	2315438.09	91.63	
Lu	175	He	5733130.60	0.4	6180206.14	92.77	
Th	232	He	10170572.35	2.5	10768084.01	94.45	

Reference Sample Report

Sample Name	K2407397-024
File Name	045_ARF.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:56:09
Sample Type	AllRef
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Pass
ISTD QC Pass/Fail	Pass
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	19105.0841	ug/l	2.9	441758915.78	
Se	77	72	H2	0.9785	ug/l	1.8	1560.08	
Se	78	72	H2	1.2040	ug/l	1.3	1215.05	
Cr	52	72	He	156.7648	ug/l	0.4	881250.42	
Cr	53	72	He	155.5463	ug/l	0.7	108125.46	
Ni	60	72	He	157.9370	ug/l	0.7	486820.21	
Ni	62	72	He	156.1907	ug/l	1.2	76755.58	
Cu	63	72	He	45.4207	ug/l	1.0	417559.83	
Cu	65	72	He	45.0350	ug/l	1.0	210087.77	
Zn	66	72	He	428.4687	ug/l	1.0	537431.70	
As	75	72	He	47.5306	ug/l	0.5	37531.04	
Mo	95	115	He	2.9963	ug/l	3.2	14356.23	
Mo	98	115	He	2.9829	ug/l	2.9	24783.97	
Ag	107	115	He	0.1437	ug/l	2.1	2704.69	
Ag	109	115	He	0.1458	ug/l	3.1	2700.24	
Cd	111	115	He	2.0375	ug/l	3.3	4565.47	
Cd	114	115	He	2.0543	ug/l	1.3	12072.55	
[Pb]	206	175	He	19.2625	ug/l	0.4	288988.20	
[Pb]	207	175	He	18.6311	ug/l	0.2	237870.76	
Pb	208	175	He	18.8661	ug/l	0.2	1120424.27	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	421876.62	0.6	460914.7	91.53	
Sc	45	No Gas	9144905.47	1.2	9182573.52	99.59	
Ge	72	H2	1664529.73	1.5	1980316.94	84.05	
Sc	45	He	189260.05	0.7	200416.97	94.43	
Ge	72	He	189949.61	1.2	208867.09	90.94	
In	115	He	2156498.70	2.1	2315438.09	93.14	
Lu	175	He	5804212.41	0.8	6180206.14	93.92	
Th	232	He	10426432.97	1.0	10768084.01	96.83	

Duplicate Sample Report

Sample Name	KQ2411055-01
File Name	046_Dup.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 09:58:43
Sample Type	Dup
Total Dilution	1.0000
Comment	5X
ISTD Ref FileName	003CALB.d
Sample QC Pass/Fial	Fail
ISTD Ref FileName	Pass
QC Ref File Name	045_
Default Text	ARF AERLS NoUser

QC Analyte Table

Name	Mass	Tune Mode	CPS	Conc.	Units	Conc. RSD	RPD	Flag
Al	27	No Gas	565279728.65	23845.5233	ug/l	3.3	22.07	Dup Fail
Se	77	H2	1584.41	1.2271	ug/l	15.9		< 5X MRL
Se	78	H2	1464.07	1.5023	ug/l	5.5		< 5X MRL
Cr	52	He	1410928.69	263.9915	ug/l	13.2	50.97	Dup Fail
Cr	53	He	160427.56	243.2682	ug/l	14.0	43.99	Dup Fail
Ni	60	He	605864.38	206.6513	ug/l	12.9	26.72	Dup Fail
Ni	62	He	96600.19	206.8412	ug/l	13.9	27.9	Dup Fail
Cu	63	He	393175.98	44.9622	ug/l	13.0	1.01	
Cu	65	He	197961.41	44.6297	ug/l	13.4	0.9	
Zn	66	He	587475.25	492.4125	ug/l	13.0	13.89	
As	75	He	38657.92	51.4789	ug/l	13.1	7.98	
Mo	95	He	14121.58	3.1102	ug/l	18.0	3.73	
Mo	98	He	24120.79	3.0548	ug/l	15.8	2.38	
Ag	107	He	2399.08	0.1341	ug/l	15.5		< 5X MRL
Ag	109	He	2387.97	0.1354	ug/l	14.1		< 5X MRL
Cd	111	He	5006.92	2.3556	ug/l	17.2	14.48	
Cd	114	He	13313.17	2.3867	ug/l	16.2	14.97	
[Pb]	206	He	327447.95	22.3846	ug/l	17.2	14.99	
[Pb]	207	He	269239.74	21.6178	ug/l	16.7	14.84	
Pb	208	He	1272487.38	21.9572	ug/l	16.4	15.14	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	%QC Low	%QC High	QC Flag
Li	6	No Gas	432518.58	0.7	460914.7	93.84	59.55	125.44	
Sc	45	No Gas	9128207.69	2.1	9182573.52	99.41	59.55	125.44	
Ge	72	H2	1611057.26	0.3	1980316.94	81.35	59.55	125.44	
Sc	45	He	181769.10	18.4	200416.97	90.7	59.55	125.44	
Ge	72	He	182591.67	12.2	208867.09	87.42	59.55	125.44	
In	115	He	2081597.90	15.3	2315438.09	89.9	59.55	125.44	
Lu	175	He	5758103.80	14.9	6180206.14	93.17	59.55	125.44	
Th	232	He	10499108.38	18.6	10768084.01	97.5	59.55	125.44	

Matrix Spike Sample (MS) Report

Sample Name KQ2411055-02

File Name 047_Spk.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 10:01:17

Sample Type Spike

Comment 5X

ISTD Ref FileName 003CALB.d

QC Ref File Name 045_
ARF.

Default Text ALKLS
NoUser

QC Analyte Table

Name	Mass	Tune	Conc.	Units	Conc. RSD	CPS	Spk Amt	% Rec	Flag
Al	27	No Gas	18882.2838	ug/l	3.2	427674880.78	800	-27.85	Flag
Se	77	H2	200.6723	ug/l	2.8	59226.23	200	99.85	
Se	78	H2	202.2312	ug/l	2.5	188438.28	200	100.51	
Cr	52	He	294.3950	ug/l	0.6	1565405.60	80	172.04	Flag
Cr	53	He	267.5683	ug/l	0.9	175607.40	80	140.03	Flag
Ni	60	He	377.3647	ug/l	0.6	1100409.19	200	109.71	
Ni	62	He	376.2252	ug/l	1.3	174902.54	200	110.02	
Cu	63	He	142.9501	ug/l	0.9	1242993.32	100	97.53	
Cu	65	He	141.6504	ug/l	0.9	625031.23	100	96.62	
Zn	66	He	592.7748	ug/l	0.5	703440.89	200	82.15	
As	75	He	263.2316	ug/l	1.4	196560.27	200	107.85	
Mo	95	He	4.9380	ug/l	1.5	22546.32	200	0.97	Flag
Mo	98	He	5.0071	ug/l	2.6	39655.83	200	1.01	Flag
Ag	107	He	19.8049	ug/l	0.7	351358.47	20	98.31	
Ag	109	He	19.8251	ug/l	0.4	347032.60	20	98.4	
Cd	111	He	22.5953	ug/l	1.1	48196.15	20	102.79	
Cd	114	He	21.9141	ug/l	0.5	122448.88	20	99.3	
[Pb]	206	He	235.5565	ug/l	1.5	3484458.34	200	108.15	
[Pb]	207	He	236.6778	ug/l	1.1	2979993.07	200	109.02	
Pb	208	He	234.5246	ug/l	0.2	13734865.01	200	107.83	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	413319.72	1.0	460914.7	89.67	
Sc	45	No Gas	8644612.16	1.0	9182573.52	94.14	
Ge	72	H2	1556354.28	1.7	1980316.94	78.59	
Sc	45	He	173153.03	1.7	200416.97	86.4	
Ge	72	He	179712.29	0.6	208867.09	86.04	
In	115	He	2055715.45	0.6	2315438.09	88.78	
Lu	175	He	5726593.94	0.7	6180206.14	92.66	
Th	232	He	10325749.01	1.1	10768084.01	95.89	

Sample Report

Sample Name K2407397-021

File Name 048SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 10:03:48

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	19772.2833	ug/l	3.1	447142355.57	
Se	77	72	H2	0.2422	ug/l	59.9	1237.05	
Se	78	72	H2	0.5880	ug/l	8.3	557.68	
Cr	52	72	He	71.6584	ug/l	1.5	386708.38	
Cr	53	72	He	71.3258	ug/l	1.5	47844.73	
Ni	60	72	He	56.5928	ug/l	0.3	167413.10	
Ni	62	72	He	55.6486	ug/l	2.0	26242.29	
Cu	63	72	He	28.6690	ug/l	1.2	252932.29	
Cu	65	72	He	28.8412	ug/l	1.4	129106.45	
Zn	66	72	He	155.6667	ug/l	0.7	187389.62	
As	75	72	He	19.1917	ug/l	0.4	14550.19	
Mo	95	115	He	1.3086	ug/l	0.7	6080.03	
Mo	98	115	He	1.3054	ug/l	0.6	10520.04	
Ag	107	115	He	0.1536	ug/l	6.2	2796.93	
Ag	109	115	He	0.1522	ug/l	2.9	2730.24	
Cd	111	115	He	0.6919	ug/l	3.2	1507.40	
Cd	114	115	He	0.7399	ug/l	1.7	4235.21	
[Pb]	206	175	He	18.4158	ug/l	0.6	273843.55	
[Pb]	207	175	He	18.0034	ug/l	0.5	227829.81	
Pb	208	175	He	18.1326	ug/l	0.3	1067350.76	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	412695.28	1.4	460914.7	89.54	
Sc	45	No Gas	8514294.11	0.3	9182573.52	92.72	
Ge	72	H2	1546874.42	3.9	1980316.94	78.11	
Sc	45	He	178907.30	0.1	200416.97	89.27	
Ge	72	He	182236.04	0.8	208867.09	87.25	
In	115	He	2089077.35	1.0	2315438.09	90.22	
Lu	175	He	5752822.83	0.7	6180206.14	93.08	
Th	232	He	10276580.06	1.2	10768084.01	95.44	

Sample Report

Sample Name K2407397-022

File Name 049SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 10:06:22

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	17237.9000	ug/l	4.6	400553441.86	
Se	77	72	H2	-0.0954	ug/l	N/A	1190.38	
Se	78	72	H2	0.3649	ug/l	11.6	367.34	
Cr	52	72	He	70.4164	ug/l	1.6	387181.68	
Cr	53	72	He	71.1798	ug/l	2.2	48648.02	
Ni	60	72	He	48.6875	ug/l	0.4	146760.92	
Ni	62	72	He	48.2291	ug/l	1.4	23175.66	
Cu	63	72	He	20.4321	ug/l	1.3	183724.93	
Cu	65	72	He	20.2305	ug/l	1.1	92300.78	
Zn	66	72	He	127.8392	ug/l	0.4	156820.48	
As	75	72	He	36.0512	ug/l	0.9	27831.25	
Mo	95	115	He	1.7842	ug/l	0.7	8406.60	
Mo	98	115	He	1.7908	ug/l	0.3	14633.12	
Ag	107	115	He	0.0503	ug/l	1.9	947.81	
Ag	109	115	He	0.0473	ug/l	5.0	876.70	
Cd	111	115	He	0.5386	ug/l	2.5	1192.21	
Cd	114	115	He	0.6153	ug/l	1.8	3578.39	
[Pb]	206	175	He	13.0507	ug/l	2.5	197782.44	
[Pb]	207	175	He	12.6028	ug/l	1.6	162552.90	
Pb	208	175	He	12.8352	ug/l	2.1	770025.97	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	424037.10	0.7	460914.7	92	
Sc	45	No Gas	8791723.54	1.2	9182573.52	95.74	
Ge	72	H2	1614096.29	0.3	1980316.94	81.51	
Sc	45	He	181661.62	0.9	200416.97	90.64	
Ge	72	He	185680.24	0.9	208867.09	88.9	
In	115	He	2119293.48	1.8	2315438.09	91.53	
Lu	175	He	5863852.27	2.7	6180206.14	94.88	
Th	232	He	10465789.64	1.6	10768084.01	97.19	

