TETRA TECH, INC.

May 6, 2019

Lynn Nakashima
Berkeley Regional Office
700 Heinz Avenue, Suite 200C
Berkeley, California 94710

Subject: Mercury Fulminate Area Excavation Pilot Study
Richmond Field Station Site
University of California, Berkeley

Dear Ms. Nakashima:

This letter summarizes the pilot study activities conducted at the Mercury Fulminate Area (MFA) the Richmond Field Station Site. The purpose of the pilot study was to determine which conditions or applied methods may minimize or eliminate mercury vapors as measured along the perimeter fenceline locations. Conditions or applied methods included: cold ambient temperatures, surfactant, wind barriers, vapor removal through vacuum, placement of contaminated soil in sealed containers, and cautious/slow excavation activities. The pilot study was conducted from December 11 through December 14, 2018.

Approach Summary

Field activities were consistent with the Mercury Fulminate Area Excavation Pilot Study letter to DTSC, dated October 5, 2018, and pertinent elements of the *Final Remedial Action Workplan (RAW), Richmond Bay Campus, Richmond, California*, dated July 18, 2014.

The following general tasks and approaches were conducted during the pilot study:

- Removal of portions of the Asphalt Pad C and clean fill located along the northwest boundary of the MFA which may be affected by pilot excavations
- Stockpiled clean fill from the asphalt pad to a temporary staging area
- Conducted excavation during morning hours (beginning at 7 am)
- Conducted perimeter fenceline monitoring for dust and mercury vapor emissions
- Excavated soils with known mercury contamination above 1,300 milligrams per kilogram (mg/kg) from Excavations B through G; Excavation A was not excavated.
- Applied vapor surfactant
- Applied negative air machines and vapor treatment
- Excavated all soils directly into covered 1-cubic yard containers. Segregated soils with concentrations below 1,300 mg/kg from soil with concentrations above 1,300 mg/kg by placing in separate containers.
- Conducted waste profile sampling on all soils excavated.

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- Lined completed excavations with a permeable liner, then backfilled excavation with clean fill to grade.
- Labelled and placed all soil containers at temporary storage area within the secured MFA area, covered containers with visqueen to ensure no rainwater infiltration or storm damage.

The site maps including excavation boundaries and storage areas are included as Figures 1 and 2.

Pilot Study Findings

Mercury Vapors. Real-time mercury vapor monitoring was conducted within the work zone and the fenced perimeter of the MFA area. The perimeter monitoring was conducted using Lumex RA-915 mercury vapor meters equipped with data loggers. Mercury vapor monitoring in and near the work zone was performed using a hand-held Jerome meter.

The health and safety action level of 0.05 mg/m3 was established for upgrading to Level C Personal Protective Equipment (PPE), as measured at the breathing level. The health and safety action level was exceeded at Excavations G and F, but only as measured within several inches of the excavated soil. While there were no health and safety action level exceedances at the breathing zones, all staff within 20 feet of the excavation areas donned Level C PPE whenever the Jerome meter registered 0.05 mg/m3 at the excavated soil.

The RAW established an action level of 0.6 µg/m3 for mercury vapors as measured at the MFA excavation fences. During the soil excavation activities at Excavation G, the action level was exceeded two times and a stop work was issued each time. This occurred at 10:19 am and 10:28 am on December 12. The first stop work was issued following a Jerome meter reading of 0.063 mg/m3. Level C PPE was donned, and subsequent Jerome meter readings were taken in the work area. Results were non-detect and work was resumed 6 minutes later. At 10:28 am, a second stop work was issued following a Jerome meter reading of 0.324 mg/m3 near the breathing zone at the excavation edge. The logged mercury vapor concentration from the downwind Lumex at the time of the Jerome reading was 0.5 µg/m3. In the 10 minutes following the stop work, the downwind Lumex detected four spikes above the action level with the highest being 0.77 µg/m3; however, none of these spikes remained above the action level for more than 20 seconds. Work did not continue until 11:09 am when mercury vapors concentrations had fallen below the action levels. The action level was otherwise not exceeded during the pilot study.

Eight-hour average mercury concentrations were calculated daily from the Lumex vapor data and compared to the Cal/EPA OEHHA 8-hour REL of 0.03 µg/m3. The 8-hour average mercury concentration exceeded the 8-hour REL at 0.089 µg/m3 on October 12 as a result of the short-term mercury exposure from Excavation G and at 0.036 µg/m3 on October 13 as a result of the skid steer disturbing the vegetative ground cover north of Excavation G. The 8-hour REL was not otherwise exceeded during the pilot study.

Lumex readings are included as Appendix A, Jerome readings are included as Appendix B.

Particulate Monitoring. Air particulate monitoring was performed with MIE Personal Data Rams at the fenced perimeter of MFA area to verify that dust control measures were adequate. The action level presented in the RAW for fugitive dust is 34 µg/m3 dust concentration, in addition to the daily measured ambient dust levels. Particulate action levels are based on the difference

between up and downwind measurements. Downwind measurements on December 11, 12, and 14 were below upwind measurements. Downwind measurements on December 13 were below the action level. No particulate action levels were exceeded. Particulate readings are included as Appendix C.

Vapor Vacuuming and Treatment. UC Berkeley constructed a mobile vacuum and air purification system for placement along the downwind boundaries at each excavation. Prevailing wind directions were used to direct vapors toward a negative air machine and carbon filter system. As vapors were directed towards the system, they were treated through two carbon filter units and exhausted on the opposite side of the wall. The vacuum system proved successful in capturing vapors, as negative air pressure was observed at the system entrance. The carbon filter units were not robust enough to treat the mercury vapors to acceptable levels at the exit port of the system. The system was considered successful if adequate carbon filtering is applied and tested prior to any excavation activities.

Vapor Surfactant. DeepEarth Technologies *Cool-Ox*® surfactant was used at Excavation G following the action level exceedance. Application of the surfactant did not appear to mitigate the mercury vapors and was not considered an effective measure. Follow-up discussions with the manufacturer indicated that the surfactant was likely dependent on the presence of hydrocarbons in the mercury-contaminated soil, which is not the condition at the MFA.

Water Misting. All soils excavated were saturated or damp resulting from previous rain in November and December, therefore water misting was not employed or evaluated. Based on the failed application of the vapor surfactant, the use of water misting would not appear to mitigate mercury vapors.

Temperature and Direct Sun Contact. Excavation G proved to be the most informative in regards to mercury vapor emissions, based on its observed mercury contamination and elevated vapor readings. Vapor monitoring at and adjacent to Excavation G indicated that mercury vapors increased as the temperature increased, as well as due to direct exposure to the sun. Vapors were not present in the early hours when temperatures were in the 50s but were measured in the afternoon when temperatures were in the mid-60s and the soil was exposed to direct sunlight. Temperature and direct sunlight appear to have significant impact on measured mercury vapors. Future excavations should be conducted in the winter months with temperatures in the 50s and excavations be blocked from the sun via shade structures or tenting if mercury vapor concentrations are detected above action levels.

Groundwater. Excavation C was excavated to 8 feet below ground surface and remained open for several hours. Groundwater was anticipated at approximately 4 feet below ground surface but was not apparent within the excavation. The groundwater level at piezometer MFA which is cross-gradient to Excavation C was measured as present at 3.5 feet below ground surface.

Off-road vehicle maneuvering: A skid steer was used to move soil containers to and from excavation and staging areas, requiring it to drive off the gravel pathway and on native soils. This resulted in the destruction of the vegetative ground cover and disturbance of surface soils on the north side of Excavation G. Without the vegetative cover, the surface soils were exposed to direct sunlight and elevated mercury vapors were observed on the downwind Lumex each time the soils were disturbed. It was noted that elevated mercury vapors were still observed when the only activities were maneuvering of skid steer off-road.

Waste Characterization Sampling

Excavated soil with concentrations above 20 mg/kg must be managed and disposed of as California hazardous waste. In addition, RCRA Land Disposal Restrictions require that excavated soil characterized above 260 mg/kg that characterizes as D009 waste due to leachability must meet pre-treatment requirements. However, if the corresponding TCLP concentration is less than 0.2 mg/L, then the soil may be disposed of as California hazardous waste directly at a Class I disposal facility without pretreatment. Pretreatment requires shipment of the soil to a retort facility; none currently exist on the West Coast.

Results of the pre-excavation pilot study conducted in June 2018 indicated that soils with concentrations higher than 1,300 mg/kg had the potential for TCLP concentrations greater than 0.2 mg/L. Consequently, all soil with known or suspected concentrations greater than 1,300 mg/kg were sampled and evaluated for total mercury and TCLP. All other soil is considered California hazardous waste. A summary of the waste profile sampling conducted during the pilot study is included as Table 1. Analytical results are included in Appendix D.

All wastes were transported and disposed of per results listed in Table 1 and previous investigations. 11 cubic yards were disposed for retort as RCRA waste and 68 cubic yards were disposed as California hazardous waste. Manifests and weight tickets for all waste disposal is included in Appendix E.

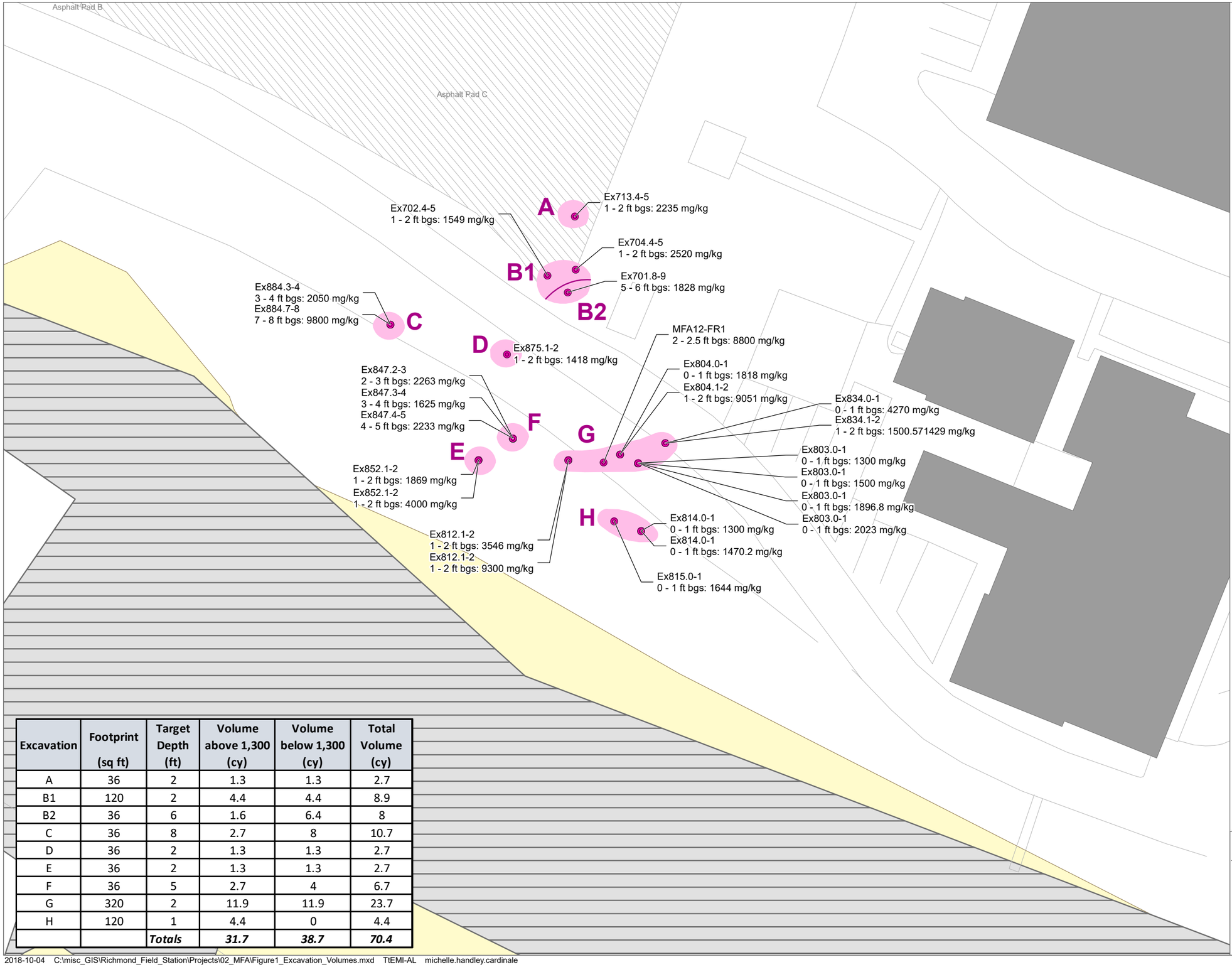
If you have any questions or comments regarding this submittal, please call me at (415) 497-9060.

Sincerely,

Jason Brodersen, P.G.
Project Manager

Attachments: Figure 1, Hazardous Waste Stream Excavation Volumes and Waste Profile Sampling Locations
Figure 2, Work Areas
Table 1, Waste Profile Results
Appendix A, Perimeter Mercury Vapor Monitoring Results
Appendix B, Work Area Mercury Vapor Monitoring Results
Appendix C, Perimeter Particulate Monitoring Results
Appendix D, Analytical Results
Appendix E, Waste Manifests

cc: Greg Haet, UC Berkeley EH&S



Excavation	Footprint (sq ft)	Target Depth (ft)	Volume above 1,300 (cy)	Volume below 1,300 (cy)	Total Volume (cy)
A	36	2	1.3	1.3	2.7
B1	120	2	4.4	4.4	8.9
B2	36	6	1.6	6.4	8
C	36	8	2.7	8	10.7
D	36	2	1.3	1.3	2.7
E	36	2	1.3	1.3	2.7
F	36	5	2.7	4	6.7
G	320	2	11.9	11.9	23.7
H	120	1	4.4	0	4.4
		Totals	***31.7***	***38.7***	***70.4***

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Figure 1
Hazardous Waste Stream Excavation Volumes and Waste Profile Sampling Locations

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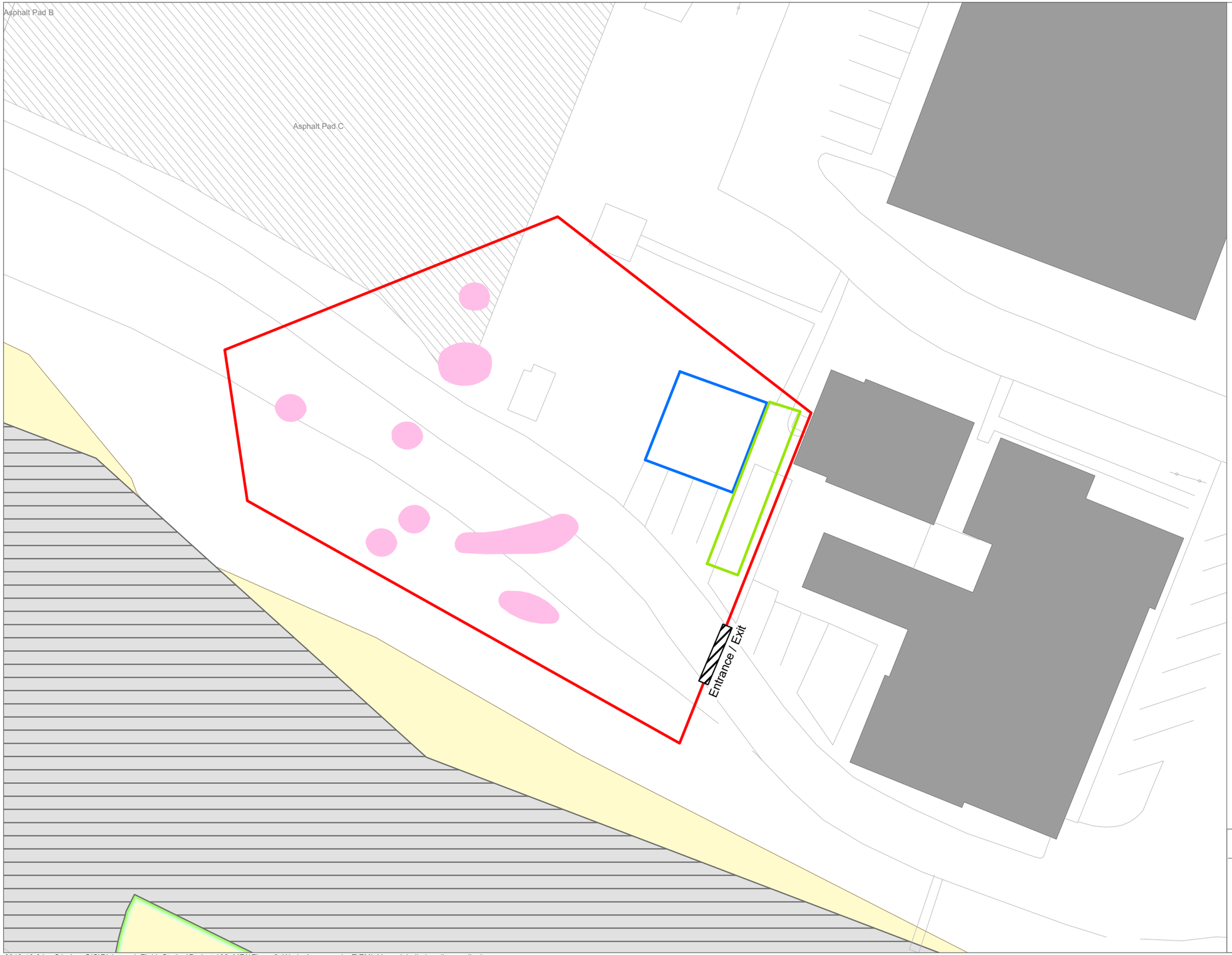

Estimated Work Areas

- Exclusion Zone
- Decontamination Area
- Hazardous Bin Storage Area
- Potential Waste Stream 2: RCRA Pre-Treatment Hazardous Waste
- Existing Buildings
- Asphalt/Concrete Pads
- Roads and Other Landscape Features
- Remediated Areas
- Eastern Transition Area

N

20 0 20 40

Feet

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Figure 2
Work Areas

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Table 1
Waste Profile Results

Sample ID/Bin ID	Total Mercury (mg/kg)	TCLP (mg/L)	Waste Stream	Rationale
B2-9	1300	**0.37**	RCRA	TCLP Exceedance
F1-10	910	**0.68**	RCRA	TCLP Exceedance
F1-8	14000	**1.3**	RCRA	TCLP Exceedance
F1-9	16000	**1.2**	RCRA	TCLP Exceedance
G2-5	6500	**0.37**	RCRA	TCLP Exceedance
G2-6	2300	**0.28**	RCRA	TCLP Exceedance
G3-2	830	**0.42**	RCRA	TCLP Exceedance
G3-3	9100	**0.77**	RCRA	TCLP Exceedance
G3-4	3200	**0.27**	RCRA	TCLP Exceedance
G2-4			RCRA	Elemental observation
G2-7	1600	0.15	RCRA	Elemental observation
B1-1			CalHaz	Historic concentrations below 1,300 mg/kg
B1-2	48	0.0012	CalHaz	No TCLP exceedance
B1-3			CalHaz	Historic concentrations below 1,300 mg/kg
B1-4			CalHaz	Historic concentrations below 1,300 mg/kg
B1-5	68	0.00023	CalHaz	No TCLP exceedance
B1-6	110	0.001	CalHaz	No TCLP exceedance
B2-1			CalHaz	Historic concentrations below 1,300 mg/kg
B2-2			CalHaz	Historic concentrations below 1,300 mg/kg
B2-3			CalHaz	Historic concentrations below 1,300 mg/kg
B2-4			CalHaz	Historic concentrations below 1,300 mg/kg
B2-5			CalHaz	Historic concentrations below 1,300 mg/kg
B2-6			CalHaz	Historic concentrations below 1,300 mg/kg
B2-7			CalHaz	Historic concentrations below 1,300 mg/kg
B2-8			CalHaz	Historic concentrations below 1,300 mg/kg
B2-10	190	0.0069	CalHaz	No TCLP exceedance
B2-11			CalHaz	Historic concentrations below 1,300 mg/kg
C-1			CalHaz	Historic concentrations below 1,300 mg/kg
C-2			CalHaz	Historic concentrations below 1,300 mg/kg
C-3			CalHaz	Historic concentrations below 1,300 mg/kg
C-4			CalHaz	Historic concentrations below 1,300 mg/kg
C-5			CalHaz	Historic concentrations below 1,300 mg/kg
C-6			CalHaz	Historic concentrations below 1,300 mg/kg
C-7	75	0.0005	CalHaz	No TCLP exceedance
C-8	75	0.0013	CalHaz	No TCLP exceedance
C-9	8.9	0.00061	CalHaz	No TCLP exceedance
C-10			CalHaz	Historic concentrations below 1,300 mg/kg
C-11			CalHaz	Historic concentrations below 1,300 mg/kg
C-12			CalHaz	Historic concentrations below 1,300 mg/kg
C-13	0.45	0.001	CalHaz	No TCLP exceedance
D1-1			CalHaz	Historic concentrations below 1,300 mg/kg
D1-2			CalHaz	Historic concentrations below 1,300 mg/kg
D1-3			CalHaz	Historic concentrations below 1,300 mg/kg
D1-4	0.95	0.00037	CalHaz	No TCLP exceedance