Sample Report

Sample Name K2407397-023

File Name 050SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 10:08:56

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	16120.8594	ug/l	5.7	374894385.10	
Se	77	72	H2	-0.3219	ug/l	N/A	1138.71	
Se	78	72	H2	0.1652	ug/l	11.5	176.67	
Cr	52	72	He	71.7870	ug/l	1.5	399093.68	
Cr	53	72	He	71.1454	ug/l	1.5	49166.22	
Ni	60	72	He	41.8154	ug/l	2.9	127425.30	
Ni	62	72	He	41.5803	ug/l	3.7	20198.60	
Cu	63	72	He	13.7688	ug/l	2.2	125230.64	
Cu	65	72	He	13.6081	ug/l	0.7	62804.22	
Zn	66	72	He	102.6139	ug/l	1.5	127283.12	
As	75	72	He	15.3790	ug/l	2.9	12012.56	
Mo	95	115	He	0.7819	ug/l	4.5	3719.33	
Mo	98	115	He	0.7764	ug/l	4.4	6404.60	
Ag	107	115	He	0.0344	ug/l	13.7	662.24	
Ag	109	115	He	0.0379	ug/l	6.6	713.35	
Cd	111	115	He	0.6888	ug/l	1.8	1534.41	
Cd	114	115	He	0.7636	ug/l	2.9	4467.44	
[Pb]	206	175	He	13.3780	ug/l	1.9	200359.92	
[Pb]	207	175	He	13.0087	ug/l	2.5	165775.70	
Pb	208	175	He	13.1014	ug/l	1.8	776689.36	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	424450.24	1.0	460914.7	92.09	
Sc	45	No Gas	8816974.37	0.9	9182573.52	96.02	
Ge	72	H2	1637346.32	1.2	1980316.94	82.68	
Sc	45	He	180660.88	1.2	200416.97	90.14	
Ge	72	He	187748.32	1.7	208867.09	89.89	
In	115	He	2135709.20	0.9	2315438.09	92.24	
Lu	175	He	5793310.19	1.4	6180206.14	93.74	
Th	232	He	10409796.72	1.2	10768084.01	96.67	

Sample Report

Sample Name	K2407397-025
File Name	051SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 10:11:31
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	19083.7867	ug/l	4.0	446517528.92	
Se	77	72	H2	0.8009	ug/l	12.8	1454.06	
Se	78	72	H2	1.2250	ug/l	4.2	1194.38	
Cr	52	72	He	196.5013	ug/l	1.1	1064066.21	
Cr	53	72	He	195.7791	ug/l	1.3	130977.99	
Ni	60	72	He	203.8328	ug/l	1.4	605260.64	
Ni	62	72	He	203.4718	ug/l	1.2	96325.10	
Cu	63	72	He	43.1262	ug/l	1.1	381981.51	
Cu	65	72	He	42.7365	ug/l	1.5	192068.09	
Zn	66	72	He	508.5347	ug/l	1.2	614493.27	
As	75	72	He	51.4770	ug/l	1.6	39156.02	
Mo	95	115	He	4.3467	ug/l	1.5	20274.55	
Mo	98	115	He	4.4304	ug/l	1.0	35842.79	
Ag	107	115	He	0.1264	ug/l	1.5	2317.96	
Ag	109	115	He	0.1192	ug/l	8.9	2154.60	
Cd	111	115	He	4.1856	ug/l	0.7	9125.67	
Cd	114	115	He	4.1256	ug/l	0.9	23574.51	
[Pb]	206	175	He	22.3236	ug/l	0.6	330566.13	
[Pb]	207	175	He	21.6376	ug/l	1.5	272653.87	
Pb	208	175	He	21.8780	ug/l	1.1	1282416.63	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	426976.54	0.9	460914.7	92.64	
Sc	45	No Gas	8981921.31	1.0	9182573.52	97.81	
Ge	72	H2	1608212.44	0.3	1980316.94	81.21	
Sc	45	He	180607.11	0.2	200416.97	90.12	
Ge	72	He	183008.87	1.5	208867.09	87.62	
In	115	He	2099715.08	0.5	2315438.09	90.68	
Lu	175	He	5729645.19	1.5	6180206.14	92.71	
Th	232	He	10474572.76	1.7	10768084.01	97.27	

Sample Report

Sample Name	K2407397-026
File Name	052SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 10:14:05
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	ALKLS NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	14158.4765	ug/l	4.5	325454538.18	
Se	77	72	H2	1.0209	ug/l	24.2	1518.74	
Se	78	72	H2	1.4612	ug/l	2.8	1420.73	
Cr	52	72	He	84.9998	ug/l	1.3	462623.35	
Cr	53	72	He	84.4672	ug/l	1.6	57060.07	
Ni	60	72	He	117.6773	ug/l	0.7	351071.80	
Ni	62	72	He	118.5206	ug/l	1.3	56368.70	
Cu	63	72	He	40.2475	ug/l	0.6	358116.89	
Cu	65	72	He	39.9500	ug/l	1.2	180374.35	
Zn	66	72	He	372.1882	ug/l	0.2	451824.89	
As	75	72	He	44.5283	ug/l	1.7	34028.08	
Mo	95	115	He	5.0523	ug/l	1.3	23942.70	
Mo	98	115	He	5.1260	ug/l	0.9	42148.54	
Ag	107	115	He	0.1128	ug/l	5.8	2105.70	
Ag	109	115	He	0.1157	ug/l	1.1	2125.71	
Cd	111	115	He	1.8538	ug/l	2.5	4110.85	
Cd	114	115	He	1.8771	ug/l	1.7	10918.75	
[Pb]	206	175	He	19.6729	ug/l	0.5	297197.11	
[Pb]	207	175	He	19.0024	ug/l	0.4	244296.12	
Pb	208	175	He	19.2626	ug/l	0.3	1151925.22	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	419521.53	1.0	460914.7	91.02	
Sc	45	No Gas	8783778.26	1.8	9182573.52	95.66	
Ge	72	H2	1606832.65	0.8	1980316.94	81.14	
Sc	45	He	178465.71	1.5	200416.97	89.05	
Ge	72	He	183825.80	0.5	208867.09	88.01	
In	115	He	2133928.81	2.0	2315438.09	92.16	
Lu	175	He	5844571.02	0.5	6180206.14	94.57	
Th	232	He	10524080.68	1.3	10768084.01	97.73	

Continuing Calibration Verification (CCV) Report

Sample Name CCV

File Name 053_CCV.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 10:16:39

Sample Type CCV

Comment ---

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	6	No Gas	251.6705	ug/l	3.2	5611150.89	100.67	
Se	77	72	H2	23.4340	ug/l	5.0	8151.29	93.74	
Se	78	72	H2	24.5152	ug/l	2.0	23426.39	98.06	
Cr	52	72	He	25.9495	ug/l	1.0	143242.73	103.8	
Cr	53	72	He	25.4030	ug/l	2.7	17732.48	101.61	
Ni	60	72	He	26.0734	ug/l	0.5	78769.78	104.29	
Ni	62	72	He	25.1455	ug/l	3.5	12111.00	100.58	
Cu	63	72	He	25.9836	ug/l	1.0	234010.13	103.93	
Cu	65	72	He	25.8176	ug/l	0.3	117976.06	103.27	
Zn	66	72	He	25.6257	ug/l	1.8	31566.81	102.5	
As	75	72	He	25.7660	ug/l	1.3	19931.27	103.06	
Mo	95	115	He	12.4166	ug/l	0.6	57724.48	99.33	
Mo	98	115	He	12.5268	ug/l	1.3	101011.75	100.21	
Ag	107	115	He	12.3558	ug/l	1.7	223226.16	98.85	
Ag	109	115	He	12.4854	ug/l	2.4	222538.12	99.88	
Cd	111	115	He	24.6428	ug/l	1.8	53523.82	98.57	
Cd	114	115	He	24.6929	ug/l	1.7	140496.60	98.77	
[Pb]	206	175	He	24.9058	ug/l	1.0	362620.57	99.62	
[Pb]	207	175	He	24.7160	ug/l	1.3	306244.34	98.86	
Pb	208	175	He	24.9619	ug/l	1.1	1438693.44	99.85	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	406272.83	0.3	460914.7	88.14	
Sc	45	No Gas	8475966.33	0.7	9182573.52	92.3	
Ge	72	H2	1595238.69	2.1	1980316.94	80.55	
Sc	45	He	174628.49	1.2	200416.97	87.13	
Ge	72	He	186001.20	0.3	208867.09	89.05	
In	115	He	2093781.47	2.1	2315438.09	90.43	
Lu	175	He	5634223.94	1.6	6180206.14	91.17	
Th	232	He	10215615.27	1.0	10768084.01	94.87	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	054_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 10:19:13
Sample Type	CCB
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	0.3669	ug/l	3.4	15080.91	
Se	77	72	H2	-0.6922	ug/l	N/A	988.70	
Se	78	72	H2	0.0145	ug/l	79.7	28.00	
Cr	52	72	He	0.0088	ug/l	195.7	516.68	
Cr	53	72	He	-0.2678	ug/l	N/A	341.12	
Ni	60	72	He	0.0054	ug/l	181.5	96.67	
Ni	62	72	He	0.0103	ug/l	119.7	16.66	
Cu	63	72	He	-0.0013	ug/l	N/A	178.89	
Cu	65	72	He	0.0028	ug/l	164.9	92.22	
Zn	66	72	He	0.0754	ug/l	12.3	187.78	
As	75	72	He	0.0012	ug/l	887.8	20.00	
Mo	95	115	He	0.0033	ug/l	88.7	26.67	
Mo	98	115	He	0.0018	ug/l	79.7	32.22	
Ag	107	115	He	0.0003	ug/l	140.7	34.44	
Ag	109	115	He	0.0004	ug/l	246.1	31.11	
Cd	111	115	He	0.0027	ug/l	53.3	14.00	
Cd	114	115	He	0.0024	ug/l	65.1	49.17	
[Pb]	206	175	He	-0.0026	ug/l	N/A	152.23	
[Pb]	207	175	He	0.0000	ug/l	N/A	126.67	
Pb	208	175	He	0.0014	ug/l	42.5	703.35	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	406061.28	1.0	460914.7	88.1	
Sc	45	No Gas	8493601.88	1.2	9182573.52	92.5	
Ge	72	H2	1579076.01	2.3	1980316.94	79.74	
Sc	45	He	174870.70	1.9	200416.97	87.25	
Ge	72	He	184343.32	0.8	208867.09	88.26	
In	115	He	2113795.76	2.6	2315438.09	91.29	
Lu	175	He	5779122.13	1.3	6180206.14	93.51	
Th	232	He	10148492.14	1.5	10768084.01	94.25	

Sample Report

Sample Name K2407397-027

File Name 055SMPL.d

Data Path Name D:\Agilent\ICPMH\1\DATA\080624A.b

Acq Time 2024-08-06 10:21:49

Sample Type Sample

Comment 5X

ISTD Ref FileName 003CALB.d

Operator ALKLS
NoUser

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	18967.3478	ug/l	3.8	428685831.85	
Se	77	72	H2	0.8572	ug/l	38.4	1513.07	
Se	78	72	H2	1.4135	ug/l	5.7	1415.40	
Cr	52	72	He	151.6431	ug/l	0.3	854184.60	
Cr	53	72	He	152.6213	ug/l	0.8	106317.74	
Ni	60	72	He	163.2973	ug/l	1.1	504354.60	
Ni	62	72	He	161.7966	ug/l	1.6	79672.06	
Cu	63	72	He	35.5803	ug/l	1.0	327797.87	
Cu	65	72	He	35.3109	ug/l	0.8	165073.32	
Zn	66	72	He	373.7933	ug/l	1.1	469809.57	
As	75	72	He	37.7336	ug/l	2.3	29859.34	
Mo	95	115	He	2.0070	ug/l	3.4	9541.67	
Mo	98	115	He	2.0196	ug/l	2.6	16652.80	
Ag	107	115	He	0.1473	ug/l	5.5	2748.02	
Ag	109	115	He	0.1539	ug/l	5.9	2826.93	
Cd	111	115	He	1.9924	ug/l	3.0	4429.09	
Cd	114	115	He	2.0092	ug/l	0.7	11714.30	
[Pb]	206	175	He	16.7655	ug/l	1.2	253073.75	
[Pb]	207	175	He	16.1769	ug/l	1.5	207795.67	
Pb	208	175	He	16.3465	ug/l	1.6	976705.76	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	412346.80	0.5	460914.7	89.46	
Sc	45	No Gas	8816062.71	0.0	9182573.52	96.01	
Ge	72	H2	1655104.06	1.2	1980316.94	83.58	
Sc	45	He	186606.77	1.0	200416.97	93.11	
Ge	72	He	190326.41	0.7	208867.09	91.12	
In	115	He	2139005.09	0.6	2315438.09	92.38	
Lu	175	He	5839782.83	1.3	6180206.14	94.49	
Th	232	He	10608189.84	0.5	10768084.01	98.52	