Table 1
Waste Profile Results

Sample ID/Bin ID	Total Mercury (mg/kg)	TCLP (mg/L)	Waste Stream	Rationale
D1-5	0.91	0.001	CalHaz	No TCLP exceedance
E1-1			CalHaz	Historic concentrations below 1,300 mg/kg
E1-2			CalHaz	Historic concentrations below 1,300 mg/kg
E1-3			CalHaz	Historic concentrations below 1,300 mg/kg
E1-4	5.1	0.00028	CalHaz	No TCLP exceedance
E1-5	4.8	0.001	CalHaz	No TCLP exceedance
F1-1			CalHaz	Historic concentrations below 1,300 mg/kg
F1-2			CalHaz	Historic concentrations below 1,300 mg/kg
F1-3			CalHaz	Historic concentrations below 1,300 mg/kg
F1-4			CalHaz	Historic concentrations below 1,300 mg/kg
F1-5	180	0.00054	CalHaz	No TCLP exceedance
F1-6	3200	0.022	CalHaz	No TCLP exceedance
F1-7	4700	0.001	CalHaz	No TCLP exceedance
G1-1			CalHaz	Historic concentrations below 1,300 mg/kg
G1-2			CalHaz	Historic concentrations below 1,300 mg/kg
G1-3	130	0.011	CalHaz	No TCLP exceedance
G1-4	740	0.17	CalHaz	No TCLP exceedance
G2-1			CalHaz	Historic concentrations below 1,300 mg/kg
G2-2			CalHaz	Historic concentrations below 1,300 mg/kg
G2-3			CalHaz	Historic concentrations below 1,300 mg/kg
G3-1	43	0.0016	CalHaz	No TCLP exceedance
G3-5			CalHaz	Historic concentrations below 1,300 mg/kg
G4-1	760	0.023	CalHaz	No TCLP exceedance
G4-2	1500	0.18	CalHaz	No TCLP exceedance
G4-3	1600	0.048	CalHaz	No TCLP exceedance
G5-1	2200	0.055	CalHaz	No TCLP exceedance
G5-2	1300	0.04	CalHaz	No TCLP exceedance
G5-3	1300	0.039	CalHaz	No TCLP exceedance
G5-4	2800	0.056	CalHaz	No TCLP exceedance
H1-1	15	0.001	CalHaz	No TCLP exceedance
H1-2	27	0.001	CalHaz	No TCLP exceedance
H1-3	22	0.001	CalHaz	No TCLP exceedance
H1-4	130	0.0073	CalHaz	No TCLP exceedance
H1-5	300	0.0024	CalHaz	No TCLP exceedance
IDW			CalHaz	Historic concentrations below 1,300 mg/kg

Notes:
mg/kg Milligrams per kilogram
mg/L Milligrams per liter
TCLP Toxicity characteristic leaching procedure
-- Waste profile samples not conducted in areas with historic concentrations below 1,300 mg/kg

TCLP limit for mercury is 0.2 mg/L.

Appendix A
Perimeter Mercury Vapor Monitoring Results
Monitoring device: Lumex RA-915 mercury vapor meter

Date	Map ID	Device ID	Upwind/ Downwind of Work Area	Average Concentration	Units	Total Minutes	8hr-TWA	Units
12/11/2018	#1 (Same as N-PDR2)	Lumex 2700	Downwind	0.005	µg/m3	444	0.005	µg/m3
	#2 (Same as S-Lumex)	Lumex 2702	Upwind	0.002	µg/m3	429	0.002	µg/m3
	#3 (Same as N-PDR1)	Lumex 1904	Downwind	0.021	µg/m3	138	0.006	µg/m3
12/12/2018	N-Lumex	Lumex 1904	Upwind	0.015	µg/m3	456	0.014	µg/m3
	W-Lumex	Lumex 2700	Crosswind	0.002	µg/m3	447	0.002	µg/m3
	S-Lumex	Lumex 2702	Downwind	0.094	µg/m3	452	**0.089**	**µg/m3**
	E-Lumex	Lumex 2043	Crosswind	0.011	µg/m3	353	0.008	µg/m3
12/13/2018	N-Lumex	Lumex 1904	Upwind	0.009	µg/m3	419	0.008	µg/m3
	W-Lumex	Lumex 2702	Crosswind	0.002	µg/m3	429	0.002	µg/m3
	S-Lumex	Lumex 2700	Downwind	0.038	µg/m3	445	**0.036**	**µg/m3**
	E-Lumex	Lumex 2043	Crosswind	0.018	µg/m3	445	0.016	µg/m3
12/14/2018	N-Lumex	Lumex 1904	Downwind	0.024	µg/m3	180	0.009	µg/m3
	W-Lumex	Lumex 2043	Crosswind	0.006	µg/m3	174	0.002	µg/m3
	S-Lumex	Lumex 2700	Upwind	0.007	µg/m3	170	0.003	µg/m3
	E-Lumex	Lumex 2702	Crosswind	0.015	µg/m3	173	0.005	µg/m3

Notes:
µg/m3 Micrograms/cubic meter
TWA Time-weighted average

Mercury Action Level is 0.03 µg/m3
Bold = Exceed action level

Appendix B
Work Area Mercury Vapor Monitoring Results
Jerome Meter

Date	Time	Reading	Excavation/ Storage Box ID	Notes
12/11/2018	8:35	0.00 mg/m3	B1-1	At excavation opening @ breathing level
12/11/2018	8:37	0.00 mg/m3	B1-1	At excavation opening @ breathing level
12/11/2018	8:38	0.00 mg/m3	B1-1	At excavation opening @ breathing level
12/11/2018	8:39	0.00 mg/m3	B1-1	At excavation opening @ breathing level
12/11/2018	8:40	0.00 mg/m3	B1-1	At excavation opening @ breathing level
12/11/2018	8:41	0.00 mg/m3	B1-1	At excavation opening @ breathing level
12/11/2018	8:45	0.00 mg/m3	B1-1	1 cubic yard removed - Sample taken
12/11/2018	8:49	0.00 mg/m3	B1-1	At excavation opening @ breathing level
12/11/2018	8:50	0.00 mg/m3	B1-2	At excavation opening @ breathing level
12/11/2018	8:52	0.00 mg/m3	B1-2	At excavation opening @ breathing level
12/11/2018	8:53	0.00 mg/m3	B1-2	At excavation opening @ breathing level
12/11/2018	8:55	0.004 mg/m3	B1-2	2 cubic yards removed- Sample taken
12/11/2018	9:01	0.004 mg/m3	B1-2	At excavation opening @ breathing level
12/11/2018	9:02	0.005 mg/m3	B1-2	At excavation opening @ breathing level
12/11/2018	9:04	0.004 mg/m3	B1-3	Begin Excavation of B1-3
12/11/2018	9:09	0.004 mg/m3	B1-3	At excavation opening @ breathing level
12/11/2018	9:10	0.004 mg/m3	B1-3	At excavation opening @ breathing level
12/11/2018	9:11	0.003 mg/m3	B1-3	At excavation opening @ breathing level
12/11/2018	9:12	-	B1-4	At excavation opening @ breathing level - Begin B1-4 No Reading taken
12/11/2018	9:13	0.003 mg/m3	B1-4	At excavation opening @ breathing level
12/11/2018	9:19	0.00 mg/m3	B1-4	At excavation opening @ breathing level
12/11/2018	9:43	-	B1-5	Begin B1-5
12/11/2018	9:44	0.00 mg/m3	B1-5	At excavation opening @ breathing level
12/11/2018	9:45	0.00 mg/m3	B1-5	At excavation opening @ breathing level
12/11/2018	9:46	0.00 mg/m3	B1-5	At excavation opening @ breathing level
12/11/2018	9:47	0.00 mg/m3	B1-5	At excavation opening @ breathing level
12/11/2018	9:48	0.00 mg/m3	B1-5	At excavation opening @ breathing level
12/11/2018	9:58	0.00 mg/m3	B1-6	At excavation opening @ breathing level
12/11/2018	10:01	0.00 mg/m3	B1-6	At excavation opening @ breathing level
12/11/2018	10:02	0.00 mg/m3	B1-6	At excavation opening @ breathing level
12/11/2018	10:03	0.00 mg/m3	B1-6	At excavation opening @ breathing level
12/11/2018	10:04	0.00 mg/m3	B1-6	At excavation opening @ breathing level
12/11/2018	10:15	0.00 mg/m3	B1-6	At excavation opening @ breathing level
12/11/2018	10:16	0.00 mg/m3	B2-1	Begin B2-1
12/11/2018	10:17	0.00 mg/m3	B2-1	At excavation opening @ breathing level
12/11/2018	10:19	0.023 mg/m3	B2-1	At negative air machine exhaust
12/11/2018	10:20	00.13 mg/m3	B2-1	At excavation opening @ breathing level
12/11/2018	10:20	0.00 mg/m3	B2-1	At excavation opening @ breathing level
12/11/2018	10:21	0.00 mg/m3	B2-1	At excavation opening @ breathing level

Appendix B
Work Area Mercury Vapor Monitoring Results
Jerome Meter

Date	Time	Reading	Excavation/ Storage Box ID	Notes
12/11/2018	10:22	0.00 mg/m3	B2-1	At excavation opening @ breathing level - Wind 0-5 mph - NW
12/11/2018	10:30	0.00 mg/m3	B2-1	At excavation opening @ breathing level
12/11/2018	10:35	0.00 mg/m3	B2-2	At excavation opening @ breathing level
12/11/2018	10:36	0.00 mg/m3	B2-2	At excavation opening @ breathing level
12/11/2018	10:37	0.00 mg/m3	B2-2	At negative air machine entrance - 2nd filter added to negative air machine
12/11/2018	10:37	0.004 mg/m3	B2-2	At negative air machine exhaust
12/11/2018	10:38	0.00 mg/m3	B2-2	At excavation opening @ breathing level - Wind 0-10 mph - NW
12/11/2018	10:43	-	B2-3	Begin B2-3
12/11/2018	10:45	-	B2-3	Stop excavation for supervisor directions
12/11/2018	10:55	0.005 mg/m3	B2-3	Resume excavation
12/11/2018	10:56	0.008 mg/m3	B2-3	At excavation opening @ breathing level
12/11/2018	10:57	0.005 mg/m3	B2-3	At excavation opening @ breathing level
12/11/2018	10:59	0.00 mg/m3	B2-3	At excavation opening @ breathing level
12/11/2018	11:07	0.00 mg/m3	B2-4	At excavation opening @ breathing level
12/11/2018	11:15	0.00 mg/m3	B2-4	At negative air machine intake
12/11/2018	11:15	0.00 mg/m3	B2-4	At negative air machine exhaust
12/11/2018	11:16	0.00 mg/m3	B2-4	At excavation opening @ breathing level - Wind 0-10 mph-NE
12/11/2018	11:18	0.024 mg/m3	B2-4	In excavation opening
12/11/2018	11:20	0.00 mg/m3	B2-4	At excavation opening @ breathing level
12/11/2018	11:27	0.00 mg/m3	B2-5	At excavation opening @ breathing level - Begin B2-5
12/11/2018	11:29	0.004 mg/m3	B2-5	At negative air machine intake
12/11/2018	11:30	0.00 mg/m3	B2-5	At negative air machine exhaust
12/11/2018	11:31	0.00 mg/m3	B2-5	At negative air machine exhaust
12/11/2018	11:32	0.00 mg/m3	B2-5	At excavation opening @ breathing level
12/11/2018	11:33	0.009 mg/m3	B2-5	In excavation opening
12/11/2018	11:34	0.00 mg/m3	B2-5	At excavation opening @ breathing level
12/11/2018	11:35	0.00 mg/m3	B2-6	At excavation opening @ breathing level
12/11/2018	11:40	0.00 mg/m3	B2-6	At negative air machine intake / exhaust
12/11/2018	11:41	0.00 mg/m3	B2-6	At excavation opening @ breathing level -Wind 0-5 mph - NE
12/11/2018	11:42	0.011 mg/m3	B2-6	In excavation opening
12/11/2018	11:45	0.00 mg/m3	B2-7	At excavation opening @ breathing level - Begin B2-7
12/11/2018	11:45	0.00 mg/m3	B2-7	At excavation opening @ breathing level - Halt excavation for lunch
12/11/2018	12:46	0.00 mg/m3	B2-7	At excavation opening @ breathing level
12/11/2018	12:47	0.00 mg/m3	B2-7	At excavation opening @ breathing level - Wind 5-15 mph -NE
12/11/2018	12:52	0.00 mg/m3	B2-7	At excavation opening @ breathing level
12/11/2018	12:54	0.00 mg/m3	B2-7	At excavation opening @ breathing level

Appendix B
Work Area Mercury Vapor Monitoring Results
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Date	Time	Reading	Excavation/ Storage Box ID	Notes
12/11/2018	12:55	0.00 mg/m3	B2-7	At excavation opening @ breathing level - Wind 0-10 mph- NE
12/11/2018	13:00	0.00 mg/m3	B2-7	At excavation opening @ breathing level
12/11/2018	13:01	0.00 mg/m3	B2-8	At negative air machine intake / exhaust - Begin B2-8
12/11/2018	13:02	0.00 mg/m3	B2-8	In excavation opening
12/11/2018	13:03	0.00 mg/m3	B2-8	At excavation opening @ breathing level
12/11/2018	13:04	0.006mg/m3	B2-8	In excavation opening
12/11/2018	13:05	0.005 mg/m3	B2-8	At soil storage box - Begin B2-9
12/11/2018	13:06	0.00 mg/m3	B2-9	At excavation opening @ breathing level
12/11/2018	13:14	0.00 mg/m3	B2-9	At excavation opening @ breathing level
12/11/2018	13:19	0.032 mg/m3	B2-9	At soil storage box
12/11/2018	13:20	0.086 mg/m3	B2-9	At soil storage box
12/11/2018	13:21	0.014 mg/m3	B2-9	In excavation opening
12/11/2018	13:22	0.00 mg/m3	B2-9	At negative air machine intake / exhaust
12/11/2018	13:24	0.00 mg/m3	B2-9	At excavation opening @ breathing level
12/11/2018	13:26	0.000 mg/m3	B2-9	At excavation opening @ breathing level
12/11/2018	13:30	0.000 mg/m3	B2-10	At excavation opening @ breathing level - Begin B2-10
12/11/2018	13:34	0.003 mg/m3	B2-10	At excavation opening @ breathing level
12/11/2018	13:35	0.00 mg/m3	B2-10	At excavation opening @ breathing level
12/11/2018	13:41	0.00 mg/m3	B2-10	At excavation opening @ breathing level
12/11/2018	13:45	0.015 mg/ m3	B2-10	At excavation opening @ breathing level
12/11/2018	13:46	0.008 mg/m3	B2-10	At excavation opening @ breathing level
12/11/2018	13:50	0.003 mg/m3	B2-11	At excavation opening @ breathing level
12/11/2018	13:51	0.005 mg/m3	B2-11	In excavation opening
12/11/2018	13:52	0.003 mg/m3	B2-11	At negative air machine intake
12/11/2018	13:53	0.000 mg/ m3	B2-11	At negative air machine exhaust
12/11/2018	13:59	0.00 mg/m3	B2-11	At excavation opening @ breathing level- End Excavation of Area B
12/11/2018	14:05	0.00 mg/m3	H1-1	Begin Excavation of Area H
12/11/2018	14:10	0.00 mg/m3	H1-1	At excavation opening @ breathing level
12/11/2018	14:11	0.00 mg/m3	H1-1	At excavation opening @ breathing level
12/11/2018	14:12	0.00 mg/m3	H1-1	At excavation opening @ breathing level
12/11/2018	14:14	0.00 mg/m3	H1-1	At excavation opening @ breathing level
12/11/2018	14:15	0.00 mg/m3	H1-1	At excavation opening @ breathing level
12/11/2018	14:25	0.00 mg/m3	H1-2	At excavation opening @ breathing level - Begin H1-2
12/11/2018	14:26	0.00 mg/m3	H1-2	At excavation opening @ breathing level
12/11/2018	14:27	0.00 mg/m3	H1-2	At excavation opening @ breathing level
12/11/2018	14:28	0.00 mg/m3	H1-2	At excavation opening @ breathing level
12/11/2018	14:29	0.00 mg/m3	H1-2	At excavation opening @ breathing level
12/11/2018	14:30	0.00 mg/m3	H1-2	At excavation opening @ breathing level

Appendix B
Work Area Mercury Vapor Monitoring Results
Jerome Meter

Date	Time	Reading	Excavation/ Storage Box ID	Notes
12/11/2018	14:31	0.00 mg/m3	H1-2	At excavation opening @ breathing level
12/11/2018	14:32	0.00 mg/m3	H1-2	At excavation opening @ breathing level
12/11/2018	14:29	0.00 mg/m3	H1-3	At excavation opening @ breathing level - Wind 0-10 mph - NW
12/11/2018	14:40	0.007 mg/m3	H1-3	At excavation opening @ breathing level
12/11/2018	14:44	0.00 mg/m3	H1-3	At excavation opening @ breathing level
12/11/2018	14:45	0.00 mg/m3	H1-3	At excavation opening @ breathing level
12/12/2018	7:45	0.00 mg/m3	H1-4	Awaiting Jerome 431-X Calibration/ excavation continued with respirators
12/12/2018	7:48	-	H1-4	Awaiting Jerome 431-X Calibration/ excavation continued with respirators
12/12/2018	7:50	-	H1-4	Awaiting Jerome 431-X Calibration/ excavation continued with respirators
12/12/2018	7:55	-	H1-4	Awaiting Jerome 431-X Calibration/ excavation continued with respirators
12/12/2018	8:00	-	H1-4	Awaiting Jerome 431-X Calibration/ excavation continued with respirators
12/12/2018	8:10	-	H1-5	Awaiting Jerome 431-X Calibration/ excavation continued with respirators
12/12/2018	8:15	-	H1-5	Awaiting Jerome 431-X Calibration/ excavation continued with respirators
12/12/2018	8:20	-	H1-5	Awaiting Jerome 431-X Calibration/ excavation continued with respirators
12/12/2018	8:20-8:25	-	-	Set Up on Area G for excavation
12/12/2018	8:35	0.00 mg/m3	G1-1	At excavation opening @ breathing level - Remove Top Soil 0-1 ft
12/12/2018	8:40	0.00 mg/m3	G1-1	At excavation opening @ breathing level
12/12/2018	8:42	0.00 mg/m3	G1-1	At excavation opening @ breathing level
12/12/2018	8:44	0.00 mg/m3	G1-2	At excavation opening @ breathing level
12/12/2018	8:46	0.00 mg/m3	G1-2	At excavation opening @ breathing level
12/12/2018	8:48	0.00 mg/m3	G1-2	At excavation opening @ breathing level
12/12/2018	8:55	0.00 mg/m3	G1-2	At excavation opening @ breathing level
12/12/2018	8:59	0.00 mg/m3	G1-2	At excavation opening @ breathing level
12/12/2018	9:00	0.00 mg/m3	G1-2	At excavation opening @ breathing level - Begin Sampling
12/12/2018	9:03	0.00 mg/m3	G1-3	At excavation opening @ breathing level
12/12/2018	9:05	0.00 mg/m3	G1-3	At excavation opening @ breathing level
12/12/2018	9:07	0.03 mg/m3	G1-3	At excavation opening @ breathing level
12/12/2018	9:08	0.05 mg/m3	G1-3	At excavation opening @ breathing level
12/12/2018	9:10	0.03 mg/m3	G1-3	At excavation opening @ breathing level - Wind 0-10 mph - South
12/12/2018	9:12	0.015 mg/m3	G1-3	At excavation opening @ breathing level
12/12/2018	9:13	0.045 mg/m3	G1-3	In excavation opening
12/12/2018	9:15	0.000 mg/m3	G1-3	At excavation operator breathing level
12/12/2018	9:17	0.000 mg/m3	G1-3	At excavation opening @ breathing level