Sample Report

Sample Name	K2407397-028
File Name	056SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 10:24:24
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	21254.9784	ug/l	3.8	493752442.60	
Se	77	72	H2	0.7028	ug/l	61.7	1409.06	
Se	78	72	H2	1.2052	ug/l	5.9	1163.04	
Cr	52	72	He	176.6942	ug/l	0.9	953274.79	
Cr	53	72	He	175.4504	ug/l	1.4	116994.60	
Ni	60	72	He	199.9933	ug/l	0.7	591666.49	
Ni	62	72	He	199.3508	ug/l	2.1	94023.99	
Cu	63	72	He	50.9995	ug/l	1.1	450006.49	
Cu	65	72	He	50.6583	ug/l	1.2	226824.63	
Zn	66	72	He	438.8618	ug/l	1.0	528345.50	
As	75	72	He	53.5104	ug/l	1.5	40552.25	
Mo	95	115	He	2.2098	ug/l	0.9	10446.65	
Mo	98	115	He	2.2014	ug/l	1.7	18047.59	
Ag	107	115	He	0.1365	ug/l	4.3	2535.77	
Ag	109	115	He	0.1364	ug/l	5.3	2493.54	
Cd	111	115	He	2.2060	ug/l	2.1	4875.39	
Cd	114	115	He	2.2293	ug/l	1.0	12920.19	
[Pb]	206	175	He	23.3837	ug/l	1.2	346930.46	
[Pb]	207	175	He	22.4746	ug/l	1.1	283766.43	
Pb	208	175	He	22.9150	ug/l	0.9	1345877.30	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	423852.26	0.1	460914.7	91.96	
Sc	45	No Gas	9041436.03	0.9	9182573.52	98.46	
Ge	72	H2	1593153.30	3.0	1980316.94	80.45	
Sc	45	He	181220.51	1.0	200416.97	90.42	
Ge	72	He	182309.47	0.5	208867.09	87.28	
In	115	He	2127109.53	1.6	2315438.09	91.87	
Lu	175	He	5740981.58	1.1	6180206.14	92.89	
Th	232	He	10145794.64	1.4	10768084.01	94.22	

Sample Report

Sample Name	K2407397-029
File Name	057SMPL.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 10:26:58
Sample Type	Sample
Comment	5X
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	17183.7538	ug/l	4.1	386991540.18	
Se	77	72	H2	0.5063	ug/l	53.4	1370.06	
Se	78	72	H2	1.1703	ug/l	2.8	1145.04	
Cr	52	72	He	153.5742	ug/l	1.4	834455.68	
Cr	53	72	He	153.6375	ug/l	0.8	103234.75	
Ni	60	72	He	143.7113	ug/l	0.7	428174.55	
Ni	62	72	He	142.3703	ug/l	1.4	67626.63	
Cu	63	72	He	38.1160	ug/l	1.2	338731.48	
Cu	65	72	He	37.7709	ug/l	1.3	170324.01	
Zn	66	72	He	369.6052	ug/l	0.7	448119.62	
As	75	72	He	38.8220	ug/l	0.3	29632.94	
Mo	95	115	He	2.9378	ug/l	1.0	13904.70	
Mo	98	115	He	2.8748	ug/l	1.6	23601.15	
Ag	107	115	He	0.1247	ug/l	7.8	2320.18	
Ag	109	115	He	0.1242	ug/l	3.6	2277.95	
Cd	111	115	He	1.9822	ug/l	1.7	4388.25	
Cd	114	115	He	1.9845	ug/l	0.4	11523.83	
[Pb]	206	175	He	15.4607	ug/l	1.1	230302.52	
[Pb]	207	175	He	14.9689	ug/l	0.9	189749.79	
Pb	208	175	He	15.1362	ug/l	1.1	892509.77	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	410946.09	0.5	460914.7	89.16	
Sc	45	No Gas	8698083.54	1.3	9182573.52	94.72	
Ge	72	H2	1613031.39	0.2	1980316.94	81.45	
Sc	45	He	179041.71	1.9	200416.97	89.33	
Ge	72	He	183592.28	0.2	208867.09	87.9	
In	115	He	2130363.81	1.5	2315438.09	92.01	
Lu	175	He	5762539.91	1.4	6180206.14	93.24	
Th	232	He	10344428.60	1.1	10768084.01	96.07	

Continuing Calibration Verification (CCV) Report

Sample Name	CCV
File Name	058_CCV.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 10:33:33
Sample Type	CCV
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	% Rec	QC Flag
Al	27	6	No Gas	254.6573	ug/l	3.8	5873538.79	101.86	
Se	77	72	H2	24.2417	ug/l	2.1	8403.41	96.97	
Se	78	72	H2	24.6146	ug/l	0.8	23554.24	98.46	
Cr	52	72	He	25.8707	ug/l	2.0	143782.29	103.48	
Cr	53	72	He	25.6838	ug/l	1.4	18046.16	102.74	
Ni	60	72	He	25.6435	ug/l	1.9	78003.20	102.57	
Ni	62	72	He	25.6401	ug/l	2.5	12432.34	102.56	
Cu	63	72	He	25.6165	ug/l	1.8	232284.86	102.47	
Cu	65	72	He	25.1828	ug/l	1.4	115869.98	100.73	
Zn	66	72	He	25.1972	ug/l	2.0	31252.87	100.79	
As	75	72	He	25.2950	ug/l	1.0	19703.35	101.18	
Mo	95	115	He	12.2380	ug/l	0.9	58024.35	97.9	
Mo	98	115	He	12.2312	ug/l	0.7	100595.84	97.85	
Ag	107	115	He	12.0665	ug/l	1.3	222365.38	96.53	
Ag	109	115	He	12.2001	ug/l	0.7	221827.87	97.6	
Cd	111	115	He	24.0926	ug/l	0.8	53377.05	96.37	
Cd	114	115	He	24.0677	ug/l	0.7	139681.80	96.27	
[Pb]	206	175	He	24.6964	ug/l	1.0	358341.83	98.79	
[Pb]	207	175	He	24.5369	ug/l	1.8	302967.06	98.15	
Pb	208	175	He	24.5484	ug/l	1.0	1409988.66	98.19	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	420449.34	1.3	460914.7	91.22	
Sc	45	No Gas	8633159.10	1.2	9182573.52	94.02	
Ge	72	H2	1597096.81	1.5	1980316.94	80.65	
Sc	45	He	179206.16	0.6	200416.97	89.42	
Ge	72	He	187306.22	1.4	208867.09	89.68	
In	115	He	2135221.37	0.3	2315438.09	92.22	
Lu	175	He	5614637.42	1.3	6180206.14	90.85	
Th	232	He	10315028.80	1.4	10768084.01	95.79	

Continuing Calibration Blank (CCB) Report

Sample Name	CCB
File Name	059_CCB.d
Data Path Name	D:\Agilent\ICPMH\1\DATA\080624A.b
Acq Time	2024-08-06 10:36:07
Sample Type	CCB
Comment	---
ISTD Ref FileName	003CALB.d
Operator	**ALKLS** **NoUser**

QC Analyte Table

Name	Mass	ISTD	Tune Mode	Conc.	Units	Conc. RSD	CPS	QC Flag
Al	27	6	No Gas	0.4030	ug/l	6.1	16131.88	
Se	77	72	H2	-0.7353	ug/l	N/A	1005.03	
Se	78	72	H2	0.0027	ug/l	129.9	17.33	
Cr	52	72	He	0.0070	ug/l	167.5	512.23	
Cr	53	72	He	-0.2395	ug/l	N/A	364.45	
Ni	60	72	He	0.0057	ug/l	227.7	98.89	
Ni	62	72	He	0.0098	ug/l	207.3	16.67	
Cu	63	72	He	0.0011	ug/l	372.4	202.23	
Cu	65	72	He	0.0056	ug/l	44.0	105.56	
Zn	66	72	He	0.0929	ug/l	31.2	211.11	
As	75	72	He	0.0099	ug/l	42.5	27.00	
Mo	95	115	He	0.0032	ug/l	78.9	26.67	
Mo	98	115	He	0.0023	ug/l	77.8	36.66	
Ag	107	115	He	0.0005	ug/l	237.2	37.78	
Ag	109	115	He	0.0021	ug/l	50.9	63.33	
Cd	111	115	He	0.0038	ug/l	57.9	16.67	
Cd	114	115	He	0.0036	ug/l	28.8	57.50	
[Pb]	206	175	He	0.0046	ug/l	18.5	260.00	
[Pb]	207	175	He	0.0071	ug/l	16.3	216.67	
Pb	208	175	He	0.0055	ug/l	3.7	945.57	

QC ISTD Table

Name	Mass	Tune Mode	CPS	CPS RSD	Ref CPS	% Rec	QC Flag
Li	6	No Gas	412211.42	2.0	460914.7	89.43	
Sc	45	No Gas	8574668.83	1.1	9182573.52	93.38	
Ge	72	H2	1624337.30	1.0	1980316.94	82.02	
Sc	45	He	177427.88	1.5	200416.97	88.53	
Ge	72	He	186280.66	1.3	208867.09	89.19	
In	115	He	2161323.89	1.6	2315438.09	93.34	
Lu	175	He	5767738.66	1.3	6180206.14	93.33	
Th	232	He	10190825.26	3.2	10768084.01	94.64	

CVAA Mercury Soil Data Review Form

K-CVAA-04

Element:	Hg		
Analysis Lot #:	072524E HG4		
Starlims #:	848628		
Cal. STD/CCV Source:	HG4-10-X		
Pipette IDs:	HG-43188965/HG-39591307		
16mL Tube Lot #:	P7664876		
KMnO4:	HG4-10-U	Expiration Date:	7/23/2025
NH2OH-HCl/NaCl	HG4 10-E	Expiration Date:	7/5/2025
SnCl2/HCl:	HG4-10-D	Expiration Date:	7/5/2025

Service Request Numbers:
K2407397, K2407411, K2407397, K2407513, K2407071, K2407309

	Yes	No	NA
1) Appropriate standardization completed	X		
2) ICV within 10% of true value	X		
3) CCVs in control (+/- 10%)	X		
4) CCBs and or ICBs below MRL	X		
5) CCV/CCB check run every 10 samples	X		
6) All reported samples within calibration range	X		
7) Percent relative errors in control	X		
8) Calculations correct	X		

Comments:

Data reviewed against service request(s) to ensure no samples were omitted: ___ (Initials)

Primary Reviewed By: _____ Date: 7.26.24

Secondary Reviewed By: _____ Date: 7/26/24

Data Review Form

Instrument ID#: **K-CVAA-04**
DataFile Name: **R:\ICP\WIP\DATA\K-CVAA-04 (M-7600)\072524E HG4.csv**
RUNNO: **848628**

K2407071

K2407071-001DUP - Hg -
DUP RPD
7471B/Hg - HG - RPD: 30 Limit: 20

Non-homogeneous sample
KL 7.26.24

K2407309

No exceptions to report.

K2407397

No exceptions to report.

K2407411

No exceptions to report.

K2407513

No exceptions to report.

Primary Approver: 7.26.24
Secondary Approver: 7/26/24

CVAA Hg ANALYTICAL WORKSHEET

Method: 7471B	Cal. Inter. Std* (100ppb): HG4-10-X 2nd Source Inter Std** (1ppm): HG4-9-O

Analysis For: Hg

DATA

Pos.	SAMPLE NUMBER	Measured (µg/L)	Dilution Factor	Recoveries (ICV, CCV, LCS, MS)		Comments:
1	Cal. Blk.	0.000	~	~		
2	Std 0.2*	0.200	~	(0.10-50mL)		
3	Std 0.5*	0.500	~	(0.25-50mL)		
4	Std 1.0*	1.000	~	(0.5-50mL)		
5	Std 5.0*	5.000	~	(2.5-50mL)		
6	Std 10.0*	10.000	~	(5.0-50mL)		
7	ICV1**	4.849	~	97%		
8	ICB1	-0.005	~			
9	LLICV1*	0.196	~	98%		
10	CCV1*	5.001	~	100%		
11	CCB1	-0.003	~			
12	KQ2411058-03	0.002	~			
13	KQ2411058-04	4.882	~	98%		
14	K2407397-001	0.069	~			
15	KQ2411058-01	0.110	~			
16	KQ2411058-02	4.816	~	95%		
17	K2407397-001A	4.875	~	96%		
18	K2407397-002	0.072	~			
19	K2407397-003	0.133	~			
20	K2407397-004	0.101	~			
21	K2407397-005	0.073	~			
22	CCV2	4.974	~	99%		
23	CCB2	-0.004	~			
24	K2407397-006	0.166	~			
25	K2407397-007	0.175	~			
26	K2407397-008	0.379	~			
27	K2407397-009	0.505	~			
28	K2407397-010	0.225	~			
29	K2407397-011	0.255	~			
30	K2407397-012	0.218	~			
31	K2407397-013	0.340	~			
32	K2407397-014	0.314	~			

Comments:

Soil/Tissue Spike Level:

Method	Spike Level	MRL	LCS Limit	MS Limit	RPD	Post-Spike @ 5ppb
7470A Water	5.0 µg/L	0.2 µg/L	80-120%	75-125%	20%	+/- 20%
245.1 Water	5.0 µg/L	0.2 µg/L	85-115%	70-130%	20%	+/- 20%
7470A TCLP	5.0 µg/L	1.0 µg/L	80-120%	75-125%	20%	+/- 20%
7471A Soil LCSS	7.1mg/kg	0.02 mg/kg	51-149%	80-120%	20%	+/- 20%
7471A Tissue Dorm	0.41 mg/kg	0.02 mg/kg	68-136%	80-120%	20%	+/- 20%

[072524E HG4 7471] HG1.XLS

CVAA Hg ANALYTICAL WORKSHEET

Analysis For: Hg — DATA

Pos.	SAMPLE NUMBER	Measured (µg/L)	Dilution Factor	Recoveries (ICV, CCV, LCS, MS)		Comments:
33	K2407397-015	0.276	~			
34	CCV3	4.952	~	99%		
35	CCB3	-0.004	~			
36	K2407397-016	0.172	~			
37	K2407397-017	0.312	~			
38	K2407397-018	0.407	~			
39	K2407397-019	0.529	~			
40	K2407397-020	0.227	~			
41	KQ2411131-03	0.001	~			
42	KQ2411131-04	4.828	~	97%		
43	K2407411-001	0.219	~			
44	KQ2411131-01	0.220	~			
45	KQ2411131-02	4.896	~	93%		
46	CCV4	4.962	~	99%		
47	CCB4	-0.003	~			
48	K2407411-001A	5.027	~	96%		
49	K2407411-002	0.202	~			
50	K2407411-003	0.210	~			
51	K2407411-004	0.134	~			
52	K2407411-005	0.143	~			
53	K2407411-006	0.113	~			
54	K2407411-007	0.162	~			
55	KQ2411054-03	-0.001	~			
56	KQ2411054-04	4.806	~	96%		
57	K2407397-021	0.260	~			
58	CCV5	4.981	~	100%		
59	CCB5	-0.002	~			
60	K2407397-022	0.091	~			
61	K2407397-023	0.095	~			
62	K2407397-024	0.218	~			
63	KQ2411054-01	0.212	~			
64	KQ2411054-02	5.004	~	96%		

Comments:

Soil/Tissue Spike Level:

Method	Spike Level	MRL	LCS Limit	MS Limit	RPD	Post-Spike @ 5ppb
7470A Water	5.0 µg/L	0.2 µg/L	80-120%	75-125%	20%	+/- 20%
245.1 Water	5.0 µg/L	0.2 µg/L	85-115%	70-130%	20%	+/- 20%
7470A TCLP	5.0 µg/L	1.0 µg/L	80-120%	75-125%	20%	+/- 20%
7471A Soil LCSS	7.1mg/kg	0.02 mg/kg	51-149%	80-120%	20%	+/- 20%
7471A Tissue Dorm	0.41 mg/kg	0.02 mg/kg	68-136%	80-120%	20%	+/- 20%

[072524E HG4 7471] HG2.XLS

CVAA Hg ANALYTICAL WORKSHEET

Analysis For: Hg		DATA				
Pos.	SAMPLE NUMBER	Measured (µg/L)	Dilution Factor	Recoveries (ICV, CCV, LCS, MS)		Comments:
65	K2407397-024A	5.028	~	96%		
66	K2407397-025	0.184	~			
67	K2407397-026	0.164	~			
68	K2407397-027	0.211	~			
69	K2407397-028	0.244	~			
70	CCV6	5.062	~	101%		
71	CCB6	-0.001	~			
72	K2407397-029	0.330	~			
73	KQ2411203-03	-0.001	~			
74	KQ2411203-04	4.942	~	99%		
75	K2407513-001	0.520	~			
76	KQ2411203-01	0.427	~			
77	KQ2411203-02	5.442	~	99%		
78	K2407513-001A	5.434	~	98%		
79	K2407513-002	0.466	~			
80	K2407513-003	1.063	~			
81	KQ2411240-03	-0.012	~			
82	CCV7	5.008	~	100%		
83	CCB7	-0.005	~			
84	KQ2411240-04	4.859	~	97%		
85	K2407071-001	1.536	~			
86	KQ2411240-01	1.057	~	RPD=30%		non-homogenous sample
87	KQ2411240-02	5.652	~	81%		
88	K2407071-001A	5.921	~	88%		
89	K2407071-002	1.025	~			
90	K2407071-003	2.176	~			
91	K2407071-004	1.170	~			
92	K2407071-005	1.284	~			
93	K2407071-006	4.127	~			
94	CCV8	4.913	~	98%		
95	CCB8	-0.006	~			
96	K2407071-007	2.489	~			

MM 7.26.24

Comments:

Soil/Tissue Spike Level:

Method	Spike Level	MRL	LCS Limit	MS Limit	RPD	Post-Spike @ 5ppb
7470A Water	5.0 µg/L	0.2 µg/L	80-120%	75-125%	20%	+/- 20%
245.1 Water	5.0 µg/L	0.2 µg/L	85-115%	70-130%	20%	+/- 20%
7470A TCLP	5.0 µg/L	1.0 µg/L	80-120%	75-125%	20%	+/- 20%
7471A Soil LCSS	7.1mg/kg	0.02 mg/kg	51-149%	80-120%	20%	+/- 20%
7471A Tissue Dorm	0.41 mg/kg	0.02 mg/kg	68-136%	80-120%	20%	+/- 20%

[072524E HG4 7471] HG3.XLS

CVAA Hg ANALYTICAL WORKSHEET

Analysis For: Hg — DATA

Pos.	SAMPLE NUMBER	Measured (µg/L)	Dilution Factor	Recoveries (ICV, CCV, LCS, MS)		Comments:
97	K2407071-008	7.911	~			
98	K2407071-009	0.890	~			
99	K2407071-010	1.842	~			
100	K2407071-011	4.426	~			
101	K2407071-012	1.040	~			
102	K2407071-013	0.529	~			
103	~~K2407071-014~~	~~O/R~~	~			See dilution
104	K2407071-015	2.277	~			
105	~~K2407071-016~~	~~O/R~~	~			See dilution
106	CCV9	4.896	~	98%		
107	CCB9	-0.007	~			
108	K2407071-017	0.991	~			
109	K2407071-018	3.530	~			
110	K2407071-019	2.423	~			
111	K2407071-020	2.514	~			
112	KQ2410961-03	-0.021	~			
113	KQ2410961-04	4.803	~	96%		
114	K2407309-001	0.181	~			
115	KQ2410961-01	0.169	~			
116	KQ2410961-02	4.982	~	96%		
117	K2407309-001A	4.997	~	96%		
118	CCV10	4.968	~	99%		
119	CCB10	-0.004	~			
120	K2407071-014 5X	3.102	5			
121	K2407071-016 5X	3.033	5			
122	CCV11	4.964	~	99%		
123	CCB11	-0.003	~			
124						
125						
126						
127						
128						

Comments:

Soil/Tissue Spike Level:

Method	Spike Level	MRL	LCS Limit	MS Limit	RPD	Post-Spike @ 5ppb
7470A Water	5.0 µg/L	0.2 µg/L	80-120%	75-125%	20%	+/- 20%
245.1 Water	5.0 µg/L	0.2 µg/L	85-115%	70-130%	20%	+/- 20%
7470A TCLP	5.0 µg/L	1.0 µg/L	80-120%	75-125%	20%	+/- 20%
7471A Soil LCSS	7.1mg/kg	0.02 mg/kg	51-149%	80-120%	20%	+/- 20%
7471A Tissue Dorm	0.41 mg/kg	0.02 mg/kg	68-136%	80-120%	20%	+/- 20%

[072524E HG4 7471] HG4.XLS

Report Generated By Teledyne Leeman QuickTrace

Analyst: alkls.nouser

Worksheet file: C:\Users\Public\Documents\Teledyne CETAC\QuickTrace\Worksheets\072524E HG4.wszf

Creation Date: 7/25/2024 10:20:58 AM

Comment:

Results

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual Flags	Wt. (g)	Vol (ml)
Calibration Blank				STD		0.000		411	1.93			
			1.0000				N/A					
Replicates		420.5		415.2		407.5		402.5				
Standard #1 (0.2 ug/L)				STD		0.200		1988	0.49	-1.72%		
			1.0000				N/A					
Replicates		1976.6		1985.9		2000.2		1988.4				
Standard #2 (0.5 ug/L)				STD		0.500		4326	0.86	-2.36%		
			1.0000				N/A					
Replicates		4280.4		4363.6		4348.5		4312.8				
Standard #3 (1 ug/L)				STD		1.000		8282	0.47	-1.86%		
			1.0000				N/A					
Replicates		8237.5		8270.0		8330.2		8288.5				
Standard #4 (5 ug/L)				STD		5.000		40276	0.60	-0.58%		
			1.0000				N/A					
Replicates		39956.4		40319.0		40546.3		40281.1				
Standard #5 (10 ug/L)				STD		10.000		80740	0.57	0.17%		
			1.0000				N/A					
Replicates		80141.2		80843.3		81261.3		80715.8				

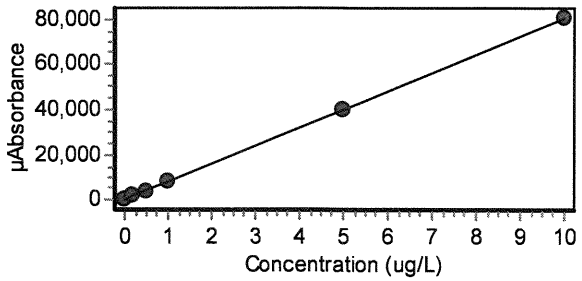
Calibration

Equation: Abs = 8019.272x + 411.446

R2: 0.99998 RSE: 2.03%

SEE: 186.5704

Flags:



ICV1				ICV		4.849		39299	0.58			
			1.0000				96.99					
Replicates		38998.7		39363.5		39539.0		39295.8				
ICB1				ICB		-0.005		369	26.47			
			1.0000				N/A					
Replicates		358.7		382.6		373.6		360.8				
LLICV1				CRDL		0.196		1980	1.57			
			1.0000				97.79					
Replicates		1947.1		1974.6		1997.3		2000.3				

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
CCV1				CCV		5.001		40516	0.48				
			1.0000				100.02						
Replicates	40289.4	40578.1	40742.3	40452.6									
CCB1				CCB		-0.003		383	57.02				
			1.0000				N/A						
Replicates	373.4	368.0	403.2	389.3									
KQ2411058-03				UNK		0.002		424	77.69				
			1.0000				N/A						
Replicates	426.1	410.5	434.5	426.3									
KQ2411058-04				UNK		4.882		39565	0.44				
			1.0000				N/A						
Replicates	39375.7	39642.7	39762.2	39479.2									
K2407397-001				UNK		0.069		968	0.44				
			1.0000				N/A						
Replicates	968.1	968.5	971.4	965.4									
KQ2411058-01				UNK		0.110		1297	1.65				
			1.0000				N/A						
Replicates	1279.3	1314.7	1298.9	1293.5									
KQ2411058-02				UNK		4.816		39030	0.50				
			1.0000				N/A						
Replicates	38802.8	39101.0	39255.7	38959.4									
K2407397-001A				UNK		4.875		39509	0.53				
			1.0000				N/A						
Replicates	39258.0	39582.3	39746.8	39447.7									
K2407397-002				UNK		0.072		992	2.90				
			1.0000				N/A						
Replicates	990.7	1012.5	971.4	992.7									
K2407397-003				UNK		0.133		1481	1.12				
			1.0000				N/A						
Replicates	1463.5	1490.5	1484.3	1485.6									
K2407397-004				UNK		0.101		1223	0.90				
			1.0000				N/A						
Replicates	1218.0	1232.2	1216.7	1226.2									
K2407397-005				UNK		0.073		1001	1.93				
			1.0000				N/A						
Replicates	988.9	1016.2	999.2	998.7									
CCV2				CCV		4.974		40297	0.61				
			1.0000				99.47						
Replicates	39967.8	40359.9	40552.7	40308.6									
CCB2				CCB		-0.004		377	57.75				
			1.0000				N/A						
Replicates	346.7	386.7	389.9	383.2									