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Work Area Mercury Vapor Monitoring Results
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Date	Time	Reading	Excavation/ Storage Box ID	Notes
12/12/2018	9:20	0.000 mg/m3	G1-4	At excavation opening @ breathing level - Begin G1-4
12/12/2018	9:21	0.007 mg/m3	G1-4	At excavation opening @ breathing level
12/12/2018	9:23	0.000 mg/m3	G1-4	At excavation opening @ breathing level - Halt excavation underground pipe observed - Pipe removed
12/12/2018	9:24	0.016 mg/m3	G1-4	At excavation opening @ breathing level - Pyrite cinders observed
12/12/2018	9:29	0.000 mg/m3	G1-4	At excavation operator breathing level
12/12/2018	9:30	0.008 mg/m3	G1-4	At excavation operator breathing level -Wind 0-15 mph - South
12/12/2018	9:32	0.000 mg/m3	G1-4	At excavation operator breathing level
12/12/2018	9:50	0.000 mg/m3	G2-1	At excavation breathing level - Set up equipment for excavation Area G2
12/12/2018	9:51	0.000 mg/m3	G2-1	At excavation operator breathing level
12/12/2018	9:53	0.003 mg/m3	G2-1	At excavation operator breathing level
12/12/2018	9:54	0.004 mg/m3	G2-1	At soil storage box
12/12/2018	9:57	0.000 mg/m3	G2-2	At excavation opening @ breathing level
12/12/2018	9:58	0.000 mg/m3	G2-2	At excavation opening @ breathing level
12/12/2018	9:59	0.000 mg/m3	G2-2	At excavation opening @ breathing level
12/12/2018	10:01	0.000 mg/m3	G2-2	At excavation opening @ breathing level
12/12/2018	10:03	0.000 mg/m3	G2-2	UG pipe exposed/ removed
12/12/2018	10:05	0.000 mg/m3	G2-3	At excavation opening @ breathing level
12/12/2018	10:07	0.000 mg/m3	G2-3	At excavation opening @ breathing level
12/12/2018	10:10	0.000 mg/m3	G2-3	At excavation opening @ breathing level
12/12/2018	10:12	0.008 mg/m3	G2-3	In excavation opening
12/12/2018	10:13	0.000 mg/m3	G2-3	At excavation opening @ breathing level
12/12/2018	10:15	0.000 mg/m3	G2-3	At excavation opening @ breathing level
12/12/2018	10:18	0.008 mg/m3	G2-4	In excavation opening
12/12/2018	**10:19**	**0.063 mg/m3**	**G2-4**	**Excavation stopped, all personnel moved up wind to staging area**
12/12/2018	10:25	0.000 mg/m3	G2-4	At excavation opening @ breathing level -Resume excavation
12/12/2018	**10:28**	**0.324 mg/m3**	**G2-4**	**Elemental mercury observed**
12/12/2018	10:30	-	-	Immediate shut down of operations-G1, lined and back filled -Air containment unit set up and turned on.
12/12/2018	11:09	0.000 mg/m3	G2-4	Resume excavation - Move tent to catch more vapor
12/12/2018	11:20	0.012 mg/m3	G2-4	At excavation opening @ breathing level
12/12/2018	11:21	0.003 mg/m3	G2-4	At excavation opening @ breathing level - Begin G2-5
12/12/2018	11:22	0.009 mg/m3	G2-5	At excavation opening @ breathing level
12/12/2018	11:13	0.011 mg/ m3	G2-5	At excavation opening @ breathing level
12/12/2018	11:26	0.014 mg/m3	G2-5	At excavation opening @ breathing level
12/12/2018	11:27	0.012 mg/m3	G2-5	At excavation opening @ breathing level
12/12/2018	11:31	0.000 mg/m3	G2-5	At excavation opening @ breathing level

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Date	Time	Reading	Excavation/ Storage Box ID	Notes
12/12/2018	11:32	0.000 mg/m3	G2-5	At excavation opening @ breathing level - Begin G2-6
12/12/2018	11:40	0.017 mg/m3	G2-6	At excavation opening @ breathing level - Begin taking samples
12/12/2018	11:41	0.006 mg/ m3	G2-6	At negative air machine exhaust
12/12/2018	11:42	0.003 mg/m3	G2-6	At negative air machine intake
12/12/2018	11:43	0.000 mg/ m3	G2-6	At excavation opening @ breathing level
12/12/2018	11:47	0.000 mg/ m3	G2-6	At excavation opening @ breathing level - elemental mercury observed in excavation soil
12/12/2018	11:50	0.567 mg/m3	G2-6	At excavation bucket
12/12/2018	11:51	0.000 mg/ m3	G2-6	At excavation opening @ breathing level
12/12/2018	11:55	0.000 mg/ m3	G2-6	Downwind Lumex 797 ng/m3 - Halt excavation
12/12/2018	12:05	0.000 mg/ m3	G2-7	At excavation opening @ breathing level - elemental Mercury observed in excavation soil
12/12/2018	12:10	0.000 mg/ m3	G2-7	At excavation opening @ breathing level - elemental Mercury observed in excavation soil
12/12/2018	12:11	0.003 mg/m3	G2-7	At excavation opening @ breathing level - elemental Mercury observed in excavation soil
12/12/2018	12:12	0.000 mg/ m3	G2-7	At excavation opening @ breathing level - elemental Mercury observed in excavation soil
12/12/2018	12:15	0.000 mg/ m3	G2-7	End excavation of Area G3 - Lined and Backfilled - Break for lunch
12/12/2018	13:40	0.005 mg/m3	G3-1	At excavation opening @ breathing level - Wind 0-15 mph - SE
12/12/2018	13:41	0.000 mg/ m3	G3-1	At excavation opening @ breathing level - Wind 0-15 mph - SE
12/12/2018	13:42	0.007 mg/m3	G3-1	At excavation opening @ breathing level - Wind 0-15 mph - SE
12/12/2018	13:43	0.009 mg/m3	G3-1	At excavation opening @ breathing level - Wind 0-15 mph - SE
12/12/2018	13:44	0.005 mg/m3	G3-1	At negative air machine intake
12/12/2018	13:45	0.005 mg & 0.003 mg/m3	G3-1	At negative air machine exhaust
12/12/2018	13:46	0.000 mg/m3	G3-1	At excavation opening @ breathing level
12/12/2018	13:55	0.004 mg/m3	G3-2	At excavation opening @ breathing level
12/12/2018	13:56	0.047 mg/ m3	G3-2	At soil storage box
12/12/2018	13:57	0.004 mg/m3	G3-2	At excavation opening @ breathing level
12/12/2018	14:00	0.010 mg/ m3	G3-2	At excavation opening @ breathing level - elemental Mercury observed in excavation soil
12/12/2018	14:04	0.384 mg/m3	G3-2	At excavation opening @ breathing level
12/12/2018	14:05	0.010 mg/ m3	G3-2	At excavation opening @ breathing level
12/12/2018	14:07	0.000 mg/ m3	G3-3	At excavation opening @ breathing level - Begin G3-3
12/12/2018	14:14	0.006 mg/ m3	G3-3	At excavation opening @ breathing level - reposition tent South East

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Date	Time	Reading	Excavation/ Storage Box ID	Notes
12/12/2018	14:15	0.138 mg/ m3	G3-3	At excavation opening @ breathing level
12/12/2018	14:17	0.000 mg/m3	G3-4	At excavation operator breathing level - Begin G3-4
12/12/2018	14:18	0.000 mg/m3	G3-4	At excavation opening @ breathing level - Reposition tent South
12/12/2018	14:25	0.000 mg/m3	G3-4	At excavation opening @ breathing level
12/12/2018	14:27	0.000 mg/m3	G3-4	At excavation opening @ breathing level
12/12/2018	14:29	0.000 mg/m3	G3-5	At excavation opening @ breathing level - Begin G3-5
12/12/2018	14:34	0.000 mg/m3	G3-5	At excavation opening @ breathing level
12/12/2018	14:35	0.008 mg/ m3	G3-5	At excavation opening @ breathing level
12/12/2018	14:39	0.000 mg/ m3	G3-5	At excavation opening @ breathing level
12/12/2018	14:50	0.000 mg/ m3	G3-5	At excavation opening @ breathing level - Area G Lined and Backfilled
12/13/2018	7:30	0.000 mg/ m3	G4-1	At excavation opening @ breathing level - Wind 0-5 mph North
12/13/2018	7:31	0.000 mg/ m3	G4-1	At excavation opening @ breathing level
12/13/2018	7:32	0.000 mg/ m3	G4-1	At excavation opening @ breathing level
12/13/2018	7:32	0.000 mg/ m3	G4-1	At excavation opening @ breathing level
12/13/2018	7:33	0.000 mg/ m3	G4-1	At excavation opening @ breathing level
12/13/2018	7:35	0.000 mg/ m3	G4-1	At excavation opening @ breathing level
12/13/2018	7:36	0.000 mg/ m3	G4-1	At excavation opening @ breathing level
12/13/2018	7:37	0.000 mg/ m3	G4-2	At excavation opening @ breathing level
12/13/2018	7:43	0.000 mg/ m3	G4-2	In excavation opening
12/13/2018	7:44	0.000 mg/ m3	G4-2	At excavation opening @ breathing level
12/13/2018	7:45	0.000 mg/ m3	G4-2	At excavation opening @ breathing level - UG pipe exposed / removed
12/13/2018	7:46	0.065 mg/m3	G4-2	At soil storage box
12/13/2018	7:47	0.000 mg/ m3	G4-2	At excavation opening @ breathing level
12/13/2018	7:48	0.006 mg/ m3	G4-2	At excavation bucket
12/13/2018	7:52	0.003 mg/m3	G4-2	At excavation opening @ breathing level - Begin G4-3
12/13/2018	7:56	0.000 mg/m3	G4-3	At excavation opening @ breathing level
12/13/2018	7:58	0.009 mg/m3	G4-3	At excavation bucket
12/13/2018	7:59	0.000 mg/m3	G4-3	At breathing level next to bucket
12/13/2018	8:00	0.000 mg/m3	G4-3	At excavation opening @ breathing level - 6'x6' concrete slab observed/removed
12/13/2018	8:05	0.008 mg/m3	G4-3	At slab excavation
12/13/2018	8:07	0.007 mg/m3	G4-3	At excavation opening @ breathing level
12/13/2018	8:09	0.006 mg/ m3	G4-3	At excavation opening @ breathing level - wood footing removed 4'x3 '
12/13/2018	8:12	0.000 mg/ m3	G4-3	At excavation opening @ breathing level - End excavation of area G-4
12/13/2018	8:19	0.004 mg/m3	G5-1	At excavation opening @ breathing level
12/13/2018	8:21	0.003 mg/m3	G5-1	At excavation opening @ breathing level
12/13/2018	8:25	0.008 mg/m3	G5-1	At excavation opening @ breathing level

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Date	Time	Reading	Excavation/ Storage Box ID	Notes
12/13/2018	8:28	0.006 mg/m3	G5-1	At excavation opening @ breathing level - Begin G5-2
12/13/2018	8:29	0.006 mg/m3	G5-2	At excavation opening @ breathing level
12/13/2018	8:31	0.004 mg/m3	G5-2	At excavation opening @ breathing level
12/13/2018	8:32	0.000 mg/m3	G5-3	At excavation opening @ breathing level
12/13/2018	8:33	0.007 mg/m3	G5-3	At excavation opening @ breathing level
12/13/2018	8:45	0.012 mg/m3	G5-3	At excavation opening @ breathing level
12/13/2018	8:46	0.038 mg/m3	G5-4	At soil storage box
12/13/2018	8:56	0.011 mg/m3	G5-4	At excavation opening @ breathing level
12/13/2018	8:57	0.012 mg/m3	G5-4	At breathing level next to bucket
12/13/2018	8:59	0.010 mg/m3	G5-4	At excavation opening @ breathing level
12/13/2018	9:00	-	-	Excavation of Area G complete - Lined and Backfilled
12/13/2018	9:10	0.000 mg/m3	E1-1	At excavation opening @ breathing level - Remove top soil
12/13/2018	9:11	0.000 mg/m3	E1-1	At soil storage box
12/13/2018	9:12	0.006 mg/m3	E1-1	At excavation opening @ breathing level
12/13/2018	9:14	0.015 mg/m3	E1-1	At excavation opening @ breathing level
12/13/2018	9:16	0.015 mg/m3	E1-2	At excavation opening @ breathing level - Wind 0-15 mph South
12/13/2018	9:18	0.011 mg/m3	E1-2	At excavation opening @ breathing level - Wind 0-15 mph South
12/13/2018	9:18	0.006 mg/m3	E1-2	At excavation opening @ breathing level
12/13/2018	9:21	0.010 mg/m3	E1-3	At excavation opening @ breathing level
12/13/2018	9:23	0.006 mg/m3	E1-3	At excavation opening @ breathing level
12/13/2018	9:24	0.006 mg/m3	E1-3	At excavation opening @ breathing level
12/13/2018	9:25	0.008 mg/m3	E1-3	At soil storage box
12/13/2018	9:46	0.000 mg/m3	E1-3	At excavation opening @ breathing level
12/13/2018	9:47	0.007mg/m3	E1-4	At excavation opening @ breathing level
12/13/2018	9:48	0.009 mg/m3	E1-4	At excavation opening @ breathing level - Wind o-15 mph - East
12/13/2018	9:49	0.012 mg/m3	E1-4	At excavation opening @ breathing level
12/13/2018	9:50	0.000 mg/m3	E1-4	At soil storage box
12/13/2018	9:51	0.000 mg/m3	E1-4	At excavation opening @ breathing level
12/13/2018	9:52	0.000 mg/m3	E1-4	At excavation opening @ breathing level
12/13/2018	9:53	0.000 mg/m3	E1-4	At excavation opening @ breathing level
12/13/2018	9:53	0.000 mg/m3	E1-4	At excavation opening @ breathing level
12/13/2018	9:54	0.000 mg/m3	E1-5	At excavation opening @ breathing level
12/13/2018	9:54	0.000 mg/m3	E1-5	At excavation opening @ breathing level
12/13/2018	9:55	0.000 mg/m3	E1-5	At excavation opening @ breathing level
12/13/2018	9:56	0.000 mg/m3	E1-5	In excavation opening
12/13/2018	10:00	0.000 mg/m3	D1-1	At excavation opening @ breathing level
12/13/2018	10:03	0.000 mg/m3	D1-1	At excavation opening @ breathing level

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Date	Time	Reading	Excavation/ Storage Box ID	Notes
12/13/2018	10:05	0.008 mg/m3	D1-1	At excavation opening @ breathing level - Wind 0-10 mph - SE
12/13/2018	10:09	0.004mg/m3	D1-1	At excavation opening @ breathing level
12/13/2018	10:10	0.005 mg/m3	D1-2	At soil storage box
12/13/2018	10:11	0.003 mg/m3	D1-2	At excavation opening @ breathing level
12/13/2018	10:25	0.005 mg/m3	D1-2	At excavation opening @ breathing level - Wind 0-15 mph - South
12/13/2018	10:26	0.005 mg/m3	D1-2	At excavation opening @ breathing level - Wind 0-20 mph - South
12/13/2018	10:28	0.010 mg/m3	D1-3	At excavation opening @ breathing level - Down wind
12/13/2018	10:29	0.010 mg/m3	D1-3	At excavation opening @ breathing level - Down wind
12/13/2018	10:33	0.000 mg/m3	D1-3	At excavation opening @ breathing level
12/13/2018	10:33	0.000 mg/m3	D1-3	At excavation opening @ breathing level
12/13/2018	10:45	0.000 mg/m3	D1-4	At excavation opening @ breathing level
12/13/2018	10:47	0.000 mg/m3	D1-4	At excavation opening @ breathing level
12/13/2018	10:56	0.000 mg/m3	D1-5	At excavation opening @ breathing level - Wind 0-10 mph- East
12/13/2018	10:58	0.000 mg/m3	D1-5	At soil storage box
12/13/2018	10:59	0.000 mg/m3	D1-5	At excavation opening @ breathing level
12/13/2018	11:00	0.000 mg/m3	D1-5	At excavation opening @ breathing level - End excavation of Area D
12/13/2018	11:15	-	-	Break for lunch
12/13/2018	12:20	-	-	Set up on Area F for excavation.
12/13/2018	12:24	-	-	Wind 0-15 mph - South
12/13/2018	12:25	0.000 mg/m3	F1-1	At excavation opening @ breathing level
12/13/2018	12:26	0.000 mg/m3	F1-1	At excavation opening @ breathing level
12/13/2018	12:28	0.000 mg/m3	F1-1	At excavation opening @ breathing level
12/13/2018	12:31	0.000 mg/m3	F1-2	At excavation opening @ breathing level
12/13/2018	12:32	0.005 mg/m3	F1-2	At soil storage box
12/13/2018	12:33	0.000 mg/m3	F1-2	At excavation opening @ breathing level
12/13/2018	12:35	0.006 mg/m3	F1-3	At excavation opening @ breathing level - Wind 0-10 mph-South
12/13/2018	12:36	0.000 mg/m3	F1-3	At excavation opening @ breathing level
12/13/2018	12:37	0.006 mg/m3	F1-3	At excavation opening @ breathing level
12/13/2018	12:39	0.004 mg/m3	F1-4	At soil storage box
12/13/2018	12:40	0.006 mg/m3	F1-4	At excavation ground level
12/13/2018	12:53	0.024 mg/m3	F1-4	At excavation opening @ breathing level - Wind 0-10 mph South
12/13/2018	12:54	0.000 mg/m3	F1-4	At soil storage box - Wind 0-10 mph -South
12/13/2018	13:00	0.011 mg/m3	F1-5	At excavation opening @ breathing level
12/13/2018	13:00	0.025 mg/m3	F1-5	In excavation opening
12/13/2018	13:01	0.006 mg/m3	F1-5	At excavation opening @ breathing level
12/13/2018	13:02	0.020 mg/m3	F1-5	At excavation opening @ breathing level

Appendix B
Work Area Mercury Vapor Monitoring Results
Jerome Meter

Date	Time	Reading	Excavation/ Storage Box ID	Notes
12/13/2018	13:03	0.016 mg/m3	F1-6	At excavation opening @ breathing level
12/13/2018	13:04	0.026 mg/ m3	F1-6	At soil storage box
12/13/2018	13:15	0.004 mg/m3	F1-6	At excavation opening @ breathing level
12/13/2018	13:16	0.008 mg/m3	F1-6	At excavation opening @ breathing level
12/13/2018	13:18	0.012 mg/m3	F1-6	At excavation opening @ breathing level - Pyrite cinders observed
12/13/2018	13:21	0.011 mg/m3	F1-7	At excavation opening @ breathing level
12/13/2018	13:22	0.034 mg/m3	F1-7	At soil storage box
12/13/2018	13:23	0.006 mg/m3	F1-7	At soil storage box
12/13/2018	13:28	0.008 mg/m3	F1-7	At excavation opening @ breathing level - Wind 0-5 mph- South
12/13/2018	13:31	0.019 mg/m3	F1-8	At excavation opening @ breathing level
12/13/2018	13:32	0.008 mg/m3	F1-8	At excavation opening @ breathing level
12/13/2018	13:37	0.023 mg/m3	F1-8	At excavation opening @ breathing level
12/13/2018	13:40	0.021 mg/m3	F1-9	In excavation opening - Elemental Mercury observed
12/13/2018	13:42	0.000 mg/m3	F1-9	At excavation opening @ breathing level
12/13/2018	13:45	0.000 mg/m3	F1-9	At excavation opening @ breathing level
12/13/2018	13:47	0.000 mg/m3	F1-9	At excavation operator breathing level
12/13/2018	13:48	-	F1-9	Jerome Regeneration - continue excavation w/ respirators
12/13/2018	13:55	-	F1-10	Jerome Regeneration - continue excavation w/ respirators
12/13/2018	14:00	-	F1-10	Jerome Regeneration - continue excavation w/ respirators
12/13/2018	14:05	-	F1-10	- Area F lined and backfilled
12/14/2018	7:25	0.000 mg/m3	C-1	At excavation operator breathing level ---- 0-2 ft top soil removed
12/14/2018	7:26	0.000 mg/m3	C-1	At excavation opening @ breathing level
12/14/2018	7:28	0.000 mg/m3	C-1	At excavation opening @ breathing level
12/14/2018	7:30	0.000 mg/m3	C-2	In excavation opening
12/14/2018	7:31	0.000 mg/m3	C-2	At excavation opening @ breathing level
12/14/2018	7:32	0.000 mg/m3	C-2	At excavation opening @ breathing level
12/14/2018	7:33	0.000 mg/m3	C-2	At excavation opening @ breathing level
12/14/2018	7:34	0.000 mg/m3	C-3	At excavation opening @ breathing level
12/14/2018	7:35	-	-	Switch out full soil containers for empties
12/14/2018	7:45	-	-	Switch out full soil containers for empties
12/14/2018	7:46	0.004 mg/m3	C-3	At excavation opening @ breathing level
12/14/2018	7:47	0.000 mg/m3	C-3	At excavation opening @ breathing level
12/14/2018	7:48	0.011 mg/m3	C-3	At soil storage box
12/14/2018	7:49	0.004 mg/m3	C-3	At excavation opening @ breathing level
12/14/2018	7:50	0.000 mg/m3	C-4	At excavation opening @ breathing level
12/14/2018	7:51	0.000 mg/m3	C-4	At excavation opening @ breathing level

Appendix B
Work Area Mercury Vapor Monitoring Results
Jerome Meter

Date	Time	Reading	Excavation/ Storage Box ID	Notes
12/14/2018	7:52	0.000 mg/m3	C-4	At excavation opening @ breathing level
12/14/2018	7:53	0.000 mg/m3	C-4	At excavation opening @ breathing level
12/14/2018	7:54	0.000 mg/m3	C-4	At excavation opening @ breathing level
12/14/2018	7:55	0.004 mg/m3	C-4	At excavation opening @ breathing level - Wind 0-5 mph - North
12/14/2018	7:57	0.004 mg/m3	C-5	At excavation opening @ breathing level
12/14/2018	7:58	0.012 mg/m3	C-5	At excavation opening @ breathing level
12/14/2018	7:59	0.000 mg/m3	C-5	At excavation operator breathing level
12/14/2018	8:00	0.012 mg/m3	C-6	At soil storage box
12/14/2018	8:05	0.005 mg/m3	C-6	At excavation opening @ breathing level
12/14/2018	8:06	0.006 mg/m3	C-6	At excavation opening @ breathing level
12/14/2018	8:10	0.006 mg/m3	C-7	At excavation opening @ breathing level
12/14/2018	8:11	0.000 mg/m3	C-7	At excavation opening @ breathing level
12/14/2018	8:12	0.000 mg/m3	C-7	At excavation opening @ breathing level
12/14/2018	8:15	0.031 mg/m3	C-8	At excavation opening @ breathing level
12/14/2018	8:18	0.008 mg/m3	C-8	At soil storage box
12/14/2018	8:18	0.008 mg/m3	C-8	At soil storage box
12/14/2018	8:19	0.008 mg/m3	C-8	At soil storage box
12/14/2018	8:20	0.008 mg/m3	C-8	At soil storage box
12/14/2018	8:21	0.008 mg/m3	C-8	At soil storage box
12/14/2018	8:25	0.010 mg/m3	C-8	At excavation opening @ breathing level
12/14/2018	8:28	0.010 mg/m3	C-9	At excavation opening @ breathing level
12/14/2018	8:30	0.010 mg/m3	C-9	At excavation opening @ breathing level
12/14/2018	8:32	0.010 mg/m3	C-9	At excavation opening @ breathing level
12/14/2018	8:35	0.010 mg/m3	C-9	At excavation opening @ breathing level
12/14/2018	8:37	0.012 mg/m3	C-9	At excavation opening @ breathing level
12/14/2018	8:38	-	-	H2O break
12/14/2018	8:40	-	-	H2O break
12/14/2018	8:41	0.011 mg/m3	C-10	At soil storage box
12/14/2018	8:50	-	C-10	Excavate only middle third of pit down to 7-8 ft
12/14/2018	8:51	0.006 mg/m3	C-10	At excavation opening @ breathing level
12/14/2018	8:52	-	C-11	Bay Area clay layer observed
12/14/2018	8:55	0.011 mg/m3	C-11	At excavation opening @ breathing level
12/14/2018	8:56	0.013 mg/m3	C-11	At excavation opening @ breathing level
12/14/2018	9:05	0.010 mg/m3	C-12	At excavation opening @ breathing level
12/14/2018	9:07	0.005 mg/ m3	C-12	At excavation opening @ breathing level
12/14/2018	9:09	0.005 mg/m3	C-12	At excavation opening @ breathing level
12/14/2018	9:12	0.008 mg/m3	C-13	At excavation opening @ breathing level
12/14/2018	9:14	0.008 mg/m3	C-13	At excavation opening @ breathing level
12/14/2018	9:18	0.008 mg/m3	C-13	At excavation opening @ breathing level

Appendix B
Work Area Mercury Vapor Monitoring Results
Jerome Meter

Date	Time	Reading	Excavation/ Storage Box ID	Notes
12/14/2018	9:20	0.009 mg/m3	C-13	Jerome meter lowered into pit for reading
12/14/2018	9:25	0.007 mg/m3	C-13	At excavation opening @ breathing level - Area C lined and backfilled

Notes:
mm/m3 Milligrams/Cubic Meter
Bold **Reading over the Health and Safety Action Level**

Health and Safety Action Level is 0.05 mg/m3.

Appendix C
Perimeter Particulate Monitoring Results
Monitoring device: MIE Personal Data Ram

Date	Map ID	Device ID	Upwind/ Downwind of Work Area	Average Concentration	Units	Total Minutes	8hr-TWA	Units
12/11/2018	#1 (Same as N-PDR2)	PDR 1000.70	Upwind	0.075	mg/m3	429	67	µg/m3
	#2 (Same as S-Lumex)	PDR 1000.03	Upwind	0.103	mg/m3	426	91	µg/m3
	#3 (Same as N-PDR1)	PDR 1000.16	Downwind	0.021	mg/m3	439	19	µg/m3
12/12/2018	N-PDR1	PDR 1000.16	Upwind	0.021	mg/m3	439	19	µg/m3
	N-PDR2	PDR 1000.03	Upwind	0.028	mg/m3	462	27	µg/m3
	S-PDR	PDR 1000.70	Downwind	0.019	mg/m3	449	18	µg/m3
12/13/2018	N-PDR1	PDR 1000.70	Upwind	0.011	mg/m3	427	10	µg/m3
	N-PDR2	PDR 1000.16	Upwind	0.013	mg/m3	434	11	µg/m3
	S-PDR	PDR 1000.03	Downwind	0.055	mg/m3	429	49	µg/m3
12/14/2018	N-PDR1	PDR 1000.03	Downwind	0.009	mg/m3	172	3	µg/m3
	N-PDR2	PDR 1000.16	Crosswind	0.007	mg/m3	179	2	µg/m3
	S-PDR	PDR 1000.70	Upwind	0.006	mg/m3	172	2	µg/m3

Notes:
µg/m3 Micrograms/Cubic Meter

Perimeter Particulate Action Level is 34 µg/m3

PDR 1000.03 appeared to be biased high during the first three days of the pilot study. Visible dust was not observed migrating from the excavation area or skid steer routes at any time during the pilot study.

Appendix D

Analytical Results

ENTHALPY

ANALYTICAL

Enthalpy Analytical
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 305787
ANALYTICAL REPORT
Metals

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : 103S5823.03
Location : MFA Sampling
Level : IV

Sample ID	Lab ID
RFS-MFA-EXB1-2	305787-001
RFS-MFA-EXB1-5	305787-002
RFS-MFA-EXB2-9	305787-003
RFS-MFA-EXB2-10	305787-004
RFS-MFA-EXB1-6	305787-005
RFS-MFA-EXH1-1	305787-006
RFS-MFA-EXH1-2	305787-007
RFS-MFA-EXH1-3	305787-008
RFS-MFA-EXH1-5	305787-009
RFS-MFA-EXH1-4	305787-010
RFS-MFA-EXG1-3	305787-011
RFS-MFA-EXG1-4	305787-012

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 01/07/2019

Will Rice
Project Manager
will.rice@enthalpy.com
(510) 204-2221 Ext 13102

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

CASE NARRATIVE
METALS (EPA 7471A)

Laboratory number:	**305787**
Client:	**Tetra Tech EMI**
Project:	**103S5823.03**
Location:	**MFA Sampling**
Request Date:	**12/13/18**
Samples Received:	**12/12/18**

This data package contains sample and QC results for twelve soil samples, requested for the above referenced project on 12/13/18. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 7471A):

Responses exceeding the instrument's linear range were observed for mercury in the MS/MSD of RFS-MFA-EXB1-2 (lab # 305787-001).

No other analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Chain of Custody # _____

C&T LOGIN # 305787

Project No: 103558.03.02 | Sampler: R. JOHNSON

Project Name: MFA EXCAVATION PILOT | Report To: JASON BREDERSEN@tetratech.com

Project P. O. No: | Company: TETRA TECH

EDD Format: | Report Level ☐ II ☒ III ☐ IV | Telephone: 415 447 9060

Turnaround Time: ☐ RUSH _____ ☒ Standard | Email: Jason.Brederseng@tetratech.com

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST																	
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	ISM PREP - ONLY SUBSAMPLE NO DRY/SIEVE NEC			MERCURY 7471		TCLP LEACHING											
1	RFS-MFA-EXB1-2	12/11/18	0910		✓			4						X			X		X											
2	RFS-MFA-EXB1-5	12/11/18	0951		✓			2						X			X		X											
3	RFS-MFA-EXB2-9	12/11/18	1315		✓			1						X			X		X											
4	RFS-MFA-EXB2-10	12/11/18	1335		✓			2						X			X		X											
5	RFS-MFA-EXB1-6	12/11/18	1100		✓			2						X			X		X											
6	RFS-MFA-EXH1-1	12/11/18	1410		✓			1						X			X		X											
7	RFS-MFA-EXH1-2	12/11/18	1435		✓			1						X			X		X											
8	RFS-MFA-EXH1-3	12/11/18	1450		✓			1						X			X		X											
9	RFS-MFA-EXH1-5	12/12/18	0815		✓			1						X			X		X											
10	RFS-MFA-EXH1-4	12/12/18	0800		✓			1						X			X		X											
11	RFS-MFA-EXG1-3	12/12/18	0935		✓			1						X			X		X											
12	RFS-MFA-EXG1-4	12/12/18	0940		✓			1						X			X		X											

Notes:

CAUTION ELEVATED MERCURY

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:

JASON BREDERSEN — DATE: 12/12 TIME: 10:56

DATE: TIME:

DATE: TIME:

RECEIVED BY:

Pat Hongaly — DATE: 12/12/18 TIME: 10:56

DATE: TIME:

DATE: TIME:

SAMPLE RECEIPT CHECKLIST

Section 1: Login # 305787 Client: Tetra Tech

Date Received: 12/12/18 Project: _____

ENTHALPY ANALYTICAL

Section 2: Samples received in a cooler? ☒ Yes, how many? 1 ☐ No **(skip Section 3 below)**

If no cooler Sample Temp (°C): _____ using IR Gun # ☐ A, or ☐ B

☐ Samples received on ice directly from the field. Cooling process had begun

If in cooler: Date Opened 12/12/18 By (print) DC (sign) _____

Shipping info (if applicable) _____

Are custody seals present? ☒ No, or ☐ Yes. If yes, where? ☐ on cooler, ☐ on samples, ☐ on package

☐ Date: _____ How many _____ ☐ Signature, ☐ Initials, ☐ None

Were custody seals intact upon arrival? ☐ Yes ☐ No ☒ N/A

Section 3: ***Important*: Notify PM if temperature exceeds 6°C or arrive frozen.**

Packing in cooler: (if other, describe) _____

☐ Bubble Wrap, ☐ Foam blocks, ☒ Bags, ☐ None, ☐ Cloth material, ☐ Cardboard, ☐ Styrofoam, ☐ Paper towels

☐ Samples received on ice directly from the field. Cooling process had begun

Type of ice used : ☒ Wet, ☐ Blue/Gel, ☐ None Temperature blank(s) included? ☐ Yes, ☐ No

Temperature measured using ☐ Thermometer ID: _____, or IR Gun # ☐ A ☒ B

Cooler Temp (°C): #1: 1.5, #2: _____, #3: _____, #4: _____, #5: _____, #6: _____, #7: _____

Section 4:	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	X		
Were Method 5035 sampling containers present?		X	
If YES, what time were they transferred to freezer?			
Did all bottles arrive unbroken/unopened?	—		
Are there any missing / extra samples?		—	
Are samples in the appropriate containers for indicated tests?	—		
Are sample labels present, in good condition and complete?	—		
Does the container count match the COC?	—		
Do the sample labels agree with custody papers?	—		
Was sufficient amount of sample sent for tests requested?	—		
Did you change the hold time in LIMS for unpreserved VOAs?			—
Did you change the hold time in LIMS for preserved terracores?			—
Are bubbles > 6mm absent in VOA samples?			—
Was the client contacted concerning this sample delivery?		—	
If YES, who was called? _____ By _____ Date: _____			

Section 5:	YES	NO	N/A
Are the samples appropriately preserved? (if N/A, skip the rest of section 5)			
Did you check preservatives for all bottles for each sample?			
Did you document your preservative check?			

pH strip lot# _____, pH strip lot# _____, pH strip lot# _____

Preservative added:

☐ H2SO4 lot# _____ added to samples _____ on/at _____

☐ HCL lot# _____ added to samples _____ on/at _____

☐ HNO3 lot# _____ added to samples _____ on/at _____

☐ NaOH lot# _____ added to samples _____ on/at _____

Section 6:

Explanations/Comments: _____

Date Logged in 12/13/18 **By (print)** AC **(sign)** AC

Date Labeled 12/13/18 **By (print)** AC **(sign)** AC

Results & QC Summary

ENTHALPY ANALYTICAL

Mercury by Cold Vapor AA

Lab #:	305787	Location:	MFA Sampling
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S5823.03	Analysis:	EPA 7471A
Analyte:	Mercury	Batch#:	266697
Matrix:	Soil	Received:	12/12/18
Units:	mg/Kg	Prepared:	01/07/19
Basis:	as received	Analyzed:	01/07/19

Field ID	Type	Lab ID	Result	RL	MDL	Diln Fac	Sampled
RFS-MFA-EXB1-2	SAMPLE	305787-001	48	17	3.0	1,000	12/11/18
RFS-MFA-EXB1-5	SAMPLE	305787-002	68	1.5	0.27	100.0	12/11/18
RFS-MFA-EXB2-9	SAMPLE	305787-003	1,300	170	30	10,000	12/11/18
RFS-MFA-EXB2-10	SAMPLE	305787-004	190	7.8	1.4	500.0	12/11/18
RFS-MFA-EXB1-6	SAMPLE	305787-005	110	8.6	1.5	500.0	12/11/18
RFS-MFA-EXH1-1	SAMPLE	305787-006	15	1.6	0.28	100.0	12/11/18
RFS-MFA-EXH1-2	SAMPLE	305787-007	27	1.5	0.27	100.0	12/11/18
RFS-MFA-EXH1-3	SAMPLE	305787-008	22	1.8	0.32	100.0	12/11/18
RFS-MFA-EXH1-5	SAMPLE	305787-009	300	180	31	10,000	12/12/18
RFS-MFA-EXH1-4	SAMPLE	305787-010	130	7.9	1.4	500.0	12/12/18
RFS-MFA-EXG1-3	SAMPLE	305787-011	130	17	3.0	1,000	12/12/18
RFS-MFA-EXG1-4	SAMPLE	305787-012	740	170	30	10,000	12/12/18
	BLANK	QC960429	ND	0.017	0.0030	1.000	

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305787	Location:	MFA Sampling
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S5823.03	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	RFS-MFA-EXB1-2	Batch#:	266697
MSS Lab ID:	305787-001	Sampled:	12/11/18
Matrix:	Soil	Received:	12/12/18
Units:	mg/Kg	Prepared:	01/07/19
Basis:	as received	Analyzed:	01/07/19

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC960430		0.1695	0.1579	93	80-120		
BSD	QC960431		0.1695	0.1595	94	80-120	1	20
MS	QC960432	48.12	0.1786	24.99 >LR	-12951 NM	80-120		
MSD	QC960433		0.1695	24.36 >LR	-14021 NM	80-120	NC	20

NC= Not Calculated
NM= Not Meaningful: Sample concentration > 4X spike concentration
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

ENTHALPY ANALYTICAL

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305787	Location:	MFA Sampling
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S5823.03	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	as received
Field ID:	RFS-MFA-EXB1-2	Diln Fac:	5,000
Type:	Serial Dilution	Batch#:	266697
MSS Lab ID:	305787-001	Sampled:	12/11/18
Lab ID:	QC960434	Received:	12/12/18
Matrix:	Soil	Analyzed:	01/07/19
Units:	mg/Kg		

MSS Result	MSS RL	Result	RL	% Diff	Lim
48.12	16.95	27.51 J	84.75	NC	10

J= Estimated value
NC= Not Calculated
RL= Reporting Limit

REPORTING SUMMARY FOR 305787 METALS Soil
Enthalpy Analytical - Berkeley

Lab ID	Inst ID	Analyzed	IDF	HG	
305787-001	MET44	01/03/19 12:25	1000		
305787-001	MET44	01/03/19 12:53	1000		
305787-001	MET45	01/07/19 13:18	10000		
305787-001	MET45	01/07/19 16:12	1000	+	
305787-002	MET44	01/03/19 12:31	1000		
305787-002	MET44	01/03/19 12:58	1000		
305787-002	MET45	01/07/19 13:24	10000		
305787-002	MET45	01/07/19 15:43	100.0	+	
305787-003	MET44	01/03/19 12:32	1000		
305787-003	MET44	01/03/19 12:59	1000		
305787-003	MET45	01/07/19 13:25	10000	+	
305787-004	MET44	01/03/19 12:34	1000		
305787-004	MET44	01/03/19 13:01	1000		
305787-004	MET45	01/07/19 13:26	10000		
305787-004	MET45	01/07/19 15:44	100.0		
305787-004	MET45	01/07/19 16:09	500.0	+	
305787-005	MET44	01/03/19 12:38	1000		
305787-005	MET44	01/03/19 13:05	1000		
305787-005	MET45	01/07/19 13:30	10000		
305787-005	MET45	01/07/19 15:46	100.0		
305787-005	MET45	01/07/19 16:10	500.0	+	
305787-006	MET44	01/03/19 12:40	1000		
305787-006	MET44	01/03/19 13:06	1000		
305787-006	MET45	01/07/19 13:31	10000		
305787-006	MET45	01/07/19 15:50	100.0	+	
305787-007	MET44	01/03/19 13:08	1000		
305787-007	MET45	01/07/19 13:32	10000		
305787-007	MET45	01/07/19 16:27	100.0	+	
305787-008	MET44	01/03/19 13:09	1000		
305787-008	MET45	01/07/19 13:34	10000		
305787-008	MET45	01/07/19 15:51	100.0	+	
305787-009	MET44	01/03/19 13:11	1000		
305787-009	MET45	01/07/19 13:35	10000	+	
305787-010	MET44	01/03/19 13:12	1000		
305787-010	MET45	01/07/19 13:36	10000		
305787-010	MET45	01/07/19 15:52	100.0		
305787-010	MET45	01/07/19 16:11	500.0	+	
305787-011	MET44	01/03/19 13:13	1000		
305787-011	MET45	01/07/19 13:37	10000		
305787-011	MET45	01/07/19 16:28	1000	+	
305787-012	MET44	01/03/19 13:15	1000		
305787-012	MET45	01/07/19 13:39	10000	+	

REPORTING SUMMARY FOR 305787 METALS Soil
Enthalpy Analytical - Berkeley

Lab ID	Inst ID	Analyzed	IDF	HG	
QC960020	MET44	01/03/19 12:21	1.0		
QC960020	MET44	01/03/19 12:48	1.0	+	
QC960021	MET44	01/03/19 12:23	1.0		
QC960021	MET44	01/03/19 12:50	1.0	+	
QC960022	MET44	01/03/19 12:24	1.0		
QC960022	MET44	01/03/19 12:51	1.0	+	
QC960023	MET44	01/03/19 12:27	1000	+	
QC960023	MET44	01/03/19 12:54	1000		
QC960024	MET44	01/03/19 12:28	1000	+	
QC960024	MET44	01/03/19 12:55	1000		
QC960025	MET44	01/03/19 12:29	5000		
QC960025	MET44	01/03/19 12:57	5000	+	
QC960429	MET45	01/07/19 13:14	1.0	+	
QC960430	MET45	01/07/19 13:16	1.0	+	
QC960431	MET45	01/07/19 13:17	1.0	+	
QC960432	MET45	01/07/19 13:19	1.0	+	
QC960433	MET45	01/07/19 13:21	1.0	+	
QC960434	MET45	01/07/19 13:22	50000		
QC960434	MET45	01/07/19 16:14	5000	+	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010771