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
K2407397-006				UNK		0.166		1740	1.74				
			1.0000				N/A						
Replicates	1717.6	1729.8	1771.4	1740.6									
K2407397-007				UNK		0.175		1812	0.98				
			1.0000				N/A						
Replicates	1810.8	1813.4	1828.4	1794.9									
K2407397-008				UNK		0.379		3451	0.76				
			1.0000				N/A						
Replicates	3436.7	3458.6	3480.0	3428.5									
K2407397-009				UNK		0.505		4459	0.49				
			1.0000				N/A						
Replicates	4446.8	4459.7	4487.2	4444.3									
K2407397-010				UNK		0.225		2214	0.84				
			1.0000				N/A						
Replicates	2206.9	2228.9	2222.9	2195.5									
K2407397-011				UNK		0.255		2460	0.94				
			1.0000				N/A						
Replicates	2447.3	2472.9	2479.9	2440.2									
K2407397-012				UNK		0.218		2156	0.66				
			1.0000				N/A						
Replicates	2150.3	2168.3	2162.3	2142.8									
K2407397-013				UNK		0.340		3136	1.41				
			1.0000				N/A						
Replicates	3095.1	3154.5	3179.7	3113.9									
K2407397-014				UNK		0.314		2931	1.49				
			1.0000				N/A						
Replicates	2893.8	2938.5	2980.5	2913.0									
K2407397-015				UNK		0.276		2621	0.31				
			1.0000				N/A						
Replicates	2617.0	2630.2	2622.0	2615.0									
CCV3				CCV		4.952		40125	0.52				
			1.0000				99.04						
Replicates	39874.0	40177.7	40366.7	40080.0									
CCB3				CCB		-0.004		382	39.20				
			1.0000				N/A						
Replicates	389.0	380.1	366.9	392.7									
K2407397-016				UNK		0.172		1788	0.47				
			1.0000				N/A						
Replicates	1780.3	1794.0	1793.0	1785.1									
K2407397-017				UNK		0.312		2913	0.82				
			1.0000				N/A						
Replicates	2884.2	2928.8	2926.3	2912.2									

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
K2407397-018				UNK		0.407		3675	0.85				
		1.0000					N/A						
Replicates	3653.6	3678.0	3713.1	3655.1									
K2407397-019				UNK		0.529		4650	0.63				
		1.0000					N/A						
Replicates	4630.2	4635.1	4688.7	4646.1									
K2407397-020				UNK		0.227		2230	0.35				
		1.0000					N/A						
Replicates	2233.7	2221.2	2235.0	2231.5									
KQ2411131-03				UNK		0.001		419	132.74				
		1.0000					N/A						
Replicates	406.0	420.0	431.8	419.7									
KQ2411131-04				UNK		4.828		39131	0.39				
		1.0000					N/A						
Replicates	38953.9	39141.7	39323.4	39103.6									
K2407411-001				UNK		0.219		2166	0.84				
		1.0000					N/A						
Replicates	2147.9	2163.5	2183.3	2169.7									
KQ2411131-01				UNK		0.220		2173	0.66				
		1.0000					N/A						
Replicates	2157.6	2171.7	2181.3	2182.7									
KQ2411131-02				UNK		4.896		39676	0.62				
		1.0000					N/A						
Replicates	39367.8	39743.6	39952.0	39639.5									
CCV4				CCV		4.962		40200	0.61				
		1.0000					99.23						
Replicates	39880.8	40232.7	40472.2	40215.2									
CCB4				CCB		-0.003		384	33.91				
		1.0000					N/A						
Replicates	371.8	379.9	391.2	391.2									
K2407411-001A				UNK		5.027		40721	0.55				
		1.0000					N/A						
Replicates	40458.0	40829.9	40965.2	40631.4									
K2407411-002				UNK		0.202		2031	0.59				
		1.0000					N/A						
Replicates	2016.4	2037.0	2035.0	2034.0									
K2407411-003				UNK		0.210		2098	1.07				
		1.0000					N/A						
Replicates	2078.7	2122.6	2097.5	2095.1									
K2407411-004				UNK		0.134		1489	1.19				
		1.0000					N/A						
Replicates	1489.1	1505.9	1484.5	1475.2									

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
K2407411-005				UNK		0.143		1561	1.76				
			1.0000				N/A						
Replicates	1539.9	1585.7	1567.4	1549.7									
K2407411-006				UNK		0.113		1315	2.13				
			1.0000				N/A						
Replicates	1293.4	1340.3	1314.8	1313.5									
K2407411-007				UNK		0.162		1712	1.41				
			1.0000				N/A						
Replicates	1695.7	1732.7	1722.4	1697.7									
KQ2411054-03				UNK		-0.001		403	73.55				
			1.0000				N/A						
Replicates	407.5	397.3	399.1	409.3									
KQ2411054-04				UNK		4.806		38951	0.55				
			1.0000				N/A						
Replicates	38675.2	38985.2	39194.2	38949.6									
K2407397-021				UNK		0.260		2493	1.07				
			1.0000				N/A						
Replicates	2464.7	2509.9	2511.1	2485.1									
CCV5				CCV		4.981		40357	0.59				
			1.0000				99.62						
Replicates	40060.2	40429.3	40619.8	40318.3									
CCB5				CCB		-0.002		397	93.43				
			1.0000				N/A						
Replicates	394.9	412.2	400.4	378.7									
K2407397-022				UNK		0.091		1138	1.55				
			1.0000				N/A						
Replicates	1134.9	1153.9	1128.2	1133.4									
K2407397-023				UNK		0.095		1172	1.09				
			1.0000				N/A						
Replicates	1166.0	1167.2	1171.0	1184.0									
K2407397-024				UNK		0.218		2161	0.77				
			1.0000				N/A						
Replicates	2150.5	2154.9	2180.7	2159.2									
KQ2411054-01				UNK		0.212		2113	0.65				
			1.0000				N/A						
Replicates	2103.8	2103.7	2121.2	2124.2									
KQ2411054-02				UNK		5.004		40543	0.45				
			1.0000				N/A						
Replicates	40364.3	40604.3	40769.0	40435.6									
K2407397-024A				UNK		5.028		40730	0.62				
			1.0000				N/A						
Replicates	40419.4	40781.1	41027.9	40692.1									

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
K2407397-025				UNK		0.184		1885	1.21				
		1.0000					N/A						
Replicates	1866.9	1893.9	1905.1	1872.9									
K2407397-026				UNK		0.164		1729	0.82				
		1.0000					N/A						
Replicates	1741.2	1727.5	1715.5	1732.6									
K2407397-027				UNK		0.211		2100	0.24				
		1.0000					N/A						
Replicates	2095.0	2104.6	2098.9	2101.2									
K2407397-028				UNK		0.244		2370	0.72				
		1.0000					N/A						
Replicates	2349.5	2372.0	2381.0	2377.2									
CCV6				CCV		5.062		41005	0.54				
		1.0000					101.24						
Replicates	40774.9	41110.7	41260.3	40874.2									
CCB6				CCB		-0.001		400	118.73				
		1.0000					N/A						
Replicates	382.8	415.6	403.7	397.7									
K2407397-029				UNK		0.330		3061	0.97				
		1.0000					N/A						
Replicates	3044.4	3063.4	3095.7	3038.9									
KQ2411203-03				UNK		-0.001		405	249.70				
		1.0000					N/A						
Replicates	383.0	425.2	403.2	406.7									
KQ2411203-04				UNK		4.942		40043	0.50				
		1.0000					N/A						
Replicates	39804.6	40109.7	40273.2	39985.9									
K2407513-001				UNK		0.520		4583	0.54				
		1.0000					N/A						
Replicates	4564.8	4564.6	4611.2	4589.7									
KQ2411203-01				UNK		0.427		3839	0.81				
		1.0000					N/A						
Replicates	3822.1	3869.8	3852.9	3809.3									
KQ2411203-02				UNK		5.442		44050	0.52				
		1.0000					N/A						
Replicates	43837.2	44207.7	44283.0	43870.5									
K2407513-001A				UNK		5.434		43989	0.57				
		1.0000					N/A						
Replicates	43714.0	44088.6	44280.9	43872.7									
K2407513-002				UNK		0.466		4149	0.84				
		1.0000					N/A						
Replicates	4112.0	4146.0	4189.0	4147.9									

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
K2407513-003				UNK		1.063		8936	0.79				
		1.0000					N/A						
Replicates	8866.0	8943.1	9025.3	8910.1									
KQ2411240-03				UNK		-0.012		317	23.03				
		1.0000					N/A						
Replicates	313.8	318.5	344.0	290.8									
CCV7				CCV		5.008		40574	0.54				
		1.0000					100.16						
Replicates	40339.6	40668.0	40824.3	40463.3									
CCB7				CCB		-0.005		368	12.43				
		1.0000					N/A						
Replicates	373.0	360.7	366.0	370.7									
KQ2411240-04				UNK		4.859		39379	0.72				
		1.0000					N/A						
Replicates	39026.4	39493.1	39686.8	39311.3									
K2407071-001				UNK		1.536		12732	0.48				
		1.0000					N/A						
Replicates	12675.3	12756.8	12802.5	12692.8									
KQ2411240-01				UNK		1.057		8887	0.53				
		1.0000					N/A						
Replicates	8832.1	8928.3	8919.3	8869.8									
KQ2411240-02				UNK		5.652		45736	0.53				
		1.0000					N/A						
Replicates	45481.8	45843.1	46017.0	45601.5									
K2407071-001A				UNK		5.921		47896	0.62				
		1.0000					N/A						
Replicates	47524.9	47973.2	48237.7	47848.5									
K2407071-002				UNK		1.025		8633	0.92				
		1.0000					N/A						
Replicates	8532.5	8632.6	8715.6	8650.8									
K2407071-003				UNK		2.176		17864	0.69				
		1.0000					N/A						
Replicates	17707.4	17874.3	18000.0	17874.1									
K2407071-004				UNK		1.170		9797	0.81				
		1.0000					N/A						
Replicates	9705.4	9815.6	9887.0	9779.5									
K2407071-005				UNK		1.284		10707	0.59				
		1.0000					N/A						
Replicates	10628.4	10719.4	10774.7	10705.1									
K2407071-006				UNK		4.127		33508	0.73				
		1.0000					N/A						
Replicates	33177.6	33540.5	33752.7	33560.3									

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type Spike Vol	Conc (ug/L) % Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
CCV8				CCV	4.913	39814	0.64				
			1.0000		98.27						
	Replicates	39505.3	39893.3	40105.3	39751.0						
CCB8				CCB	-0.006	365	17.75				
			1.0000		N/A						
	Replicates	354.1	365.2	369.0	373.2						
K2407071-007				UNK	2.489	20373	0.61				
			1.0000		N/A						
	Replicates	20215.9	20409.2	20506.6	20360.9						
K2407071-008				UNK	7.911	63851	0.69				
			1.0000		N/A						
	Replicates	63284.4	63944.5	64340.0	63834.7						
K2407071-009				UNK	0.890	7552	1.04				
			1.0000		N/A						
	Replicates	7449.2	7553.5	7624.3	7580.7						
K2407071-010				UNK	1.842	15180	0.70				
			1.0000		N/A						
	Replicates	15050.5	15197.4	15302.4	15168.2						
K2407071-011				UNK	4.426	35904	0.60				
			1.0000		N/A						
	Replicates	35623.8	35984.4	36126.2	35881.6						
K2407071-012				UNK	1.040	8749	0.53				
			1.0000		N/A						
	Replicates	8684.7	8759.1	8788.3	8762.0						
K2407071-013				UNK	0.529	4657	4.82				
			1.0000		N/A						
	Replicates	4436.5	4558.2	4728.4	4906.4						
K2407071-014				UNK	14.626	117700	0.65		O		
			1.0000		N/A						
	Replicates	116721.0	117893.8	118571.0	117613.8						
K2407071-015				UNK	2.277	18673	0.99				
			1.0000		N/A						
	Replicates	18422.3	18663.3	18835.8	18770.5						
K2407071-016				UNK	14.101	113489	0.76		O		
			1.0000		N/A						
	Replicates	112329.3	113570.1	114390.3	113664.5						
CCV9				CCV	4.896	39670	0.64				
			1.0000		97.91						
	Replicates	39378.2	39771.0	39956.3	39573.3						
CCB9				CCB	-0.007	355	16.66				
			1.0000		N/A						
	Replicates	344.3	355.6	367.1	354.1						