Instrument : MET45 Begun : 01/07/19 11:31
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				01/07/19 11:31	1.0		
002	met45	ICAL	ICAL1			01/07/19 11:32	1.0	1	
003	met45	ICAL	ICAL2			01/07/19 11:33	1.0	1	
004	met45	ICAL	ICAL3			01/07/19 11:35	1.0	1	
005	met45	ICAL	ICAL4			01/07/19 11:36	1.0	1	
006	met45	ICAL	ICAL5			01/07/19 11:37	1.0	1	
007	met45	ICV				01/07/19 11:38	1.0	2	
008	met45	ICB				01/07/19 11:40	1.0		
009	met45	BLANK	QC960423	Soil	266696	01/07/19 11:41	1.0		
010	met45	BS	QC960424	Soil	266696	01/07/19 11:42	1.0		
011	met45	BSD	QC960425	Soil	266696	01/07/19 11:43	1.0		spk
012	met45	MSS	305807-001	Soil	266696	01/07/19 11:45	1000		spk , 1:HG=40
013	met45	MS	QC960426	Soil	266696	01/07/19 11:46	1.0		1:HG=590
014	met45	MSD	QC960427	Soil	266696	01/07/19 11:48	1.0		1:HG=570
015	met45	SER	QC960428	Soil	266696	01/07/19 11:49	5000		
016	met45	SAMPLE	305807-002	Soil	266696	01/07/19 11:51	1000		spk , 1:HG=18
017	met45	SAMPLE	305807-003	Soil	266696	01/07/19 11:52	1000		spk
018	met45	SAMPLE	305807-004	Soil	266696	01/07/19 11:53	1000		spk
019	met45	CCV				01/07/19 11:55	1.0	3	
020	met45	CCB				01/07/19 11:56	1.0		
021	met45	SAMPLE	305807-005	Soil	266696	01/07/19 11:57	1000		spk
022	met45	X	RINSE			01/07/19 11:58	1.0		
023	met45	MSS	305807-001	Soil	266696	01/07/19 12:00	10000		spk
024	met45	SER	QC960428	Soil	266696	01/07/19 12:01	50000		
025	met45	SAMPLE	305807-002	Soil	266696	01/07/19 12:02	10000		spk
026	met45	SAMPLE	305807-003	Soil	266696	01/07/19 12:03	100.0		spk , 1:HG=140
027	met45	X	RINSE			01/07/19 12:05	1.0		
028	met45	SAMPLE	305807-005	Soil	266696	01/07/19 12:06	100.0		spk
029	met45	SAMPLE	305807-004	Soil	266696	01/07/19 12:07	100.0		spk
030	met45	XSAMPLE	305807-003	Soil	266696	01/07/19 12:09	500.0		spk
031	met45	CCV				01/07/19 12:10	1.0	3	
032	met45	CCB				01/07/19 12:11	1.0		
033	met45	SAMPLE	305807-006	Soil	266696	01/07/19 12:12	1000		spk , 1:HG=45
034	met45	X	RINSE			01/07/19 12:14	1.0		
035	met45	SAMPLE	305807-006	Soil	266696	01/07/19 12:15	10000		spk , 1:HG=11
036	met45	SAMPLE	305807-007	Soil	266696	01/07/19 12:17	1000		spk , 1:HG=22
037	met45	SAMPLE	305807-008	Soil	266696	01/07/19 12:18	1000		spk
038	met45	SAMPLE	305807-009	Soil	266696	01/07/19 12:20	1000		spk , 1:HG=14
039	met45	X	RINSE			01/07/19 12:21	1.0		
040	met45	SAMPLE	305807-010	Soil	266696	01/07/19 12:22	1000		spk
041	met45	SAMPLE	305807-006	Soil	266696	01/07/19 12:23	50000		spk
042	met45	SAMPLE	305807-011	Soil	266696	01/07/19 12:25	1000		spk , 1:HG=23
043	met45	CCV				01/07/19 12:26	1.0	3	
044	met45	CCB				01/07/19 12:28	1.0		
045	met45	SAMPLE	305807-012	Soil	266696	01/07/19 12:29	1000		spk , 1:HG=13
046	met45	SAMPLE	305807-013	Soil	266696	01/07/19 12:30	1000		spk , 1:HG=11
047	met45	SAMPLE	305807-014	Soil	266696	01/07/19 12:32	1000		spk , 1:HG=22
048	met45	X	RINSE			01/07/19 12:34	1.0		
049	met45	SAMPLE	305807-008	Soil	266696	01/07/19 12:35	1000		spk
050	met45	SAMPLE	305807-007	Soil	266696	01/07/19 12:36	1000		spk , 1:HG=22
051	met45	SAMPLE	305807-015	Soil	266696	01/07/19 12:38	1000		spk
052	met45	SAMPLE	305807-011	Soil	266696	01/07/19 12:39	10000		spk

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010771

Instrument : MET45 Begun : 01/07/19 11:31
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	305807-012	Soil	266696	01/07/19 12:40	10000		spk
054	met45	SAMPLE	305807-016	Soil	266696	01/07/19 12:41	1000		spk
055	met45	CCV				01/07/19 12:43	1.0	3	
056	met45	CCB				01/07/19 12:44	1.0		
057	met45	SAMPLE	305807-014	Soil	266696	01/07/19 12:45	10000		spk
058	met45	SAMPLE	305807-007	Soil	266696	01/07/19 12:46	10000		spk
059	met45	SAMPLE	305807-013	Soil	266696	01/07/19 12:47	10000		spk
060	met45	SAMPLE	305807-015	Soil	266696	01/07/19 12:49	100.0		spk
061	met45	SAMPLE	305807-016	Soil	266696	01/07/19 12:50	100.0		spk
062	met45	SAMPLE	305807-017	Soil	266696	01/07/19 12:51	1000		spk
063	met45	SAMPLE	305807-018	Soil	266696	01/07/19 12:52	1000		spk
064	met45	SAMPLE	305807-019	Soil	266696	01/07/19 12:54	1000		spk
065	met45	SAMPLE	305807-017	Soil	266696	01/07/19 12:55	100.0		spk
066	met45	SAMPLE	305807-018	Soil	266696	01/07/19 12:56	100.0		spk
067	met45	CCV				01/07/19 12:57	1.0	3	
068	met45	CCB				01/07/19 12:59	1.0		
069	met45	XSAMPLE	305807-019	Soil	266696	01/07/19 13:00	100.0		spk
070	met45	X	RINSE			01/07/19 13:01	1.0		
071	met45	SAMPLE	305807-003	Soil	266696	01/07/19 13:02	500.0		spk
072	met45	SAMPLE	305807-019	Soil	266696	01/07/19 13:04	100.0		spk
073	met45	X	RINSE2			01/07/19 13:05	1.0		
074	met45	BLANK	QC960423	Soil	266696	01/07/19 13:06	1.0		
075	met45	BS	QC960424	Soil	266696	01/07/19 13:07	1.0		
076	met45	BSD	QC960425	Soil	266696	01/07/19 13:08	1.0		spk
077	met45	X	RINSE2			01/07/19 13:10	1.0		
078	met45	X	RINSE			01/07/19 13:11	1.0		
079	met45	CCV				01/07/19 13:12	1.0	3	
080	met45	CCB				01/07/19 13:13	1.0		
081	met45	BLANK	QC960429	Soil	266697	01/07/19 13:14	1.0		
082	met45	BS	QC960430	Soil	266697	01/07/19 13:16	1.0		
083	met45	BSD	QC960431	Soil	266697	01/07/19 13:17	1.0		
084	met45	MSS	305787-001	Soil	266697	01/07/19 13:18	10000		
085	met45	MS	QC960432	Soil	266697	01/07/19 13:19	1.0		1:HG=280
086	met45	MSD	QC960433	Soil	266697	01/07/19 13:21	1.0		1:HG=290
087	met45	SER	QC960434	Soil	266697	01/07/19 13:22	50000		
088	met45	SAMPLE	305787-002	Soil	266697	01/07/19 13:24	10000		
089	met45	SAMPLE	305787-003	Soil	266697	01/07/19 13:25	10000		
090	met45	SAMPLE	305787-004	Soil	266697	01/07/19 13:26	10000		
091	met45	CCV				01/07/19 13:27	1.0	3	
092	met45	CCB				01/07/19 13:29	1.0		
093	met45	SAMPLE	305787-005	Soil	266697	01/07/19 13:30	10000		
094	met45	SAMPLE	305787-006	Soil	266697	01/07/19 13:31	10000		
095	met45	SAMPLE	305787-007	Soil	266697	01/07/19 13:32	10000		
096	met45	SAMPLE	305787-008	Soil	266697	01/07/19 13:34	10000		
097	met45	SAMPLE	305787-009	Soil	266697	01/07/19 13:35	10000		
098	met45	SAMPLE	305787-010	Soil	266697	01/07/19 13:36	10000		
099	met45	SAMPLE	305787-011	Soil	266697	01/07/19 13:37	10000		
100	met45	SAMPLE	305787-012	Soil	266697	01/07/19 13:39	10000		
101	met45	SAMPLE	305807-020	Soil	266697	01/07/19 13:40	10000		
102	met45	SAMPLE	305807-021	Soil	266697	01/07/19 13:41	10000		
103	met45	CCV				01/07/19 13:42	1.0	3	
104	met45	CCB				01/07/19 13:44	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010771

Instrument : MET45 Begun : 01/07/19 11:31
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met45	SAMPLE	305807-022	Soil	266697	01/07/19 13:45	10000		1:HG=11
106	met45	SAMPLE	305807-023	Soil	266697	01/07/19 13:46	10000		1:HG=11
107	met45	SAMPLE	305807-024	Soil	266697	01/07/19 13:48	10000		
108	met45	SAMPLE	305807-025	Soil	266697	01/07/19 13:49	10000		
109	met45	SAMPLE	305807-026	Soil	266697	01/07/19 13:51	10000		1:HG=19
110	met45	CCV				01/07/19 13:52	1.0	3	
111	met45	CCB				01/07/19 13:53	1.0		

DLC 01/07/19 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 111.

Standards used: 1=S39373 2=S39375 3=S39376

Flags used: spk=5% spike rule

ENTHALPY INITIAL CALIBRATION FOR 305787 METALS Soil: EPA 7470A

Inst : MET45
Calnum : 389010771001
Units : ug/L

Date : 07-JAN-2019 11:31
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	389010771002	ICAL1	07-JAN-2019 11:32	S39373 (500X)
L2	met45	389010771003	ICAL2	07-JAN-2019 11:33	S39373 (200X)
L3	met45	389010771004	ICAL3	07-JAN-2019 11:35	S39373 (50X)
L4	met45	389010771005	ICAL4	07-JAN-2019 11:36	S39373 (20X)
L5	met45	389010771006	ICAL5	07-JAN-2019 11:37	S39373 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0095	0.0266	0.0302	0.0324	0.0329	LIN0	0.10281	30.1503		0.0263	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	-20	0.5000	1	2.0000	-4	5.0000	0	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

389010771001

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305787 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 389010771001 Cal Date : 07-JAN-2019

ICV 389010771007 (07-JAN-2019) stds: S39375

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.126	ug/L	3	10	

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771008 File : met45 Time : 07-JAN-2019 11:40
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771079 File : met45 Time : 07-JAN-2019 13:12
Cal : 389010771001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0263	0.0317	5.000	4.876	ug/L	-2	20	

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771080 File : met45 Time : 07-JAN-2019 13:13
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771091 File : met45 Time : 07-JAN-2019 13:27
Cal : 389010771001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0263	0.0321	5.000	4.939	ug/L	-1	20	

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771092 File : met45 Time : 07-JAN-2019 13:29
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771103 File : met45 Time : 07-JAN-2019 13:42
Cal : 389010771001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0263	0.0323	5.000	4.975	ug/L	0	20	

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771104 File : met45 Time : 07-JAN-2019 13:44
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010956

Instrument : MET45 Begun : 01/07/19 14:36
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				01/07/19 14:36	1.0		
002	met45	ICAL	ICAL1			01/07/19 14:37	1.0	1	
003	met45	ICAL	ICAL2			01/07/19 14:38	1.0	1	
004	met45	ICAL	ICAL3			01/07/19 14:39	1.0	1	
005	met45	ICAL	ICAL4			01/07/19 14:41	1.0	1	
006	met45	ICAL	ICAL5			01/07/19 14:42	1.0	1	
007	met45	ICV				01/07/19 14:43	1.0	2	
008	met45	ICB				01/07/19 14:44	1.0		
009	met45	SAMPLE	305807-005	Soil	266696	01/07/19 14:46	1.0		spk , 1:HG=450
010	met45	X	RINSE			01/07/19 14:47	1.0		
011	met45	SAMPLE	305807-005	Soil	266696	01/07/19 14:48	100.0		spk , 1:HG=82
012	met45	SAMPLE	305807-017	Soil	266696	01/07/19 14:50	1.0		spk
013	met45	SAMPLE	305807-009	Soil	266696	01/07/19 14:51	10000		spk
014	met45	SAMPLE	305807-020	Soil	266697	01/07/19 14:52	1000		1:HG=170
015	met45	XSAMPLE	305807-022	Soil	266697	01/07/19 14:54	1000		1:HG=180
016	met45	XSAMPLE	305807-023	Soil	266697	01/07/19 14:56	1000		1:HG=260
017	met45	X	RINSE2			01/07/19 14:57	1.0		
018	met45	X	RINSE			01/07/19 14:58	1.0		
019	met45	CCV				01/07/19 14:59	1.0	3	
020	met45	CCB				01/07/19 15:01	1.0		
021	met45	XSAMPLE	305807-024		266696	01/07/19 15:02	1000		
022	met45	XSAMPLE	305807-025		266696	01/07/19 15:04	1000		
023	met45	X	RINSE			01/07/19 15:05	1.0		
024	met45	XSAMPLE	305807-026		266696	01/07/19 15:06	1000		
025	met45	XSAMPLE	305787-003	Soil	266697	01/07/19 15:08	1000		
026	met45	XSAMPLE	305787-010	Soil	266697	01/07/19 15:10	1000		
027	met45	X	RINSE			01/07/19 15:11	1.0		
028	met45	SAMPLE	305807-005	Soil	266696	01/07/19 15:12	1000		spk
029	met45	XSAMPLE	305787-011	Soil	266697	01/07/19 15:13	1000		
030	met45	XSAMPLE	305787-008	Soil	266697	01/07/19 15:14	100000		
031	met45	CCV				01/07/19 15:16	1.0	3	
032	met45	CCB				01/07/19 15:17	1.0		
033	met45	XSAMPLE	305787-009	Soil	266697	01/07/19 15:18	100000		
034	met45	XSAMPLE	305787-012	Soil	266697	01/07/19 15:19	100000		
035	met45	SAMPLE	305807-017	Soil	266696	01/07/19 15:21	1.0		spk , 1:HG=10
036	met45	X	RINSE2			01/07/19 15:22	1.0		
037	met45	X	RINSE			01/07/19 15:23	1.0		
038	met45	SAMPLE	305807-017	Soil	266696	01/07/19 15:25	10.0		spk
039	met45	X	RINSE			01/07/19 15:26	1.0		
040	met45	SAMPLE	305807-020	Soil	266697	01/07/19 15:27	10000		
041	met45	SAMPLE	305807-022	Soil	266697	01/07/19 15:28	10000		1:HG=11
042	met45	X	RINSE			01/07/19 15:30	1.0		
043	met45	CCV				01/07/19 15:31	1.0	3	
044	met45	CCB				01/07/19 15:32	1.0		
045	met45	SAMPLE	305807-023	Soil	266697	01/07/19 15:33	10000		1:HG=13
046	met45	X	R			01/07/19 15:35	1.0		
047	met45	SAMPLE	305807-024	Soil	266697	01/07/19 15:36	10000		
048	met45	SAMPLE	305807-025	Soil	266697	01/07/19 15:37	10000		1:HG=13
049	met45	X	RINSE			01/07/19 15:39	1.0		
050	met45	SAMPLE	305807-026	Soil	266697	01/07/19 15:40	10000		1:HG=19
051	met45	X	RINSE			01/07/19 15:42	1.0		
052	met45	SAMPLE	305787-002	Soil	266697	01/07/19 15:43	100.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010956

Instrument : MET45 Begun : 01/07/19 14:36
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	305787-004	Soil	266697	01/07/19 15:44	100.0		1:HG=23
054	met45	SAMPLE	305787-005	Soil	266697	01/07/19 15:46	100.0		1:HG=12
055	met45	CCV				01/07/19 15:47	1.0	3	
056	met45	CCB				01/07/19 15:49	1.0		
057	met45	SAMPLE	305787-006	Soil	266697	01/07/19 15:50	100.0		
058	met45	SAMPLE	305787-008	Soil	266697	01/07/19 15:51	100.0		
059	met45	SAMPLE	305787-010	Soil	266697	01/07/19 15:52	100.0		1:HG=16
060	met45	X	RINSE1			01/07/19 15:54	1.0		
061	met45	X	RINSE2			01/07/19 15:55	1.0		
062	met45	X	RINSE3			01/07/19 15:56	1.0		
063	met45	X	RINSE5			01/07/19 15:57	1.0		
064	met45	X	RINSE4			01/07/19 15:59	1.0		
065	met45	X	RINSE			01/07/19 16:00	1.0		
066	met45	SAMPLE	305807-022	Soil	266697	01/07/19 16:01	50000		
067	met45	CCV				01/07/19 16:02	1.0	3	
068	met45	CCB				01/07/19 16:03	1.0		
069	met45	SAMPLE	305807-023	Soil	266697	01/07/19 16:05	50000		
070	met45	SAMPLE	305807-025	Soil	266697	01/07/19 16:06	50000		
071	met45	SAMPLE	305807-026	Soil	266697	01/07/19 16:07	50000		
072	met45	SAMPLE	305787-004	Soil	266697	01/07/19 16:09	500.0		
073	met45	SAMPLE	305787-005	Soil	266697	01/07/19 16:10	500.0		
074	met45	SAMPLE	305787-010	Soil	266697	01/07/19 16:11	500.0		
075	met45	MSS	305787-001	Soil	266697	01/07/19 16:12	1000		
076	met45	SER	QC960434	Soil	266697	01/07/19 16:14	5000		
077	met45	X	RINSE1			01/07/19 16:15	1.0		
078	met45	CCV				01/07/19 16:16	1.0	3	
079	met45	CCB				01/07/19 16:17	1.0		
080	met45	SAMPLE	305787-007	Soil	266697	01/07/19 16:27	100.0		
081	met45	SAMPLE	305787-011	Soil	266697	01/07/19 16:28	1000		
082	met45	CCV				01/07/19 16:29	1.0	3	
083	met45	CCB				01/07/19 16:31	1.0		

DLC 01/07/19 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 083.

Standards used: 1=S39373 2=S39375 3=S39376

Flags used: spk=5% spike rule

ENTHALPY INITIAL CALIBRATION FOR 305787 METALS Soil: EPA 7470A

Inst : MET45
Calnum : 389010956001
Units : ug/L

Date : 07-JAN-2019 14:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	389010956002	ICAL1	07-JAN-2019 14:37	S39373 (500X)
L2	met45	389010956003	ICAL2	07-JAN-2019 14:38	S39373 (200X)
L3	met45	389010956004	ICAL3	07-JAN-2019 14:39	S39373 (50X)
L4	met45	389010956005	ICAL4	07-JAN-2019 14:41	S39373 (20X)
L5	met45	389010956006	ICAL5	07-JAN-2019 14:42	S39373 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0255	0.0236	0.0322	0.0328	0.0334	LIN0	0.07384	29.7585		0.0295	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	13	0.5000	-15	2.0000	0	5.0000	-1	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305787 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 389010956001 Cal Date : 07-JAN-2019

ICV 389010956007 (07-JAN-2019) stds: S39375

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.070	ug/L	1	10	

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956008 File : met45 Time : 07-JAN-2019 14:44
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956043 File : met45 Time : 07-JAN-2019 15:31
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0340	5.000	5.133	ug/L	3	20	

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956044 File : met45 Time : 07-JAN-2019 15:32
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	[0.1244]	0.2000	0.1000	ug/L	!CCB

!=warning CCB=instrument blank

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956055 File : met45 Time : 07-JAN-2019 15:47
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0347	5.000	5.243	ug/L	5	20	

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956056 File : met45 Time : 07-JAN-2019 15:49
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	[0.1125]	0.2000	0.1000	ug/L	!CCB

!=warning CCB=instrument blank

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956067 File : met45 Time : 07-JAN-2019 16:02
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0341	5.000	5.145	ug/L	3	20	

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956068 File : met45 Time : 07-JAN-2019 16:03
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956078 File : met45 Time : 07-JAN-2019 16:16
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0339	5.000	5.115	ug/L	2	20	

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956079 File : met45 Time : 07-JAN-2019 16:17
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956082 File : met45 Time : 07-JAN-2019 16:29
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0357	5.000	5.386	ug/L	8	20	

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956083 File : met45 Time : 07-JAN-2019 16:31
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 266697
Started By : DLC
Method : METHOD
Spike #1 ID : S39374

Prep Date : 07-JAN-2019 08:00

Analysis : HG
Finished By : SL
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
305787-001		Soil	.59	50	1	84.75						7471-HG	
305787-002		Soil	.65	50	1	76.92						7471-HG	
305787-003		Soil	.58	50	1	86.21						7471-HG	
305787-004		Soil	.64	50	1	78.13						7471-HG	
305787-005		Soil	.58	50	1	86.21						7471-HG	
305787-006		Soil	.63	50	1	79.37						7471-HG	
305787-007		Soil	.65	50	1	76.92						7471-HG	
305787-008		Soil	.55	50	1	90.91						7471-HG	
305787-009		Soil	.57	50	1	87.72						7471-HG	
305787-010		Soil	.63	50	1	79.37						7471-HG	
305787-011		Soil	.59	50	1	84.75						7471-HG	
305787-012		Soil	.58	50	1	86.21						7471-HG	
305807-020		Soil	.62	50	1	80.65						7471-HG	
305807-021		Soil	.58	50	1	86.21						7471-HG	
305807-022		Soil	.63	50	1	79.37						7471-HG	
305807-023		Soil	.57	50	1	87.72						7471-HG	
305807-024		Soil	.64	50	1	78.13						7471-HG	
305807-025		Soil	.57	50	1	87.72						7471-HG	
305807-026		Soil	.61	50	1	81.97						7471-HG	
QC960429	BLANK	Soil	.58	50	1	86.21							
QC960430	BS	Soil	.59	50	1	84.75		1					
QC960431	BSD	Soil	.59	50	1	84.75		1					
QC960432	MS	Soil	.56	50	1	89.29		1					
QC960433	MSD	Soil	.59	50	1	84.75		1					
QC960434	SER	Soil	.59	50	1	84.75							

Analyst: DLC Date: 01/07/19 Reviewer: PRW Date: 01/07/19

Soil Digestion for Mercury

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266697 Digestion Method: ☒ EPA 7471A/ 7471B ☐ _____ BK 4375

Date Digested: 1-6-2019 Page 3

	Sample #	container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
	Blank	A	0.58	⌀50 ☐___	Y	QC 960929
	BS		0.59	⌀50 ☐___		30
	BSD		0.59	⌀50 ☐___		81
	MS		0.56	⌀50 ☐___		82
5	MSD		0.59	⌀50 ☐___		83
	305807-020	A	0.62	⌀50 ☐___		
	-021		0.58	⌀50 ☐___		
	-022		0.63	⌀50 ☐___		
	-023		0.57	⌀50 ☐___		
10	-024		0.64	⌀50 ☐___		
	-025		0.57	⌀50 ☐___		
	-026		0.61	⌀50 ☐___		
	305787-001	A	0.59	⌀50 ☐___		MSS
	-002		0.65	⌀50 ☐___		
15	-003		0.58	⌀50 ☐___		
	-004		0.64	⌀50 ☐___		
	-005		0.58	⌀50 ☐___		
	-006		0.63	⌀50 ☐___		
	-007		0.65	⌀50 ☐___		
20	-008		0.55	⌀50 ☐___		
	-009		0.57	⌀50 ☐___		
	-010		0.63	⌀50 ☐___		
	-011		0.59	⌀50 ☐___		
	-012		0.58	⌀50 ☐___		
				☐50 ☐___		

Balance ID: B-9 calibration has been checked? ☒ Yes ☐ No

Standards prepared per SOP: MET 5.2, rev. 20

1.0 mL of spike standard was added to all spikes

☐ **CAL digested with this batch? ICAL Std S#**

Pipettes

Vol.(mL)	ID
.1	J28153D
.2-1	R29360D
1-5	2924335
5-10	4645196

Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tubes, Lot # CPI 112818	PC 1-6-19
Blank/LCS 'matrix' ID Chemware 23228917	
S39374	
S39373	
ICV / CCV LIMS S# S39375 / S39376	
Digestion Temperature (°C), and Probe Location 95° | 31	
Digestion block ID Segia	
Thermometer # 64112748	
Digestion Started at (time) 2025	
Aqua Regia (HNO3+ HCl) Reagent ID 010619	
5% $KMnO_4$ / Granular KMnO4 reagent ID 010219A | —	
NaCl.hydroxylamine hydrochloride Reagent ID 010219A	
Stannous Chloride Reagent ID 010719	SL 1-7-19
Digestion Completd at (time) 2055	PC 1-6-19
☐ filtered thru' 0.45 um syringe filter (lot #) S581160103	SL 1-7-19

1-6-19

Prep Chemist / Date

Continued from page Ø

Continued on page _____

Reviewed Online / See LIMS

Version 7.2, July.2017

Mercury Raw Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010771

Instrument : MET45 Begun : 01/07/19 11:31
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				01/07/19 11:31	1.0		
002	met45	ICAL	ICAL1			01/07/19 11:32	1.0	1	
003	met45	ICAL	ICAL2			01/07/19 11:33	1.0	1	
004	met45	ICAL	ICAL3			01/07/19 11:35	1.0	1	
005	met45	ICAL	ICAL4			01/07/19 11:36	1.0	1	
006	met45	ICAL	ICAL5			01/07/19 11:37	1.0	1	
007	met45	ICV				01/07/19 11:38	1.0	2	
008	met45	ICB				01/07/19 11:40	1.0		
009	met45	BLANK	QC960423	Soil	266696	01/07/19 11:41	1.0		
010	met45	BS	QC960424	Soil	266696	01/07/19 11:42	1.0		
011	met45	BSD	QC960425	Soil	266696	01/07/19 11:43	1.0		spk
012	met45	MSS	305807-001	Soil	266696	01/07/19 11:45	1000		spk , 1:HG=40
013	met45	MS	QC960426	Soil	266696	01/07/19 11:46	1.0		1:HG=590
014	met45	MSD	QC960427	Soil	266696	01/07/19 11:48	1.0		1:HG=570
015	met45	SER	QC960428	Soil	266696	01/07/19 11:49	5000		
016	met45	SAMPLE	305807-002	Soil	266696	01/07/19 11:51	1000		spk , 1:HG=18
017	met45	SAMPLE	305807-003	Soil	266696	01/07/19 11:52	1000		spk
018	met45	SAMPLE	305807-004	Soil	266696	01/07/19 11:53	1000		spk
019	met45	CCV				01/07/19 11:55	1.0	3	
020	met45	CCB				01/07/19 11:56	1.0		
021	met45	SAMPLE	305807-005	Soil	266696	01/07/19 11:57	1000		spk
022	met45	X	RINSE			01/07/19 11:58	1.0		
023	met45	MSS	305807-001	Soil	266696	01/07/19 12:00	10000		spk
024	met45	SER	QC960428	Soil	266696	01/07/19 12:01	50000		
025	met45	SAMPLE	305807-002	Soil	266696	01/07/19 12:02	10000		spk
026	met45	SAMPLE	305807-003	Soil	266696	01/07/19 12:03	100.0		spk , 1:HG=140
027	met45	X	RINSE			01/07/19 12:05	1.0		
028	met45	SAMPLE	305807-005	Soil	266696	01/07/19 12:06	100.0		spk
029	met45	SAMPLE	305807-004	Soil	266696	01/07/19 12:07	100.0		spk
030	met45	XSAMPLE	305807-003	Soil	266696	01/07/19 12:09	500.0		spk
031	met45	CCV				01/07/19 12:10	1.0	3	
032	met45	CCB				01/07/19 12:11	1.0		
033	met45	SAMPLE	305807-006	Soil	266696	01/07/19 12:12	1000		spk , 1:HG=45
034	met45	X	RINSE			01/07/19 12:14	1.0		
035	met45	SAMPLE	305807-006	Soil	266696	01/07/19 12:15	10000		spk , 1:HG=11
036	met45	SAMPLE	305807-007	Soil	266696	01/07/19 12:17	1000		spk , 1:HG=22
037	met45	SAMPLE	305807-008	Soil	266696	01/07/19 12:18	1000		spk
038	met45	SAMPLE	305807-009	Soil	266696	01/07/19 12:20	1000		spk , 1:HG=14
039	met45	X	RINSE			01/07/19 12:21	1.0		
040	met45	SAMPLE	305807-010	Soil	266696	01/07/19 12:22	1000		spk
041	met45	SAMPLE	305807-006	Soil	266696	01/07/19 12:23	50000		spk
042	met45	SAMPLE	305807-011	Soil	266696	01/07/19 12:25	1000		spk , 1:HG=23
043	met45	CCV				01/07/19 12:26	1.0	3	
044	met45	CCB				01/07/19 12:28	1.0		
045	met45	SAMPLE	305807-012	Soil	266696	01/07/19 12:29	1000		spk , 1:HG=13
046	met45	SAMPLE	305807-013	Soil	266696	01/07/19 12:30	1000		spk , 1:HG=11
047	met45	SAMPLE	305807-014	Soil	266696	01/07/19 12:32	1000		spk , 1:HG=22
048	met45	X	RINSE			01/07/19 12:34	1.0		
049	met45	SAMPLE	305807-008	Soil	266696	01/07/19 12:35	1000		spk
050	met45	SAMPLE	305807-007	Soil	266696	01/07/19 12:36	1000		spk , 1:HG=22
051	met45	SAMPLE	305807-015	Soil	266696	01/07/19 12:38	1000		spk
052	met45	SAMPLE	305807-011	Soil	266696	01/07/19 12:39	10000		spk

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010771

Instrument : MET45 Begun : 01/07/19 11:31
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	305807-012	Soil	266696	01/07/19 12:40	10000		spk
054	met45	SAMPLE	305807-016	Soil	266696	01/07/19 12:41	1000		spk
055	met45	CCV				01/07/19 12:43	1.0	3	
056	met45	CCB				01/07/19 12:44	1.0		
057	met45	SAMPLE	305807-014	Soil	266696	01/07/19 12:45	10000		spk
058	met45	SAMPLE	305807-007	Soil	266696	01/07/19 12:46	10000		spk
059	met45	SAMPLE	305807-013	Soil	266696	01/07/19 12:47	10000		spk
060	met45	SAMPLE	305807-015	Soil	266696	01/07/19 12:49	100.0		spk
061	met45	SAMPLE	305807-016	Soil	266696	01/07/19 12:50	100.0		spk
062	met45	SAMPLE	305807-017	Soil	266696	01/07/19 12:51	1000		spk
063	met45	SAMPLE	305807-018	Soil	266696	01/07/19 12:52	1000		spk
064	met45	SAMPLE	305807-019	Soil	266696	01/07/19 12:54	1000		spk
065	met45	SAMPLE	305807-017	Soil	266696	01/07/19 12:55	100.0		spk
066	met45	SAMPLE	305807-018	Soil	266696	01/07/19 12:56	100.0		spk
067	met45	CCV				01/07/19 12:57	1.0	3	
068	met45	CCB				01/07/19 12:59	1.0		
069	met45	XSAMPLE	305807-019	Soil	266696	01/07/19 13:00	100.0		spk
070	met45	X	RINSE			01/07/19 13:01	1.0		
071	met45	SAMPLE	305807-003	Soil	266696	01/07/19 13:02	500.0		spk
072	met45	SAMPLE	305807-019	Soil	266696	01/07/19 13:04	100.0		spk
073	met45	X	RINSE2			01/07/19 13:05	1.0		
074	met45	BLANK	QC960423	Soil	266696	01/07/19 13:06	1.0		
075	met45	BS	QC960424	Soil	266696	01/07/19 13:07	1.0		
076	met45	BSD	QC960425	Soil	266696	01/07/19 13:08	1.0		spk
077	met45	X	RINSE2			01/07/19 13:10	1.0		
078	met45	X	RINSE			01/07/19 13:11	1.0		
079	met45	CCV				01/07/19 13:12	1.0	3	
080	met45	CCB				01/07/19 13:13	1.0		
081	met45	BLANK	QC960429	Soil	266697	01/07/19 13:14	1.0		
082	met45	BS	QC960430	Soil	266697	01/07/19 13:16	1.0		
083	met45	BSD	QC960431	Soil	266697	01/07/19 13:17	1.0		
084	met45	MSS	305787-001	Soil	266697	01/07/19 13:18	10000		
085	met45	MS	QC960432	Soil	266697	01/07/19 13:19	1.0		1:HG=280
086	met45	MSD	QC960433	Soil	266697	01/07/19 13:21	1.0		1:HG=290
087	met45	SER	QC960434	Soil	266697	01/07/19 13:22	50000		
088	met45	SAMPLE	305787-002	Soil	266697	01/07/19 13:24	10000		
089	met45	SAMPLE	305787-003	Soil	266697	01/07/19 13:25	10000		
090	met45	SAMPLE	305787-004	Soil	266697	01/07/19 13:26	10000		
091	met45	CCV				01/07/19 13:27	1.0	3	
092	met45	CCB				01/07/19 13:29	1.0		
093	met45	SAMPLE	305787-005	Soil	266697	01/07/19 13:30	10000		
094	met45	SAMPLE	305787-006	Soil	266697	01/07/19 13:31	10000		
095	met45	SAMPLE	305787-007	Soil	266697	01/07/19 13:32	10000		
096	met45	SAMPLE	305787-008	Soil	266697	01/07/19 13:34	10000		
097	met45	SAMPLE	305787-009	Soil	266697	01/07/19 13:35	10000		
098	met45	SAMPLE	305787-010	Soil	266697	01/07/19 13:36	10000		
099	met45	SAMPLE	305787-011	Soil	266697	01/07/19 13:37	10000		
100	met45	SAMPLE	305787-012	Soil	266697	01/07/19 13:39	10000		
101	met45	SAMPLE	305807-020	Soil	266697	01/07/19 13:40	10000		
102	met45	SAMPLE	305807-021	Soil	266697	01/07/19 13:41	10000		
103	met45	CCV				01/07/19 13:42	1.0	3	
104	met45	CCB				01/07/19 13:44	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010771

Instrument : MET45 Begun : 01/07/19 11:31
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met45	SAMPLE	305807-022	Soil	266697	01/07/19 13:45	10000		1:HG=11
106	met45	SAMPLE	305807-023	Soil	266697	01/07/19 13:46	10000		1:HG=11
107	met45	SAMPLE	305807-024	Soil	266697	01/07/19 13:48	10000		
108	met45	SAMPLE	305807-025	Soil	266697	01/07/19 13:49	10000		
109	met45	SAMPLE	305807-026	Soil	266697	01/07/19 13:51	10000		1:HG=19
110	met45	CCV				01/07/19 13:52	1.0	3	
111	met45	CCB				01/07/19 13:53	1.0		

DLC 01/07/19 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 111.

Standards used: 1=S39373 2=S39375 3=S39376

Flags used: spk=5% spike rule

Mercury by Cold Vapor AA

Lab #:	305787	Location:	MFA Sampling
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S5823.03	Analysis:	EPA 7471A
Analyte:	Mercury	Batch#:	266697
Matrix:	Soil	Received:	12/12/18
Units:	mg/Kg	Prepared:	01/07/19
Basis:	as received	Analyzed:	01/07/19

Field ID	Type	Lab ID	Result	RL	MDL	Diln Fac	Sampled
RFS-MFA-EXB1-2	SAMPLE	305787-001	48	17	3.0	1,000	12/11/18
RFS-MFA-EXB1-5	SAMPLE	305787-002	68	1.5	0.27	100.0	12/11/18
RFS-MFA-EXB2-9	SAMPLE	305787-003	1,300	170	30	10,000	12/11/18
RFS-MFA-EXB2-10	SAMPLE	305787-004	190	7.8	1.4	500.0	12/11/18
RFS-MFA-EXB1-6	SAMPLE	305787-005	110	8.6	1.5	500.0	12/11/18
RFS-MFA-EXH1-1	SAMPLE	305787-006	15	1.6	0.28	100.0	12/11/18
RFS-MFA-EXH1-2	SAMPLE	305787-007	27	1.5	0.27	100.0	12/11/18
RFS-MFA-EXH1-3	SAMPLE	305787-008	22	1.8	0.32	100.0	12/11/18
RFS-MFA-EXH1-5	SAMPLE	305787-009	300	180	31	10,000	12/12/18
RFS-MFA-EXH1-4	SAMPLE	305787-010	130	7.9	1.4	500.0	12/12/18
RFS-MFA-EXG1-3	SAMPLE	305787-011	130	17	3.0	1,000	12/12/18
RFS-MFA-EXG1-4	SAMPLE	305787-012	740	170	30	10,000	12/12/18
	BLANK	QC960429	ND	0.017	0.0030	1.000	

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305787-003	Client ID	: RFS-MFA-EXB2-9
Seqnum	: 389010771089.1	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 13:25
Cal	: 389010771001	Caldate	: 07-JAN-2019		
IDF	: 10000			Units	: mg/Kg

0.58 g --> 50.0 ml = 86.21 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	1300	170		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 89 **Autosampler Location: 79**
Sample ID: 305807-021,266696,1000 **Date Collected: 1/7/2019 1:25:26 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-021,266696,1000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.560	1.560	0.0484	0.0536	0.0198	1:26:23 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305787-009	Client ID	: RFS-MFA-EXH1-5
Seqnum	: 389010771097.1	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 13:35
Cal	: 389010771001	Caldate	: 07-JAN-2019		
IDF	: 10000			Units	: mg/Kg

0.57 g --> 50.0 ml = 87.72 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	300	180		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 97 **Autosampler Location: 85**
Sample ID: 305787-002,266696,1000 **Date Collected: 1/7/2019 1:35:25 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305787-002,266696,1000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.339	0.339	0.0079	0.0131	0.0045	1:36:21 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305787-012	Client ID	: RFS-MFA-EXG1-4
Seqnum	: 389010771100.1	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 13:39
Cal	: 389010771001	Caldate	: 07-JAN-2019		
IDF	: 10000			Units	: mg/Kg

0.58 g --> 50.0 ml = 86.21 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	740	170		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 100 **Autosampler Location: 88**
Sample ID: 305787-005,266696,1000 **Date Collected: 1/7/2019 1:39:05 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305787-005,266696,1000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.854	0.854	0.0249	0.0301	0.0104	1:40:01 PM	Yes

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305787	Location:	MFA Sampling
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S5823.03	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	RFS-MFA-EXB1-2	Batch#:	266697
MSS Lab ID:	305787-001	Sampled:	12/11/18
Matrix:	Soil	Received:	12/12/18
Units:	mg/Kg	Prepared:	01/07/19
Basis:	as received	Analyzed:	01/07/19

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC960430		0.1695	0.1579	93	80-120		
BSD	QC960431		0.1695	0.1595	94	80-120	1	20
MS	QC960432	48.12	0.1786	24.99 >LR	-12951 NM	80-120		
MSD	QC960433		0.1695	24.36 >LR	-14021 NM	80-120	NC	20

NC= Not Calculated
NM= Not Meaningful: Sample concentration > 4X spike concentration
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

ENTHALPY SPIKE USER REPORT FOR 305787 METALS Soil
EPA 7470A

Type	: MSS	Type	: MS	Type	: MSD
Inst	: MET45	Inst	: MET45	Inst	: MET45
Seqnum	: 389010956075.1	Seqnum	: 389010771085.2	Seqnum	: 389010771086.2
File	: met45	File	: met45	File	: met45
IDF	: 1000	IDF	: 1.0	IDF	: 1.0
Lab ID	: 305787-001	Lab ID	: QC960432	Lab ID	: QC960433
Matrix	: Soil	Matrix	: Soil	Matrix	: Soil
Batch	: 266697	Batch	: 266697	Batch	: 266697
Time	: 07-JAN-2019 16:12	Time	: 07-JAN-2019 13:19	Time	: 07-JAN-2019 13:21
Cal	: 389010956001	Cal	: 389010771001	Cal	: 389010771001
Units	: mg/Kg				