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
K2407071-017				UNK		0.991		8358	0.60				
			1.0000				N/A						
Replicates	8292.6	8361.1	8407.8	8368.8									
K2407071-018				UNK		3.530		28719	0.70				
			1.0000				N/A						
Replicates	28454.0	28774.9	28927.1	28718.8									
K2407071-019				UNK		2.423		19844	0.68				
			1.0000				N/A						
Replicates	19667.6	19888.3	19983.8	19834.6									
K2407071-020				UNK		2.514		20570	0.64				
			1.0000				N/A						
Replicates	20408.4	20620.1	20712.3	20539.1									
KQ2410961-03				UNK		-0.021		241	9.43				
			1.0000				N/A						
Replicates	246.0	255.9	244.1	218.2									
KQ2410961-04				UNK		4.803		38929	0.64				
			1.0000				N/A						
Replicates	38601.6	39031.7	39181.9	38899.6									
K2407309-001				UNK		0.181		1865	0.44				
			1.0000				N/A						
Replicates	1858.4	1873.5	1862.5	1864.9									
KQ2410961-01				UNK		0.169		1764	1.68				
			1.0000				N/A						
Replicates	1744.3	1753.8	1796.3	1761.8									
KQ2410961-02				UNK		4.982		40365	0.59				
			1.0000				N/A						
Replicates	40060.2	40430.5	40632.0	40338.2									
K2407309-001A				UNK		4.997		40487	0.59				
			1.0000				N/A						
Replicates	40194.4	40548.0	40763.8	40441.3									
CCV10				CCV		4.968		40251	0.67				
			1.0000				99.36						
Replicates	39935.7	40363.9	40556.0	40149.4									
CCB10				CCB		-0.004		380	26.20				
			1.0000				N/A						
Replicates	376.7	369.6	388.0	385.0									
K2407071-014 5X				UNK		3.102		25284	0.65				
			1.0000				N/A						
Replicates	25070.1	25320.8	25463.8	25281.8									
K2407071-016 5X				UNK		3.033		24732	0.41				
			1.0000				N/A						
Replicates	24663.9	24794.4	24839.4	24630.1									

Sample Name	Aliq. Vol.	Diln. Vol	DF	Type	Spike Vol	Conc (ug/L)	% Recovery	µAbs	%RSD	Residual	Flags	Wt. (g)	Vol (ml)
CCV11				CCV		4.964		40217	0.61				
			1.0000				99.28						
	Replicates	39941.7	40338.6	40488.6	40100.4								
CCB11				CCB		-0.003		388	14.39				
			1.0000				N/A						
	Replicates	390.6	389.3	390.1	383.5								

Preparation Information Benchsheet

Prep Run#: 441811
Team: Metals/KLINN
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 7/24/24 14:15

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411058-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2411058-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2407397-001	2024GCMCCS1	.01	7471B/Hg		Sediment	0.508g	50.00mL	ZBIBI k-balance-50
4	KQ2411058-01	K2407397-001 DUP	.01	7471B/Hg		Solid	0.578g	50.00mL	ZBIBI k-balance-50
5	KQ2411058-02	K2407397-001 MS	.01	7471B/Hg		Solid	0.521g	50.00mL	ZBIBI k-balance-50
6	K2407397-002	2024GCMCCS2	.01	7471B/Hg		Sediment	0.564g	50.00mL	ZBIBI k-balance-50
7	K2407397-003	2024GCMCCS3	.01	7471B/Hg		Sediment	0.557g	50.00mL	ZBIBI k-balance-50
8	K2407397-004	2024GCMFCS1	.01	7471B/Hg		Sediment	0.576g	50.00mL	ZBIBI k-balance-50
9	K2407397-005	2024GCMFCS2	.01	7471B/Hg		Sediment	0.544g	50.00mL	ZBIBI k-balance-50
10	K2407397-006	2024GCMFCS3	.01	7471B/Hg		Sediment	0.511g	50.00mL	ZBIBI k-balance-50
11	K2407397-007	2024GCMZC371S1	.01	7471B/Hg		Sediment	0.540g	50.00mL	ZBIBI k-balance-50
12	K2407397-008	2024GCMZC371S2	.01	7471B/Hg		Sediment	0.534g	50.00mL	ZBIBI k-balance-50
13	K2407397-009	2024GCMZC371S3	.01	7471B/Hg		Sediment	0.545g	50.00mL	ZBIBI k-balance-50
14	K2407397-010	2024GCMTC808S1	.01	7471B/Hg		Sediment	0.531g	50.00mL	ZBIBI k-balance-50
15	K2407397-011	2024GCMTC808S2	.01	7471B/Hg		Sediment	0.516g	50.00mL	ZBIBI k-balance-50
16	K2407397-012	2024GCMTC808S3	.01	7471B/Hg		Sediment	0.548g	50.00mL	ZBIBI k-balance-50
17	K2407397-013	2024GCMTC808S4	.01	7471B/Hg		Sediment	0.532g	50.00mL	ZBIBI k-balance-50
18	K2407397-014	2024GCMTC808S5	.01	7471B/Hg		Sediment	0.540g	50.00mL	ZBIBI k-balance-50
19	K2407397-015	2024GCMTC9S1	.01	7471B/Hg		Sediment	0.572g	50.00mL	ZBIBI k-balance-50
20	K2407397-016	2024GCMTC9S2	.01	7471B/Hg		Sediment	0.579g	50.00mL	ZBIBI k-balance-50
21	K2407397-017	2024GCMTC9S3	.01	7471B/Hg		Sediment	0.564g	50.00mL	ZBIBI k-balance-50
22	K2407397-018	2024GCMGC63S1	.01	7471B/Hg		Sediment	0.535g	50.00mL	ZBIBI k-balance-50
23	K2407397-019	2024GCMGC63S2	.01	7471B/Hg		Sediment	0.561g	50.00mL	ZBIBI k-balance-50
24	K2407397-020	2024GCMGC63S3	.01	7471B/Hg		Sediment	0.596g	50.00mL	ZBIBI k-balance-50

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236066 Logbook Ref: HG4-9-O Expires On: 08/01/2024

KQ2411058-02 0.25mL KQ2411058-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube L223102601 (235884)
K-METPTFE Boiling chips 29036769 (234578)
K-MET HCl Hg 22K0862007 (233704)
K-MET HNO3 Hg 23C1462002 (232296)

Preparation Information Benchsheet

Prep Run#: 441811
Team: Metals/KLINN

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 7/24/24 14:15

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	7/24/24 14:15	Started:	7/24/24 14:15
Finished:	7/24/24 14:45	Finished:	7/24/24 14:45
By:	KLINN	By:	KLINN
Comments		Comments	

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	96.5 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	23	Hg-43188965	Digestion		
HG-39591307	Digestion			K-U72662	Digestion		

Comments: Cal. Std./CCV Source: HG4-10-X.

Reviewed By: _____ Date: 7/26/24

Preparation Information Benchsheet

25

Prep Run#: 441811
Team: Metals/ZBIBI
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 7/18/24 14:38 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	KQ2411058-03	MB			7471B / Hg	Solid						
2	KQ2411058-04	LCS			7471B / Hg	Solid						
3	K2407397-001	2024GCMCCS1	.01		7471B / Hg	Sediment						
4	KQ2411058-01	K2407397-001 DUP	.01		7471B / Hg	Solid						
5	KQ2411058-02	K2407397-001 MS	.01		7471B / Hg	Solid						
6	K2407397-002	2024GCMCCS2	.01		7471B / Hg	Sediment						
7	K2407397-003	2024GCMCCS3	.01		7471B / Hg	Sediment						
8	K2407397-004	2024GCMFCS1	.01		7471B / Hg	Sediment						
9	K2407397-005	2024GCMFCS2	.01		7471B / Hg	Sediment						
10	K2407397-006	2024GCMFCS3	.01		7471B / Hg	Sediment						
11	K2407397-007	2024GCMZC371S1	.01		7471B / Hg	Sediment						
12	K2407397-008	2024GCMZC371S2	.01		7471B / Hg	Sediment						
13	K2407397-009	2024GCMZC371S3	.01		7471B / Hg	Sediment						
14	K2407397-010	2024GCMTC808S1	.01		7471B / Hg	Sediment						
15	K2407397-011	2024GCMTC808S2	.01		7471B / Hg	Sediment						
16	K2407397-012	2024GCMTC808S3	.01		7471B / Hg	Sediment						
17	K2407397-013	2024GCMTC808S4	.01		7471B / Hg	Sediment						
18	K2407397-014	2024GCMTC808S5	.01		7471B / Hg	Sediment						
19	K2407397-015	2024GCMTC9S1	.01		7471B / Hg	Sediment						
20	K2407397-016	2024GCMTC9S2	.01		7471B / Hg	Sediment						
21	K2407397-017	2024GCMTC9S3	.01		7471B / Hg	Sediment						
22	K2407397-018	2024GCMGC63S1	.01		7471B / Hg	Sediment						
23	K2407397-019	2024GCMGC63S2	.01		7471B / Hg	Sediment						
24	K2407397-020	2024GCMGC63S3	.01		7471B / Hg	Sediment						

KMnO4 HG4-10-U

HG4-10-X

848628

Comments: BD14 T 96.5 T23 7.24.24 1415 - 1445

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 441811 **Container Lot No:** 2206050 **Prep Due Date:** Jul-26-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407397-001	.01	Hg : 7471B/	0.508g		ZBIBI k-balance-50
2	K2407397-001 DUP KQ2411058-01	.01	Hg : 7471B/	0.578g		ZBIBI k-balance-50
3	K2407397-001 MS KQ2411058-02	.01	Hg : 7471B/	0.521g		ZBIBI k-balance-50
4	K2407397-002	.01	Hg : 7471B/	0.564g		ZBIBI k-balance-50
5	K2407397-003	.01	Hg : 7471B/	0.557g		ZBIBI k-balance-50
6	K2407397-004	.01	Hg : 7471B/	0.576g		ZBIBI k-balance-50
7	K2407397-005	.01	Hg : 7471B/	0.544g		ZBIBI k-balance-50
8	K2407397-006	.01	Hg : 7471B/	0.511g		ZBIBI k-balance-50
9	K2407397-007	.01	Hg : 7471B/	0.540g		ZBIBI k-balance-50
10	K2407397-008	.01	Hg : 7471B/	0.534g		ZBIBI k-balance-50
11	K2407397-009	.01	Hg : 7471B/	0.545g		ZBIBI k-balance-50
12	K2407397-010	.01	Hg : 7471B/	0.531g		ZBIBI k-balance-50
13	K2407397-011	.01	Hg : 7471B/	0.516g		ZBIBI k-balance-50
14	K2407397-012	.01	Hg : 7471B/	0.548g		ZBIBI k-balance-50
15	K2407397-013	.01	Hg : 7471B/	0.532g		ZBIBI k-balance-50
16	K2407397-014	.01	Hg : 7471B/	0.540g		ZBIBI k-balance-50
17	K2407397-015	.01	Hg : 7471B/	0.572g		ZBIBI k-balance-50
18	K2407397-016	.01	Hg : 7471B/	0.579g		ZBIBI k-balance-50
19	K2407397-017	.01	Hg : 7471B/	0.564g		ZBIBI k-balance-50
20	K2407397-018	.01	Hg : 7471B/	0.535g		ZBIBI k-balance-50
21	K2407397-019	.01	Hg : 7471B/	0.561g		ZBIBI k-balance-50
22	K2407397-020	.01	Hg : 7471B/	0.596g		ZBIBI k-balance-50

7/18/24 14:44

Relinquished By:	22B	Date/Time:	Received By:	Date/Time: 7.24.24 1400

Preparation Information Benchsheet

Prep Run#: 441877
Team: Metals/KLINN
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 7/24/24 14:15

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411131-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2411131-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2407411-001	Keith 0	.01	7471B/Hg		Sediment	0.511g	50.00mL	ZBIBI k-balance-50
4	KQ2411131-01	K2407411-001 DUP	.02	7471B/Hg		Solid	0.532g	50.00mL	ZBIBI k-balance-50
5	KQ2411131-02	K2407411-001 MS	.01	7471B/Hg		Solid	0.566g	50.00mL	ZBIBI k-balance-50
6	K2407411-002	Keith 10	.01	7471B/Hg		Sediment	0.559g	50.00mL	ZBIBI k-balance-50
7	K2407411-003	Keith 20	.02	7471B/Hg		Sediment	0.576g	50.00mL	ZBIBI k-balance-50
8	K2407411-004	Keith 30	.02	7471B/Hg		Sediment	0.526g	50.00mL	ZBIBI k-balance-50
9	K2407411-005	Keith 40	.02	7471B/Hg		Sediment	0.555g	50.00mL	ZBIBI k-balance-50
10	K2407411-006	Keith 50	.02	7471B/Hg		Sediment	0.529g	50.00mL	ZBIBI k-balance-50
11	K2407411-007	Keith 60	.02	7471B/Hg		Sediment	0.549g	50.00mL	ZBIBI k-balance-50

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236066 Logbook Ref: HG4-9-O Expires On: 08/01/2024

KQ2411131-02 0.25mL KQ2411131-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube L223102601 (235884) K-MET H2SO4 Hg 62057 (231680) K-MET HNO3 Hg 23C1462002 (232296)
K-METPTFE Boiling chips 29036769 (234578)

Preparation Steps

Step: Weigh
Started: 7/24/24 14:15
Finished: 7/24/24 14:45
By: KLINN
Comments

Step: Digestion
Started: 7/24/24 14:15
Finished: 7/24/24 14:45
By: KLINN
Comments

Preparation Equipment

K-BlockDigester-15 Digestion
K-BlockDigester-15 Digestion
Hg-43188965 Digestion

IR Thermometer ID: IR03
Temperature Check Location 23

K-BlockDigester-15 Digestion Temperature 94.3 deg C
K-U72662 Digestion
HG-39591307 Digestion

Comments: Cal. Std./CCV Source: HG4-10-X.

Reviewed By: _____ Date: 7/26/24

Preparation Information Benchsheet

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Prep Run#: 441877
Team: Metals/ZBIBI
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 7/19/24 15:14 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2411131-03**	MB			7471B / Hg	Solid						
2	**KQ2411131-04**	LCS			7471B / Hg	Solid						
3	**K2407411-001**	Keith 0	.01		7471B / Hg	Sediment						
4	**KQ2411131-01**	K2407411-001 DUP	.02		7471B / Hg	Solid						
5	**KQ2411131-02**	K2407411-001 MS	.01		7471B / Hg	Solid						
6	**K2407411-002**	Keith 10	.01		7471B / Hg	Sediment						
7	**K2407411-003**	Keith 20	.02		7471B / Hg	Sediment						
8	**K2407411-004**	Keith 30	.02		7471B / Hg	Sediment						
9	**K2407411-005**	Keith 40	.02		7471B / Hg	Sediment						
10	**K2407411-006**	Keith 50	.02		7471B / Hg	Sediment						
11	**K2407411-007**	Keith 60	.02		7471B / Hg	Sediment						

KMnO4 HG4-10.4 HG4-10-X

Comments: BD15 T 94.3 T23 7.24.24 1415- 1445

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 441877 **Container Lot No:** 2206050 **Prep Due Date:** Jul-31-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407411-001	.01	Hg : 7471B/	0.511g		ZBIBI k-balance-50
2	K2407411-001 DUP KQ2411131-01	.02	Hg : 7471B/	0.532g		ZBIBI k-balance-50
3	K2407411-001 MS KQ2411131-02	.01	Hg : 7471B/	0.566g		ZBIBI k-balance-50
4	K2407411-002	.02	Hg : 7471B/	0.559g		ZBIBI k-balance-50
5	K2407411-003	.02	Hg : 7471B/	0.576g		ZBIBI k-balance-50
6	K2407411-004	.02	Hg : 7471B/	0.526g		ZBIBI k-balance-50
7	K2407411-005	.02	Hg : 7471B/	0.555g		ZBIBI k-balance-50
8	K2407411-006	.02	Hg : 7471B/	0.529g		ZBIBI k-balance-50
9	K2407411-007	.02	Hg : 7471B/	0.549g		ZBIBI k-balance-50

7/19/24 15-23

Relinquished By: ZB	Date/Time:	Received By: MM	Date/Time: 7.19.24 1400

Preparation Information Benchsheet

Prep Run#: 441807
Team: Metals/KLINN
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 7/24/24 14:15

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411054-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2411054-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2407397-021	2024GCMTC1847S1	.02	7471B/Hg		Sediment	0.656g	50.00mL	PPRICE K-BALANCE-49
4	K2407397-022	2024GCMTC1847S2	.02	7471B/Hg		Sediment	0.571g	50.00mL	PPRICE K-BALANCE-49
5	K2407397-023	2024GCMTC1847S3	.02	7471B/Hg		Sediment	0.541g	50.00mL	PPRICE K-BALANCE-49
6	K2407397-024	2024GCMGCDS1	.02	7471B/Hg		Sediment	0.628g	50.00mL	PPRICE K-BALANCE-49
7	KQ2411054-01	K2407397-024 DUP	.02	7471B/Hg		Solid	0.661g	50.00mL	PPRICE K-BALANCE-49
8	KQ2411054-02	K2407397-024 MS	.02	7471B/Hg		Solid	0.615g	50.00mL	PPRICE K-BALANCE-49
9	K2407397-025	2024GCMGCDS2	.02	7471B/Hg		Sediment	0.631g	50.00mL	PPRICE K-BALANCE-49
10	K2407397-026	2024GCMGCDS3	.02	7471B/Hg		Sediment	0.595g	50.00mL	PPRICE K-BALANCE-49
11	K2407397-027	2024GCMZC10S1	.02	7471B/Hg		Sediment	0.537g	50.00mL	PPRICE K-BALANCE-49
12	K2407397-028	2024GCMZC10S2	.02	7471B/Hg		Sediment	0.671g	50.00mL	PPRICE K-BALANCE-49
13	K2407397-029	2024GCMZC10S3	.02	7471B/Hg		Sediment	0.605g	50.00mL	PPRICE K-BALANCE-49

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236066 Logbook Ref: HG4-9-O Expires On: 08/01/2024

KQ2411054-02 0.25mL KQ2411054-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube	L223102601 (235884)	K-MET HCl Hg	22K0862007 (233704)	K-MET HNO3 Hg	23C1462002 (232296)
K-METPTFE Boiling chips	29036769 (234578)				

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	7/24/24 14:15	Started:	7/24/24 14:15
Finished:	7/24/24 14:45	Finished:	7/24/24 14:45
By:	KLINN	By:	KLINN
Comments		Comments	

Preparation Equipment

K-BlockDigester-15	Digestion	IR Thermometer ID: IR03		K-BlockDigester-15	Digestion	Temperature	94.3 deg C
K-BlockDigester-15	Digestion	Temperature Check Location	23	HG-39591307	Digestion		
K-U72662	Digestion			Hg-43188965	Digestion		

Comments: Cal. Std./CCV Source: HG4-10-X.

Preparation Information Benchsheet

Prep Run#: 441807
Team: Metals/KLINN

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 7/24/24 14:15

Reviewed By: _____ Date: 7/26/24

Preparation Information Benchsheet

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Prep Run#: 441807
Team: Metals/PPRICE
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 7/18/24 13:51 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2411054-03**	MB			7471B / Hg	Solid						
2	**KQ2411054-04**	LCS			7471B / Hg	Solid						
3	**K2407397-021**	2024GCMTC1847S1	.02		7471B / Hg	Sediment						
4	**K2407397-022**	2024GCMTC1847S2	.02		7471B / Hg	Sediment						
5	**K2407397-023**	2024GCMTC1847S3	.02		7471B / Hg	Sediment						
6	**K2407397-024**	2024GCMGCDS1	.02		7471B / Hg	Sediment						
7	**KQ2411054-01**	K2407397-024 DUP	.02		7471B / Hg	Solid						
8	**KQ2411054-02**	K2407397-024 MS	.02		7471B / Hg	Solid						
9	**K2407397-025**	2024GCMGCDS2	.02		7471B / Hg	Sediment						
10	**K2407397-026**	2024GCMGCDS3	.02		7471B / Hg	Sediment						
11	**K2407397-027**	2024GCMZC10S1	.02		7471B / Hg	Sediment						
12	**K2407397-028**	2024GCMZC10S2	.02		7471B / Hg	Sediment						
13	**K2407397-029**	2024GCMZC10S3	.02		7471B / Hg	Sediment						

HG4-10-X

KMnO4 HG4-10-4

Comments: BD15 T94.3 R23 7-24-24 1415 - 1445

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 441807 **Container Lot No:** 2111109 **Prep Due Date:** Jul-26-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407397-021	.02	Hg : 7471B/	0.656g		PPRICE K-BALANCE-49
2	K2407397-022	.02	Hg : 7471B/	0.571g		PPRICE K-BALANCE-49
3	K2407397-023	.02	Hg : 7471B/	0.541g		PPRICE K-BALANCE-49
4	K2407397-024	.02	Hg : 7471B/	0.628g		PPRICE K-BALANCE-49
5	K2407397-024 DUP KQ2411054-01	.02	Hg : 7471B/	0.661g		PPRICE K-BALANCE-49
6	K2407397-024 MS KQ2411054-02	.02	Hg : 7471B/	0.615g		PPRICE K-BALANCE-49
7	K2407397-025	.02	Hg : 7471B/	0.631g		PPRICE K-BALANCE-49
8	K2407397-026	.02	Hg : 7471B/	0.595g		PPRICE K-BALANCE-49
9	K2407397-027	.02	Hg : 7471B/	0.537g		PPRICE K-BALANCE-49
10	K2407397-028	.02	Hg : 7471B/	0.671g		PPRICE K-BALANCE-49
11	K2407397-029	.02	Hg : 7471B/	0.605g		PPRICE K-BALANCE-49

Relinquished By: PDP	Date/Time: 7/18/24	Received By: VL	Date/Time: 7.24.24 1400

Preparation Information Benchsheet

Prep Run#: 441951
Team: Metals/KLINN
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 7/24/24 14:15

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411203-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2411203-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2407513-001	SOIL-MH1-071724	.05	7471B/Hg		Soil	0.546g	50.00mL	ZBIBI k-balance-50
4	KQ2411203-01	K2407513-001 DUP	.02	7471B/Hg		Solid	0.513g	50.00mL	ZBIBI k-balance-50
5	KQ2411203-02	K2407513-001 MS	.02	7471B/Hg		Solid	0.543g	50.00mL	ZBIBI k-balance-50
6	K2407513-002	SOIL-MH2-071724	.02	7471B/Hg		Soil	0.596g	50.00mL	ZBIBI k-balance-50
7	K2407513-003	SOIL-MH3-071724	.02	7471B/Hg		Soil	0.567g	50.00mL	ZBIBI k-balance-50

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236066 Logbook Ref: HG4-9-O Expires On: 08/01/2024

KQ2411203-02 0.25mL KQ2411203-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube	L223102601 (235884)	K-MET HCl Hg	22K0862007 (233704)	K-MET HNO3 Hg	23C1462002 (232296)
K-METPTFE Boiling chips	29036769 (234578)				

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	7/24/24 14:15	Started:	7/24/24 14:15
Finished:	7/24/24 14:45	Finished:	7/24/24 14:45
By:	KLINN	By:	KLINN
Comments		Comments	

Preparation Equipment

K-BlockDigester-15	Digestion	IR Thermometer ID: IR03		K-BlockDigester-15	Digestion	Temperature	94.3 deg C
K-BlockDigester-15	Digestion	Temperature Check Location	23	K-U72662	Digestion		
Hg-43188965	Digestion			HG-39591307	Digestion		

Comments: Cal. Std./CCV Source: HG4-10-X.

Reviewed By: JC Date: 7/24/24

Preparation Information Benchsheet

E

Prep Run#: 441951
Team: Metals/ZBIBI
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 7/22/24 12:51 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2411203-03**	MB			7471B / Hg	Solid						
2	**KQ2411203-04**	LCS			7471B / Hg	Solid						
3	**K2407513-001**	SOIL-MH1-071724	.02		7471B / Hg	Soil						
4	**KQ2411203-01**	K2407513-001 DUP	.02		7471B / Hg	Solid						
5	**KQ2411203-02**	K2407513-001 MS	.02		7471B / Hg	Solid						
6	**K2407513-002**	SOIL-MH2-071724	.02		7471B / Hg	Soil						
7	**K2407513-003**	SOIL-MH3-071724	.02		7471B / Hg	Soil						

HG4-10-X

KMnO4 HG4-10-4

Comments: BD15 T94.3 R23 7.24.24 1415-1445

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 441951 **Container Lot No:** 2206050 **Prep Due Date:** Aug-02-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407513-001	.02	Hg : 7471B/	0.546g		ZBIBI k-balance-50
2	K2407513-001 DUP KQ2411203-01	.02	Hg : 7471B/	0.513g		ZBIBI k-balance-50
3	K2407513-001 MS KQ2411203-02	.02	Hg : 7471B/	0.543g		ZBIBI k-balance-50
4	K2407513-002	.02	Hg : 7471B/	0.596g		ZBIBI k-balance-50
5	K2407513-003	.02	Hg : 7471B/	0.567g		ZBIBI k-balance-50

7/22/24 13-15

Relinquished By: 223	Date/Time:	Received By:	Date/Time: 7.24.24 1400

Preparation Information Benchsheet

Prep Run#: 441975
Team: Metals/KLINN
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 7/24/24 15:15