MSS: 0.59 g --> 50.0 ml = 84.75 ml/g PDF
 MS: 0.56 g --> 50.0 ml = 89.29 ml/g PDF
MSD: 0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	MSS	Spiked	MS	%Rec	Spiked	MSD	%Rec	Limits	RPD	Lim	Flags
Mercury	48.12	0.1786	**24.99 >LR**	-12951	0.1695	**24.36 >LR**	-14021	80-120		20	: >LR u

:=recovery not meaningful >LR=overrange u=use

389010771086.2

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 85 **Autosampler Location: 75**
Sample ID: QC960432,266697,1 **Date Collected: 1/7/2019 1:19:50 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960432,266697,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	280.0	280.0	9.2814	9.2866	1.5490	1:20:46 PM	Yes

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 86 **Autosampler Location: 76**
Sample ID: QC960433,266697,1 **Date Collected: 1/7/2019 1:21:24 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960433,266697,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	287.5	287.5	9.5295	9.5347	1.5600	1:22:20 PM	Yes

ENTHALPY SPIKE USER REPORT FOR 305787 METALS Soil
EPA 7470A

Type : BS
Inst : MET45
Seqnum : 389010771082.2
File : met45
IDF : 1.0
Lab ID : QC960430
Matrix : Soil
Batch : 266697
Time : 07-JAN-2019 13:16
Cal : 389010771001
Units : mg/Kg

Type : BSD
Inst : MET45
Seqnum : 389010771083.2
File : met45
IDF : 1.0
Lab ID : QC960431
Matrix : Soil
Batch : 266697
Time : 07-JAN-2019 13:17
Cal : 389010771001

BS: 0.59 g --> 50.0 ml = 84.75 ml/g PDF
BSD: 0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	Spiked	BS	%Rec	BSD	%Rec	Limits	RPD	Lim	Flags
Mercury	0.1695	0.1579	93	0.1595	94	80-120	1	20	u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 82 **Autosampler Location: 72**
Sample ID: QC960430,266697,1 **Date Collected: 1/7/2019 1:16:10 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960430,266697,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.863	1.863	0.0584	0.0636	0.0204	1:17:06 PM	Yes

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 83 **Autosampler Location: 73**
Sample ID: QC960431,266697,1 **Date Collected: 1/7/2019 1:17:23 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960431,266697,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.882	1.882	0.0590	0.0642	0.0205	1:18:19 PM	Yes

ENTHALPY BLANK USER REPORT FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 Lab ID : QC960429
Seqnum : 389010771081.3 Matrix : Soil
File : met45 Batch : 266697 Time : 07-JAN-2019 13:14
Cal : 389010771001 Caldate : 07-JAN-2019
IDF : 1.0 Units : mg/Kg

0.58 g --> 50.0 ml = 86.21 ml/g PDF

Analyte	Result	RL	Flags
Mercury	ND	0.017	u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 81 **Autosampler Location: 71**
Sample ID: QC960429,266697,1 **Date Collected: 1/7/2019 1:14:57 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960429,266697,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.026	0.026	-0.0025	0.0027	0.0009	1:15:53 PM	Yes

ENTHALPY INITIAL CALIBRATION FOR 305787 METALS Soil: EPA 7470A

Inst : MET45
Calnum : 389010771001
Units : ug/L

Date : 07-JAN-2019 11:31
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	389010771002	ICAL1	07-JAN-2019 11:32	S39373 (500X)
L2	met45	389010771003	ICAL2	07-JAN-2019 11:33	S39373 (200X)
L3	met45	389010771004	ICAL3	07-JAN-2019 11:35	S39373 (50X)
L4	met45	389010771005	ICAL4	07-JAN-2019 11:36	S39373 (20X)
L5	met45	389010771006	ICAL5	07-JAN-2019 11:37	S39373 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0095	0.0266	0.0302	0.0324	0.0329	LIN0	0.10281	30.1503		0.0263	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	-20	0.5000	1	2.0000	-4	5.0000	0	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305787 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 389010771001 Cal Date : 07-JAN-2019

ICV 389010771007 (07-JAN-2019) stds: S39375

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.126	ug/L	3	10	

==========

Analysis Begun

Logged In Analyst: mercury **Technique: AA FIMS-MHS**
Spectrometer: FIMS-100, S/N B050-9550 **Autosampler: Cetac**

Sample Information File: C:\Users\Public\PerkinElmer\AA\Data\Sample Information\010319soil.sif
Batch ID:
Results Data Set: 010719soil1
Results Library: C:\Users\Public\PerkinElmer\AA\Data\Results\Results.mdb

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: ICALBLK **Date Collected: 1/7/2019 11:31:30 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICALBLK **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.00]	0.0052	0.0052	0.0019	11:32:26 AM	Yes

Auto-zero performed.

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: ICAL, ICAL1,S39373,500 **Date Collected: 1/7/2019 11:32:43 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL1,S39373,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.2]	0.0019	0.0071	0.0027	11:33:39 AM	Yes

Standard number 1 applied. [0.2]
Correlation Coef.: 1.000000 Slope: 0.00949 Intercept: 0.00000

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: ICAL, ICAL2,S39373,200 **Date Collected: 1/7/2019 11:33:56 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL2,S39373,200 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.5]	0.0133	0.0185	0.0057	11:34:52 AM	Yes

Standard number 2 applied. [0.5]
Correlation Coef.: 0.962008 Slope: 0.02755 Intercept: -0.00135

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: ICAL, ICAL3,S39373,50 **Date Collected: 1/7/2019 11:35:09 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL3,S39373,50 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[2.0]	0.0604	0.0656	0.0208	11:36:06 AM	Yes

Standard number 3 applied. [2.0]
Correlation Coef.: 0.998029 Slope: 0.03113 Intercept: -0.00210

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: ICAL, ICAL4,S39373,20 **Date Collected: 1/7/2019 11:36:23 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL4,S39373,20 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[5.0]	0.1620	0.1672	0.0515	11:37:20 AM	Yes

Standard number 4 applied. [5.0]
Correlation Coef.: 0.999530 Slope: 0.03282 Intercept: -0.00300

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

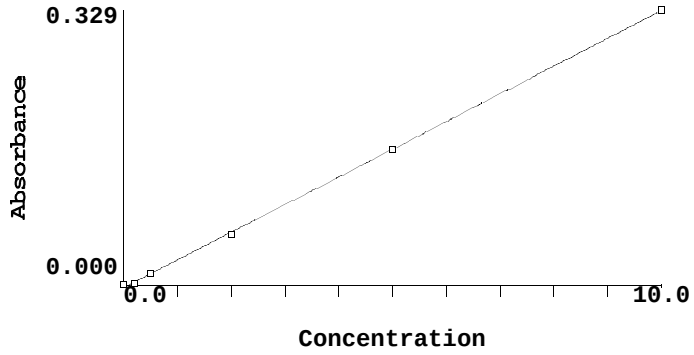
==========

Sequence No.: 6 **Autosampler Location: 6**
Sample ID: ICAL, ICAL5,S39373,10 **Date Collected: 1/7/2019 11:37:38 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL5,S39373,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[10.0]	0.3290	0.3342	0.1021	11:38:35 AM	Yes

Standard number 5 applied. [10.0]
Correlation Coef.: 0.999880 Slope: 0.03316 Intercept: -0.00340



Calibration data for Hg 253.7 **Equation: Linear, Calculated Intercept**

ID	Mean Signal (Abs)	Entered Conc. ug/L	Calculated Conc. ug/L	Standard Deviation	%RSD
ICALBLK	0.0000	0	0.102	----	----
ICAL, ICAL1,S39373,500	0.0019	0.2	0.160	----	----
ICAL, ICAL2,S39373,200	0.0133	0.5	0.504	----	----
ICAL, ICAL3,S39373,50	0.0604	2.0	1.924	----	----
ICAL, ICAL4,S39373,20	0.1620	5.0	4.988	----	----
ICAL, ICAL5,S39373,10	0.3290	10.0	10.022	----	----

Correlation Coef.: 0.999880 Slope: 0.03316 Intercept: -0.00340

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 7 **Autosampler Location: 8**
Sample ID: ICV,S39375,1 **Date Collected: 1/7/2019 11:38:53 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV,S39375,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.126	5.126	0.1666	0.1718	0.0528	11:39:51 AM	Yes

QC value within limits for Hg 253.7 Recovery = 102.52%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771008 File : met45 Time : 07-JAN-2019 11:40
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 8 **Autosampler Location: 9**
Sample ID: ICB **Date Collected: 1/7/2019 11:40:10 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.027	0.027	-0.0025	0.0027	0.0010	11:41:07 AM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771079 File : met45 Time : 07-JAN-2019 13:12
Cal : 389010771001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0263	0.0317	5.000	4.876	ug/L	-2	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 79 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 1:12:23 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.877	4.877	0.1583	0.1636	0.0531	1:13:21 PM	Yes

QC value within limits for Hg 253.7 Recovery = 97.54%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771080 File : met45 Time : 07-JAN-2019 13:13
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 80 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 1:13:39 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.055	0.055	-0.0016	0.0037	0.0011	1:14:37 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771091 File : met45 Time : 07-JAN-2019 13:27
Cal : 389010771001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0263	0.0321	5.000	4.939	ug/L	-1	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 91 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 1:27:55 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.938	4.938	0.1604	0.1656	0.0538	1:28:52 PM	Yes

QC value within limits for Hg 253.7 Recovery = 98.76%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771092 File : met45 Time : 07-JAN-2019 13:29
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 92 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 1:29:11 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.026	0.026	-0.0025	0.0027	0.0011	1:30:09 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771103 File : met45 Time : 07-JAN-2019 13:42
Cal : 389010771001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0263	0.0323	5.000	4.975	ug/L	0	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 103 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 1:42:46 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.974	4.974	0.1616	0.1668	0.0535	1:43:44 PM	Yes

QC value within limits for Hg 253.7 Recovery = 99.48%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771104 File : met45 Time : 07-JAN-2019 13:44
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 104 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 1:44:02 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.051	0.051	-0.0017	0.0035	0.0011	1:45:00 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010956

Instrument : MET45 Begun : 01/07/19 14:36
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				01/07/19 14:36	1.0		
002	met45	ICAL	ICAL1			01/07/19 14:37	1.0	1	
003	met45	ICAL	ICAL2			01/07/19 14:38	1.0	1	
004	met45	ICAL	ICAL3			01/07/19 14:39	1.0	1	
005	met45	ICAL	ICAL4			01/07/19 14:41	1.0	1	
006	met45	ICAL	ICAL5			01/07/19 14:42	1.0	1	
007	met45	ICV				01/07/19 14:43	1.0	2	
008	met45	ICB				01/07/19 14:44	1.0		
009	met45	SAMPLE	305807-005	Soil	266696	01/07/19 14:46	1.0		spk , 1:HG=450
010	met45	X	RINSE			01/07/19 14:47	1.0		
011	met45	SAMPLE	305807-005	Soil	266696	01/07/19 14:48	100.0		spk , 1:HG=82
012	met45	SAMPLE	305807-017	Soil	266696	01/07/19 14:50	1.0		spk
013	met45	SAMPLE	305807-009	Soil	266696	01/07/19 14:51	10000		spk
014	met45	SAMPLE	305807-020	Soil	266697	01/07/19 14:52	1000		1:HG=170
015	met45	XSAMPLE	305807-022	Soil	266697	01/07/19 14:54	1000		1:HG=180
016	met45	XSAMPLE	305807-023	Soil	266697	01/07/19 14:56	1000		1:HG=260
017	met45	X	RINSE2			01/07/19 14:57	1.0		
018	met45	X	RINSE			01/07/19 14:58	1.0		
019	met45	CCV				01/07/19 14:59	1.0	3	
020	met45	CCB				01/07/19 15:01	1.0		
021	met45	XSAMPLE	305807-024		266696	01/07/19 15:02	1000		
022	met45	XSAMPLE	305807-025		266696	01/07/19 15:04	1000		
023	met45	X	RINSE			01/07/19 15:05	1.0		
024	met45	XSAMPLE	305807-026		266696	01/07/19 15:06	1000		
025	met45	XSAMPLE	305787-003	Soil	266697	01/07/19 15:08	1000		
026	met45	XSAMPLE	305787-010	Soil	266697	01/07/19 15:10	1000		
027	met45	X	RINSE			01/07/19 15:11	1.0		
028	met45	SAMPLE	305807-005	Soil	266696	01/07/19 15:12	1000		spk
029	met45	XSAMPLE	305787-011	Soil	266697	01/07/19 15:13	1000		
030	met45	XSAMPLE	305787-008	Soil	266697	01/07/19 15:14	100000		
031	met45	CCV				01/07/19 15:16	1.0	3	
032	met45	CCB				01/07/19 15:17	1.0		
033	met45	XSAMPLE	305787-009	Soil	266697	01/07/19 15:18	100000		
034	met45	XSAMPLE	305787-012	Soil	266697	01/07/19 15:19	100000		
035	met45	SAMPLE	305807-017	Soil	266696	01/07/19 15:21	1.0		spk , 1:HG=10
036	met45	X	RINSE2			01/07/19 15:22	1.0		
037	met45	X	RINSE			01/07/19 15:23	1.0		
038	met45	SAMPLE	305807-017	Soil	266696	01/07/19 15:25	10.0		spk
039	met45	X	RINSE			01/07/19 15:26	1.0		
040	met45	SAMPLE	305807-020	Soil	266697	01/07/19 15:27	10000		
041	met45	SAMPLE	305807-022	Soil	266697	01/07/19 15:28	10000		1:HG=11
042	met45	X	RINSE			01/07/19 15:30	1.0		
043	met45	CCV				01/07/19 15:31	1.0	3	
044	met45	CCB				01/07/19 15:32	1.0		
045	met45	SAMPLE	305807-023	Soil	266697	01/07/19 15:33	10000		1:HG=13
046	met45	X	R			01/07/19 15:35	1.0		
047	met45	SAMPLE	305807-024	Soil	266697	01/07/19 15:36	10000		
048	met45	SAMPLE	305807-025	Soil	266697	01/07/19 15:37	10000		1:HG=13
049	met45	X	RINSE			01/07/19 15:39	1.0		
050	met45	SAMPLE	305807-026	Soil	266697	01/07/19 15:40	10000		1:HG=19
051	met45	X	RINSE			01/07/19 15:42	1.0		
052	met45	SAMPLE	305787-002	Soil	266697	01/07/19 15:43	100.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010956

Instrument : MET45 Begun : 01/07/19 14:36
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	305787-004	Soil	266697	01/07/19 15:44	100.0		1:HG=23
054	met45	SAMPLE	305787-005	Soil	266697	01/07/19 15:46	100.0		1:HG=12
055	met45	CCV				01/07/19 15:47	1.0	3	
056	met45	CCB				01/07/19 15:49	1.0		
057	met45	SAMPLE	305787-006	Soil	266697	01/07/19 15:50	100.0		
058	met45	SAMPLE	305787-008	Soil	266697	01/07/19 15:51	100.0		
059	met45	SAMPLE	305787-010	Soil	266697	01/07/19 15:52	100.0		1:HG=16
060	met45	X	RINSE1			01/07/19 15:54	1.0		
061	met45	X	RINSE2			01/07/19 15:55	1.0		
062	met45	X	RINSE3			01/07/19 15:56	1.0		
063	met45	X	RINSE5			01/07/19 15:57	1.0		
064	met45	X	RINSE4			01/07/19 15:59	1.0		
065	met45	X	RINSE			01/07/19 16:00	1.0		
066	met45	SAMPLE	305807-022	Soil	266697	01/07/19 16:01	50000		
067	met45	CCV				01/07/19 16:02	1.0	3	
068	met45	CCB				01/07/19 16:03	1.0		
069	met45	SAMPLE	305807-023	Soil	266697	01/07/19 16:05	50000		
070	met45	SAMPLE	305807-025	Soil	266697	01/07/19 16:06	50000		
071	met45	SAMPLE	305807-026	Soil	266697	01/07/19 16:07	50000		
072	met45	SAMPLE	305787-004	Soil	266697	01/07/19 16:09	500.0		
073	met45	SAMPLE	305787-005	Soil	266697	01/07/19 16:10	500.0		
074	met45	SAMPLE	305787-010	Soil	266697	01/07/19 16:11	500.0		
075	met45	MSS	305787-001	Soil	266697	01/07/19 16:12	1000		
076	met45	SER	QC960434	Soil	266697	01/07/19 16:14	5000		
077	met45	X	RINSE1			01/07/19 16:15	1.0		
078	met45	CCV				01/07/19 16:16	1.0	3	
079	met45	CCB				01/07/19 16:17	1.0		
080	met45	SAMPLE	305787-007	Soil	266697	01/07/19 16:27	100.0		
081	met45	SAMPLE	305787-011	Soil	266697	01/07/19 16:28	1000		
082	met45	CCV				01/07/19 16:29	1.0	3	
083	met45	CCB				01/07/19 16:31	1.0		

DLC 01/07/19 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 083.

Standards used: 1=S39373 2=S39375 3=S39376

Flags used: spk=5% spike rule

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305787-001	Client ID	: RFS-MFA-EXB1-2
Seqnum	: 389010956075.1	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 16:12
Cal	: 389010956001	Caldate	: 07-JAN-2019		
IDF	: 1000			Units	: mg/Kg

0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	48	17		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 75 **Autosampler Location: 138**
Sample ID: 305787-001,266697,1000 **Date Collected: 1/7/2019 4:12:45 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305787-001,266697,1000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.568	0.568	0.0166	0.0222	0.0075	4:13:42 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305787-002	Client ID	: RFS-MFA-EXB1-5
Seqnum	: 389010956052.1	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 15:43
Cal	: 389010956001	Caldate	: 07-JAN-2019		
IDF	: 100.0			Units	: mg/Kg

0.65 g --> 50.0 ml = 76.92 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	68	1.5		u

u=use

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Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 52 **Autosampler Location: 35**
Sample ID: 305787-002,266696,100 **Date Collected: 1/7/2019 3:43:29 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305787-002,266696,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	8.791	8.791	0.2929	0.2985	0.1017	3:44:24 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305787-004	Client ID	: RFS-MFA-EXB2-10
Seqnum	: 389010956072.1	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 16:09
Cal	: 389010956001	Caldate	: 07-JAN-2019		
IDF	: 500.0			Units	: mg/Kg

0.64 g --> 50.0 ml = 78.13 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	190	7.8		u

u=use

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Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 72 **Autosampler Location: 135**
Sample ID: 305787-004,266697,500 **Date Collected: 1/7/2019 4:09:01 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305787-004,266697,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.975	4.975	0.1647	0.1703	0.0594	4:09:57 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305787-005	Client ID	: RFS-MFA-EXB1-6
Seqnum	: 389010956073.1	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 16:10
Cal	: 389010956001	Caldate	: 07-JAN-2019		
IDF	: 500.0			Units	: mg/Kg

0.58 g --> 50.0 ml = 86.21 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	110	8.6		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 73 **Autosampler Location: 136**
Sample ID: 305787-005,266697,500 **Date Collected: 1/7/2019 4:10:15 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305787-005,266697,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.575	2.575	0.0841	0.0896	0.0310	4:11:12 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst : MET45 Lab ID : 305787-006 Client ID : RFS-MFA-EXH1-1
Seqnum : 389010956057.1 Matrix : Soil Acct : TTEMI (MJD)
File : met45 Batch : 266697 Time : 07-JAN-2019 15:50
Cal : 389010956001 Caldate : 07-JAN-2019
IDF : 100.0 Units : mg/Kg

0.63 g --> 50.0 ml = 79.37 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	15	1.6		u

u=use

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Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 57 **Autosampler Location: 38**
Sample ID: 305787-006,266696,100 **Date Collected: 1/7/2019 3:50:23 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305787-006,266696,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.941	1.941	0.0628	0.0683	0.0236	3:51:18 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305787-007	Client ID	: RFS-MFA-EXH1-2
Seqnum	: 389010956080.1	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 16:27
Cal	: 389010956001	Caldate	: 07-JAN-2019		
IDF	: 100.0			Units	: mg/Kg

0.65 g --> 50.0 ml = 76.92 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	27	1.5		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 10 **Autosampler Location: 47**
Sample ID: 305787-007,266697,100 **Date Collected: 1/7/2019 4:27:24 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305787-007,266697,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.522	3.522	0.1159	0.1215	0.0409	4:28:19 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305787-008	Client ID	: RFS-MFA-EXH1-3
Seqnum	: 389010956058.1	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 15:51
Cal	: 389010956001	Caldate	: 07-JAN-2019		
IDF	: 100.0			Units	: mg/Kg