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2411240-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2411240-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2407071-001RE	OAK8-S-01	.03	7471B/Hg		Sediment	0.573g	50.00mL	TRICKMAN K-BALANCE-55
4	KQ2411240-01	K2407071-001 DUP	.03	7471B/Hg		Solid	0.533g	50.00mL	TRICKMAN K-BALANCE-55
5	KQ2411240-02	K2407071-001 MS	.03	7471B/Hg		Solid	0.596g	50.00mL	TRICKMAN K-BALANCE-55
6	K2407071-002RE	SLB6-S-01	.03	7471B/Hg		Sediment	0.565g	50.00mL	TRICKMAN K-BALANCE-55
7	K2407071-003RE	SLB-GE-53RD-S-01	.03	7471B/Hg		Sediment	0.514g	50.00mL	TRICKMAN K-BALANCE-55
8	K2407071-004RE	SLB-GE-EAST-01	.03	7471B/Hg		Sediment	0.531g	50.00mL	TRICKMAN K-BALANCE-55
9	K2407071-005RE	SLB9-S-01	.03	7471B/Hg		Sediment	0.522g	50.00mL	TRICKMAN K-BALANCE-55
10	K2407071-006RE	EL14-S-01	.03	7471B/Hg		Sediment	0.527g	50.00mL	TRICKMAN K-BALANCE-55
11	K2407071-007RE	ETT24-03-Comp-S-01	.03	7471B/Hg		Sediment	0.520g	50.00mL	TRICKMAN K-BALANCE-55
12	K2407071-008RE	SLB17-S-01	.03	7471B/Hg		Sediment	0.553g	50.00mL	TRICKMAN K-BALANCE-55
13	K2407071-009RE	HWD18-S-01	.03	7471B/Hg		Sediment	0.512g	50.00mL	TRICKMAN K-BALANCE-55
14	K2407071-010RE	SLB20-S-01	.03	7471B/Hg		Sediment	0.516g	50.00mL	TRICKMAN K-BALANCE-55
15	K2407071-011RE	SLB22-S-01	.03	7471B/Hg		Sediment	0.568g	50.00mL	TRICKMAN K-BALANCE-55
16	K2407071-012RE	SLB15-S-01	.03	7471B/Hg		Sediment	0.512g	50.00mL	TRICKMAN K-BALANCE-55
17	K2407071-013RE	SLB-16-S-01	.03	7471B/Hg		Sediment	0.506g	50.00mL	TRICKMAN K-BALANCE-55
18	K2407071-014RE	SLB21-S-01	.03	7471B/Hg		Sediment	0.568g	50.00mL	TRICKMAN K-BALANCE-55
19	K2407071-015RE	OAK23-S-01	.03	7471B/Hg		Sediment	0.541g	50.00mL	TRICKMAN K-BALANCE-55
20	K2407071-016RE	SL-01-Comp-S-01	.03	7471B/Hg		Sediment	0.567g	50.00mL	TRICKMAN K-BALANCE-55
21	K2407071-017RE	ETT104-S-01	.03	7471B/Hg		Sediment	0.578g	50.00mL	TRICKMAN K-BALANCE-55
22	K2407071-018RE	JL24-03-Comp-S-01	.03	7471B/Hg		Sediment	0.573g	50.00mL	TRICKMAN K-BALANCE-55
23	K2407071-019RE	JL24-02-Comp-S-01	.03	7471B/Hg		Sediment	0.506g	50.00mL	TRICKMAN K-BALANCE-55
24	K2407071-020RE	Row-20-08-S-01	.03	7471B/Hg		Sediment	0.524g	50.00mL	TRICKMAN K-BALANCE-55

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236066 Logbook Ref: HG4-9-O Expires On: 08/01/2024

KQ2411240-02 0.25mL KQ2411240-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube L223102601 (235884)
K-METPTFE Boiling chips 29036769 (234578)
K-MET HCl Hg 22K0862007 (233704)
K-MET HNO3 Hg 23C1462002 (232296)

Preparation Information Benchsheet

Prep Run#: 441975
Team: Metals/KLINN

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 7/24/24 15:15

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	7/24/24 15:15	Started:	7/24/24 15:15
Finished:	7/24/24 15:45	Finished:	7/24/24 15:45
By:	KLINN	By:	KLINN
Comments		Comments	

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	96.5 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	23	Hg-43188965	Digestion		
HG-39591307	Digestion			K-U72662	Digestion		

Comments: Cal. Std./CCV Source: HG4-10-X.

Reviewed By: _____ Date: 7/26/24

Preparation Information Benchsheet

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Prep Run#: 441975
Team: Metals/TRICKMAN
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 7/23/24 06:25 AM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	KQ2411240-03	MB			7471B / Hg	Solid						
2	KQ2411240-04	LCS			7471B / Hg	Solid						
3	K2407071-001RE	OAK8-S-01	.03		7471B / Hg 0.573	Sediment			0.134			
4	KQ2411240-01	K2407071-001 DUP	.03		7471B / Hg 0.533	Solid			0.099			
5	KQ2411240-02	K2407071-001 MS 0.419	.03		7471B / Hg 0.596	Solid			0.974			
6	K2407071-002RE	SLB6-S-01	.03		7471B / Hg	Sediment						
7	K2407071-003RE	SLB-GE-53RD-S-01	.03		7471B / Hg	Sediment						
8	K2407071-004RE	SLB-GE-EAST-01	.03		7471B / Hg	Sediment						
9	K2407071-005RE	SLB9-S-01	.03		7471B / Hg	Sediment						
10	K2407071-006RE	EL14-S-01	.03		7471B / Hg	Sediment						
11	K2407071-007RE	ETT24-03-Comp-S-01	.03		7471B / Hg	Sediment						
12	K2407071-008RE	SLB17-S-01	.03		7471B / Hg	Sediment						
13	K2407071-009RE	HWD18-S-01	.03		7471B / Hg	Sediment						
14	K2407071-010RE	SLB20-S-01	.03		7471B / Hg	Sediment						
15	K2407071-011RE	SLB22-S-01	.03		7471B / Hg	Sediment						
16	K2407071-012RE	SLB15-S-01	.03		7471B / Hg	Sediment						
17	K2407071-013RE	SLB-16-S-01	.03		7471B / Hg	Sediment						
18	K2407071-014RE	SLB21-S-01	.03		7471B / Hg 5x	Sediment						
19	K2407071-015RE	OAK23-S-01	.03		7471B / Hg	Sediment						
20	K2407071-016RE	SL-01-Comp-S-01	.03		7471B / Hg 5x	Sediment						
21	K2407071-017RE	ETT104-S-01	.03		7471B / Hg	Sediment						
22	K2407071-018RE	JL24-03-Comp-S-01	.03		7471B / Hg	Sediment						
23	K2407071-019RE	JL24-02-Comp-S-01	.03		7471B / Hg	Sediment						
24	K2407071-020RE	Row-20-08-S-01	.03		7471B / Hg	Sediment						

KMnO4 HG4-10-4 HG4-10-X

Comments: BD14 T96.5 T23 7.24.24 1515-1545

Surrogate ID: Spike ID:

Witnessed By:

Analyst: Assisted By:

Pre-Prep Information Benchsheet

Prep Run #: 441975 **Container Lot No:** 2108282 **Prep Due Date:** Jul-24-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407071-001	.03	Hg : 7471B/	0.573g		TRICKMAN K-BALANCE-55
2	K2407071-001 DUP KQ2411240-01	.03	Hg : 7471B/	0.533g		TRICKMAN K-BALANCE-55
3	K2407071-001 MS KQ2411240-02	.03	Hg : 7471B/	0.596g		TRICKMAN K-BALANCE-55
4	K2407071-002	.03	Hg : 7471B/	0.565g		TRICKMAN K-BALANCE-55
5	K2407071-003	.03	Hg : 7471B/	0.514g		TRICKMAN K-BALANCE-55
6	K2407071-004	.03	Hg : 7471B/	0.531g		TRICKMAN K-BALANCE-55
7	K2407071-005	.03	Hg : 7471B/	0.522g		TRICKMAN K-BALANCE-55
8	K2407071-006	.03	Hg : 7471B/	0.527g		TRICKMAN K-BALANCE-55
9	K2407071-007	.03	Hg : 7471B/	0.520g		TRICKMAN K-BALANCE-55
10	K2407071-008	.03	Hg : 7471B/	0.553g		TRICKMAN K-BALANCE-55
11	K2407071-009	.03	Hg : 7471B/	0.512g		TRICKMAN K-BALANCE-55
12	K2407071-010	.03	Hg : 7471B/	0.516g		TRICKMAN K-BALANCE-55
13	K2407071-011	.03	Hg : 7471B/	0.568g		TRICKMAN K-BALANCE-55
14	K2407071-012	.03	Hg : 7471B/	0.512g		TRICKMAN K-BALANCE-55
15	K2407071-013	.03	Hg : 7471B/	0.506g		TRICKMAN K-BALANCE-55
16	K2407071-014	.03	Hg : 7471B/	0.568g		TRICKMAN K-BALANCE-55
17	K2407071-015	.03	Hg : 7471B/	0.541g		TRICKMAN K-BALANCE-55
18	K2407071-016	.03	Hg : 7471B/	0.567g		TRICKMAN K-BALANCE-55
19	K2407071-017	.03	Hg : 7471B/	0.578g		TRICKMAN K-BALANCE-55
20	K2407071-018	.03	Hg : 7471B/	0.573g		TRICKMAN K-BALANCE-55
21	K2407071-019	.03	Hg : 7471B/	0.506g		TRICKMAN K-BALANCE-55
22	K2407071-020	.03	Hg : 7471B/	0.524g		TRICKMAN K-BALANCE-55

Relinquished By:	Date/Time:	Received By:	Date/Time:
	7-23-24 0630		7.24.24 1400

Preparation Information Benchsheet

Prep Run#: 441741
Team: Metals/KLINN
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Prepped
Prep Date/Time: 7/24/24 15:15

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Final Vol	Sample Description
1	KQ2410961-03	MB		7471B/Hg		Solid	0.5g	50.00mL	
2	KQ2410961-04	LCS		7471B/Hg		Solid	0.5g	50.00mL	
3	K2407309-001	3435	.01	7471B/Hg		Misc. Solid	0.548g	50.00mL	ZBIBI k-balance-50
4	KQ2410961-01	K2407309-001 DUP	.01	7471B/Hg		Solid	0.571g	50.00mL	ZBIBI k-balance-50
5	KQ2410961-02	K2407309-001 MS	.01	7471B/Hg		Solid	0.512g	50.00mL	ZBIBI k-balance-50

Spiking Solutions

Name: K-MET Hg Source Standard 1000 ug/L Inventory ID 236066 Logbook Ref: HG4-9-O Expires On: 08/01/2024

KQ2410961-02 0.25mL KQ2410961-04 0.25mL

Preparation Materials

K-MET 100ml Centrifuge Tube L223102601 (235884) K-MET HCl Hg 22K0862007 (233704) K-MET HNO3 Hg 23C1462002 (232296)
K-METPTFE Boiling chips 29036769 (234578)

Preparation Steps

Step:	Weigh	Step:	Digestion
Started:	7/24/24 15:15	Started:	7/24/24 14:15
Finished:	7/24/24 15:45	Finished:	7/24/24 14:45
By:	KLINN	By:	KLINN
Comments		Comments	

Preparation Equipment

K-Block-Digester-14	Digestion	IR Thermometer ID: IR03		K-Block-Digester-14	Digestion	Temperature	96.5 deg C
K-Block-Digester-14	Digestion	Temperature Check Location	23	HG-39591307	Digestion		
Hg-43188965	Digestion			K-U72662	Digestion		

Comments: Cal. Std./CCV Source: HG4-10-X.

Reviewed By: _____ Date: 7/26/24

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Preparation Information Benchsheet

Prep Run#: 441741
Team: Metals/ZBIBI
Number of Copies to make: 1

Prep WorkFlow: HgDigS
Prep Method: Method

Status: Draft
Prep Date/Time: 7/17/24 14:23 PM

#	Lab Code	Client ID	B#	√	Method /Test	Matrix	Amt. Ext.	pH	Int. Vol	Final Vol	Surr Amt	Spike Amt
1	**KQ2410961-03**	MB			7471B / Hg	Solid						
2	**KQ2410961-04**	LCS			7471B / Hg	Solid						
3	**K2407309-001**	3435	.01		7471B / Hg	Misc. Solid						
4	**KQ2410961-01**	K2407309-001 DUP	.01		7471B / Hg	Solid						
5	**KQ2410961-02**	K2407309-001 MS	.01		7471B / Hg	Solid						

HG4-10-X

KMnO4 HG4-10-4

Comments: BD14 T96.5 T223 7.24.24 1515-1545

Surrogate ID: _____ Spike ID: _____

Witnessed By: _____

Analyst: _____ Assisted By: _____

Pre-Prep Information Benchsheet

Prep Run #: 441741 **Container Lot No:** 2205060 **Prep Due Date:** Jul-26-2024

#	Lab Code	Bottle	Test Name	Weight	Sample Comments	Test Comments
1	K2407309-001	.01	Hg : 7471B/	0.548g		ZBIBI k-balance-50
2	K2407309-001 DUP KQ2410961-01	.01	Hg : 7471B/	0.571g		ZBIBI k-balance-50
3	K2407309-001 MS KQ2410961-02	.01	Hg : 7471B/	0.512g		ZBIBI k-balance-50

7/17/24 14:31

Relinquished By:	223	Date/Time:	Received By:	Date/Time: 7.24.24 1400