0.55 g --> 50.0 ml = 90.91 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	22	1.8		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 58 **Autosampler Location: 39**
Sample ID: 305787-008,266696,100 **Date Collected: 1/7/2019 3:51:35 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305787-008,266696,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.402	2.402	0.0783	0.0838	0.0292	3:52:31 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst : MET45 Lab ID : 305787-010 Client ID : RFS-MFA-EXH1-4
Seqnum : 389010956074.1 Matrix : Soil Acct : TTEMI (MJD)
File : met45 Batch : 266697 Time : 07-JAN-2019 16:11
Cal : 389010956001 Caldate : 07-JAN-2019
IDF : 500.0 Units : mg/Kg

0.63 g --> 50.0 ml = 79.37 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	130	7.9		u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

Sequence No.: 74 **Autosampler Location: 137**
Sample ID: 305787-010,266697,500 **Date Collected: 1/7/2019 4:11:30 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305787-010,266697,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.366	3.366	0.1106	0.1162	0.0408	4:12:27 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305787-011	Client ID	: RFS-MFA-EXG1-3
Seqnum	: 389010956081.1	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 16:28
Cal	: 389010956001	Caldate	: 07-JAN-2019		
IDF	: 1000			Units	: mg/Kg

0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	130	17		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 11 **Autosampler Location: 48**
Sample ID: 305787-011,266697,1000 **Date Collected: 1/7/2019 4:28:36 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305787-011,266697,1000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.546	1.546	0.0495	0.0551	0.0186	4:29:32 PM	Yes

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305787	Location:	MFA Sampling
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S5823.03	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	as received
Field ID:	RFS-MFA-EXB1-2	Diln Fac:	5,000
Type:	Serial Dilution	Batch#:	266697
MSS Lab ID:	305787-001	Sampled:	12/11/18
Lab ID:	QC960434	Received:	12/12/18
Matrix:	Soil	Analyzed:	01/07/19
Units:	mg/Kg		

MSS Result	MSS RL	Result	RL	% Diff	Lim
48.12	16.95	27.51 J	84.75	NC	10

J= Estimated value
NC= Not Calculated
RL= Reporting Limit

ENTHALPY SERIAL DILUTION FOR 305787 METALS Soil
EPA 7470A

Type : MSS
Inst : MET45
Seqnum : 389010956075.1
File : met45
IDF : 1000
Lab ID : 305787-001
Matrix : Soil
Batch : 266697
Time : 07-JAN-2019 16:12
Cal : 389010956001
Units : mg/Kg

Type : SER
Inst : MET45
Seqnum : 389010956076.1
File : met45
IDF : 5000
Lab ID : QC960434
Matrix : Soil
Batch : 266697
Time : 07-JAN-2019 16:14
Cal : 389010956001

MSS: 0.59 g --> 50.0 ml = 84.75 ml/g PDF
SER: 0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	MSS	RL	SER	RL	%D	Lim	Flags
Mercury	48.12	16.95	27.51 J	84.75		10	u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 76 **Autosampler Location: 139**
Sample ID: qc960434,266697,5000 **Date Collected: 1/7/2019 4:14:00 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc960434,266697,5000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.064	0.064	-0.0003	0.0052	0.0019	4:14:57 PM	Yes

ENTHALPY INITIAL CALIBRATION FOR 305787 METALS Soil: EPA 7470A

Inst : MET45
Calnum : 389010956001
Units : ug/L

Date : 07-JAN-2019 14:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	389010956002	ICAL1	07-JAN-2019 14:37	S39373 (500X)
L2	met45	389010956003	ICAL2	07-JAN-2019 14:38	S39373 (200X)
L3	met45	389010956004	ICAL3	07-JAN-2019 14:39	S39373 (50X)
L4	met45	389010956005	ICAL4	07-JAN-2019 14:41	S39373 (20X)
L5	met45	389010956006	ICAL5	07-JAN-2019 14:42	S39373 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0255	0.0236	0.0322	0.0328	0.0334	LIN0	0.07384	29.7585		0.0295	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	13	0.5000	-15	2.0000	0	5.0000	-1	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

389010956001

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305787 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 389010956001 Cal Date : 07-JAN-2019

ICV 389010956007 (07-JAN-2019) stds: S39375

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.070	ug/L	1	10	

==========

Analysis Begun

Logged In Analyst: mercury **Technique: AA FIMS-MHS**
Spectrometer: FIMS-100, S/N B050-9550 **Autosampler: Cetac**

Sample Information File: C:\Users\Public\PerkinElmer\AA\Data\Sample Information\010319soil.sif
Batch ID:
Results Data Set: 010719soil2
Results Library: C:\Users\Public\PerkinElmer\AA\Data\Results\Results.mdb

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: ICALBLK **Date Collected: 1/7/2019 2:36:12 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICALBLK **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.00]	0.0056	0.0056	0.0021	2:37:07 PM	Yes

Auto-zero performed.

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: ICAL, ICAL1,S39373,500 **Date Collected: 1/7/2019 2:37:24 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL1,S39373,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.2]	0.0051	0.0107	0.0032	2:38:20 PM	Yes

Standard number 1 applied. [0.2]
Correlation Coef.: 1.000000 Slope: 0.02572 Intercept: 0.00000

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: ICAL, ICAL2,S39373,200 **Date Collected: 1/7/2019 2:38:37 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL2,S39373,200 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.5]	0.0118	0.0174	0.0059	2:39:33 PM	Yes

Standard number 2 applied. [0.5]
Correlation Coef.: 0.999177 Slope: 0.02352 Intercept: 0.00017

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: ICAL, ICAL3,S39373,50 **Date Collected: 1/7/2019 2:39:51 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL3,S39373,50 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[2.0]	0.0644	0.0700	0.0218	2:40:47 PM	Yes

Standard number 3 applied. [2.0]
Correlation Coef.: 0.997838 Slope: 0.03274 Intercept: -0.00177

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: ICAL, ICAL4,S39373,20 **Date Collected: 1/7/2019 2:41:05 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL4,S39373,20 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[5.0]	0.1642	0.1698	0.0532	2:42:01 PM	Yes

Standard number 4 applied. [5.0]
Correlation Coef.: 0.999687 Slope: 0.03318 Intercept: -0.00200

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

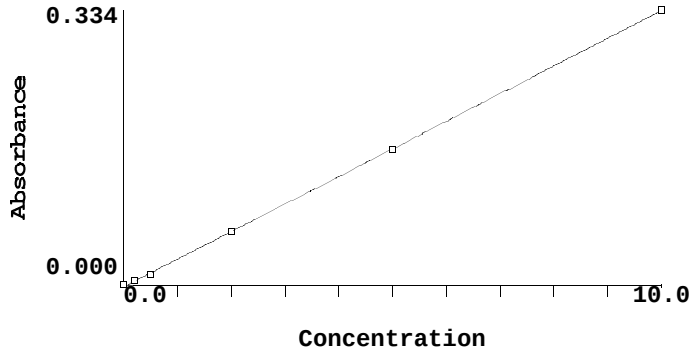
==========

Sequence No.: 6 **Autosampler Location: 6**
Sample ID: ICAL, ICAL5,S39373,10 **Date Collected: 1/7/2019 2:42:19 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL5,S39373,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[10.0]	0.3344	0.3400	0.1056	2:43:16 PM	Yes

Standard number 5 applied. [10.0]
Correlation Coef.: 0.999908 Slope: 0.03360 Intercept: -0.00248



Calibration data for Hg 253.7 **Equation: Linear, Calculated Intercept**

ID	Mean Signal (Abs)	Entered Conc. ug/L	Calculated Conc. ug/L	Standard Deviation	%RSD
ICALBLK	0.0000	0	0.074	----	----
ICAL, ICAL1,S39373,500	0.0051	0.2	0.227	----	----
ICAL, ICAL2,S39373,200	0.0118	0.5	0.425	----	----
ICAL, ICAL3,S39373,50	0.0644	2.0	1.990	----	----
ICAL, ICAL4,S39373,20	0.1642	5.0	4.959	----	----
ICAL, ICAL5,S39373,10	0.3344	10.0	10.026	----	----

Correlation Coef.: 0.999908 Slope: 0.03360 Intercept: -0.00248

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 7 **Autosampler Location: 8**
Sample ID: ICV,S39375,1 **Date Collected: 1/7/2019 2:43:35 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV,S39375,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.070	5.070	0.1679	0.1735	0.0548	2:44:32 PM	Yes

QC value within limits for Hg 253.7 Recovery = 101.40%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956008 File : met45 Time : 07-JAN-2019 14:44
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 8 **Autosampler Location: 9**
Sample ID: ICB **Date Collected: 1/7/2019 2:44:51 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.013	-0.013	-0.0029	0.0027	0.0010	2:45:49 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956043 File : met45 Time : 07-JAN-2019 15:31
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0340	5.000	5.133	ug/L	3	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 43 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 3:31:23 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.134	5.134	0.1700	0.1756	0.0554	3:32:21 PM	Yes

QC value within limits for Hg 253.7 Recovery = 102.67%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956044 File : met45 Time : 07-JAN-2019 15:32
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	[0.1244]	0.2000	0.1000	ug/L	!CCB

!=warning CCB=instrument blank

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 44 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 3:32:39 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.124	0.124	0.0017	0.0073	0.0021	3:33:37 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956055 File : met45 Time : 07-JAN-2019 15:47
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0347	5.000	5.243	ug/L	5	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 55 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 3:47:49 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.244	5.244	0.1737	0.1793	0.0563	3:48:46 PM	Yes

QC value within limits for Hg 253.7 Recovery = 104.87%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956056 File : met45 Time : 07-JAN-2019 15:49
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	[0.1125]	0.2000	0.1000	ug/L	!CCB

!=warning CCB=instrument blank

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 56 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 3:49:05 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.111	0.111	0.0013	0.0068	0.0021	3:50:03 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956067 File : met45 Time : 07-JAN-2019 16:02
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0341	5.000	5.145	ug/L	3	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 67 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 4:02:43 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.144	5.144	0.1704	0.1760	0.0563	4:03:40 PM	Yes

QC value within limits for Hg 253.7 Recovery = 102.88%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956068 File : met45 Time : 07-JAN-2019 16:03
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 68 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 4:03:59 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.046	0.046	-0.0009	0.0047	0.0019	4:04:57 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956078 File : met45 Time : 07-JAN-2019 16:16
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0339	5.000	5.115	ug/L	2	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 78 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 4:16:25 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.116	5.116	0.1694	0.1750	0.0557	4:17:23 PM	Yes

QC value within limits for Hg 253.7 Recovery = 102.32%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956079 File : met45 Time : 07-JAN-2019 16:17
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 79 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 4:17:41 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.071	0.071	-0.0001	0.0055	0.0019	4:18:39 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956082 File : met45 Time : 07-JAN-2019 16:29
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0357	5.000	5.386	ug/L	8	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 12 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 4:29:49 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.384	5.384	0.1785	0.1840	0.0567	4:30:46 PM	Yes

QC value within limits for Hg 253.7 Recovery = 107.68%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305787 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956083 File : met45 Time : 07-JAN-2019 16:31
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 13 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 4:31:04 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.052	0.052	-0.0007	0.0049	0.0015	4:32:03 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

SAMPLE PREPARATION SUMMARY

Batch # : 266697
Started By : DLC
Method : METHOD
Spike #1 ID : S39374

Prep Date : 07-JAN-2019 08:00

Analysis : HG
Finished By : SL
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
305787-001		Soil	.59	50	1	84.75						7471-HG	
305787-002		Soil	.65	50	1	76.92						7471-HG	
305787-003		Soil	.58	50	1	86.21						7471-HG	
305787-004		Soil	.64	50	1	78.13						7471-HG	
305787-005		Soil	.58	50	1	86.21						7471-HG	
305787-006		Soil	.63	50	1	79.37						7471-HG	
305787-007		Soil	.65	50	1	76.92						7471-HG	
305787-008		Soil	.55	50	1	90.91						7471-HG	
305787-009		Soil	.57	50	1	87.72						7471-HG	
305787-010		Soil	.63	50	1	79.37						7471-HG	
305787-011		Soil	.59	50	1	84.75						7471-HG	
305787-012		Soil	.58	50	1	86.21						7471-HG	
305807-020		Soil	.62	50	1	80.65						7471-HG	
305807-021		Soil	.58	50	1	86.21						7471-HG	
305807-022		Soil	.63	50	1	79.37						7471-HG	
305807-023		Soil	.57	50	1	87.72						7471-HG	
305807-024		Soil	.64	50	1	78.13						7471-HG	
305807-025		Soil	.57	50	1	87.72						7471-HG	
305807-026		Soil	.61	50	1	81.97						7471-HG	
QC960429	BLANK	Soil	.58	50	1	86.21							
QC960430	BS	Soil	.59	50	1	84.75		1					
QC960431	BSD	Soil	.59	50	1	84.75		1					
QC960432	MS	Soil	.56	50	1	89.29		1					
QC960433	MSD	Soil	.59	50	1	84.75		1					
QC960434	SER	Soil	.59	50	1	84.75							

Analyst: DLC Date: 01/07/19 Reviewer: PRW Date: 01/07/19

Soil Digestion for Mercury

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266697 Digestion Method: ☒ EPA 7471A/ 7471B ☐ _____ BK 4375

Date Digested: 1-6-2019 Page 3

	Sample #	container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
	Blank	A	0.58	⌀50 ☐	Y	QC 960929
	BS		0.59	⌀50 ☐		30
	BSD		0.59	⌀50 ☐		81
	MS		0.56	⌀50 ☐		82
5	MSD		0.59	⌀50 ☐		83
	305807-020	A	0.62	⌀50 ☐		
	-021		0.58	⌀50 ☐		
	-022		0.63	⌀50 ☐		
	-023		0.57	⌀50 ☐		
10	-024		0.64	⌀50 ☐		
	-025		0.57	⌀50 ☐		
	-026		0.61	⌀50 ☐		
	305787-001	A	0.59	⌀50 ☐		MSS
	-002		0.65	⌀50 ☐		
15	-003		0.58	⌀50 ☐		
	-004		0.64	⌀50 ☐		
	-005		0.58	⌀50 ☐		
	-006		0.63	⌀50 ☐		
	-007		0.65	⌀50 ☐		
20	-008		0.55	⌀50 ☐		
	-009		0.57	⌀50 ☐		
	-010		0.63	⌀50 ☐		
	-011		0.59	⌀50 ☐		
	-012		0.58	⌀50 ☐		
				☐ 50 ☐		

Balance ID: B-9 calibration has been checked? ☒ Yes ☐ No

Standards prepared per SOP: MET 5.2, rev. 20

1.0 mL of spike standard was added to all spikes

☐ **CAL digested with this batch? ICAL Std S#**

ICV / CCV LIMS S#

Digestion Temperature (°C), and Probe Location

Digestion block ID

Thermometer #

Digestion Started at (time)

Aqua Regia (HNO3+ HCl) Reagent ID

5% $KMnO_4$ / Granular KMnO4 reagent ID

NaCl.hydroxylamine hydrochloride Reagent ID

Stannous Chloride Reagent ID

Digestion Completd at (time)

☐ filtered thru' 0.45 um syringe filter (lot #)

Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tubes, Lot # CPI 112818	PC 1-6-19
Blank/LCS 'matrix' ID Chemware 23228917	
S39374	
S39373	
S39375 / S39376	
95° | 31	
Segnia	
64112748	
2025	
010619	
010219A | —	
010219A	
010719	SL 1-7-19
2055	PC 1-6-19
S581/80103	SL 1-7-19

Pipettes

Vol.(mL)	ID
.1	J28153D
.2-1	R29360D
1-5	2924335
5-10	4645196

1-6-19

Prep Chemist / Date

Continued from page Ø

Continued on page _____

Reviewed Online / See LIMS

Version 7.2, July.2017

Standards

S37627

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Mass Spec Solution
Catalog Number:	MSHGN-10PPM
Lot Number:	M2-HG657422
Matrix:	10% (v/v) HNO3
Value / Analyte(s):	10 µg/mL ea: Mercury
Starting Material:	Hg metal
Starting Material Lot#:	05214TX, R307HGA1, 1780
Starting Material Purity:	99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.000 ± 0.056 µg/mL

Certified Density: 1.050 g/mL (measured at 20 ± 1 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	061204
Hg	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

10ppm Hg SRC
IV HG 10PPM in Water
KER 16-JUL-18 10 ug/mL
S37627 | Expires: 08-MAY-21

KER 7/16/18

Characterization of CRM by two independent methods **Characterization of CRM by one method**

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{1/2}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	0.000017	M	Eu	< 0.000203	O	Na	0.000097	M	Se	< 0.013814	O	Zn	0.000001			
O	Al	0.000002	O	Fe	0.000001	M	Nb	< 0.000203	O	Si	0.000004	M	Zr	< 0.001219			
M	As	< 0.002844	M	Ga	< 0.000203	M	Nd	< 0.000203	M	Sm	< 0.000203						
O	Au	< 0.003219	M	Gd	< 0.000203	O	Ni	< 0.001812	M	Sn	< 0.000203						
O	B	< 0.002479	M	Ge	< 0.000609	M	Os	< 0.000202	O	Sr	< 0.000152						
M	Ba	< 0.000203	M	Hf	< 0.000203	O	P	< 0.010730	M	Ta	< 0.000203						
O	Be	< 0.000322	s	Hg	<	M	Pb	< 0.000203	M	Tb	< 0.000203						
M	Bi	< 0.013001	M	Ho	< 0.000203	M	Pd	< 0.000404	M	Te	< 0.001422						
O	Ca	0.000017	M	In	< 0.004063	M	Pr	< 0.000203	M	Th	< 0.000203						
M	Cd	0.000001	M	Ir	< 0.000202	M	Pt	< 0.000203	O	Ti	< 0.000530						
M	Ce	< 0.000203	M	K	0.000004	M	Rb	< 0.001219	O	Tl	< 0.002788						
M	Co	< 0.000406	M	La	< 0.000203	M	Re	< 0.001016	M	Tm	< 0.000203						
O	Cr	0.000002	O	Li	< 0.000180	M	Rh	< 0.000203	M	U	< 0.000813						
M	Cs	< 0.000203	M	Lu	< 0.000203	M	Ru	< 0.000202	M	V	< 0.000406						
M	Cu	< 0.000406	O	Mg	0.000004	O	S	< 0.023508	M	W	< 0.000609						
M	Dy	< 0.000203	M	Mn	< 0.000203	O	Sb	< 0.009657	M	Y	< 0.000203						
M	Er	< 0.000203	O	Mo	< 0.002152	M	Sc	< 0.000406	M	Yb	< 0.000203						

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pippette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+
Chemical Compatibility - Stable in HNO3. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.
Stability - 2-100 ppb levels not stable in 1% HNO3 / LDPE container, stable in 10% HNO3 packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO3 packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO3 / LDPE container.
Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO3); Oxide (Soluble in HNO3); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th ,Rh , Fe, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 08, 2017

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 08, 2021**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Donna Senn
Product Documentation Technician

Donna Senn

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Michael J Booth

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

Paul R Gaines

S38597

CPI INTERNATIONAL

CERTIFICATE OF ANALYSIS

Single-Element Aqueous CRM

Product #: G34-4400-10PPM331-100

Mercury (Hg) – 10 µg/mL

Lot #: 168539-48

Matrix: 2% HNO_3

Element	Certified Concentration & Uncertainty
Hg	10.0 ± 0.1 µg/mL (w/v)
	9.98 ± 0.1 µg/g (w/w)

Intended Use: This solution is intended for use as a certified reference material (CRM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This CRM was manufactured, processed, and certified under a quality management system that is registered/accredited to **ISO 9001, ISO Guide 34**, and **ISO/IEC 17025**. This CRM was prepared to a nominal concentration of 10.0 µg/mL by gravimetric methods using a single-element concentrate dissolved in high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this CRM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentration and uncertainty were determined using the "High Performance ICP-OES" protocol developed by NIST, and both the certified concentration and uncertainty values are traceable to **NIST SRM 3133, lot #061204**. The uncertainty associated with the certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Indicative Values: ICP-MS was used to determine trace metal concentrations for this product (nd = not determined).

Trace Concentrations (µg/L)

Ag	<0.5	Fe	<25	Pb	<0.5
Al	<2	Hg	MAJOR	Sb	<0.5
As	<0.5	K	<50	Se	<2
Ba	<2	Li	<2	Sn	<0.5
Ca	<50	Mg	<10	Sr	<5
Cd	<0.5	Mn	<0.5	Ti	<2
Co	<0.5	Mo	<0.5	Tl	<0.5
Cr	<1	Na	<50	V	<2
Cu	<1	Ni	<1	Zn	<2

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the CRM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original CRM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

October 9, 2018

Certification Date

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

Health and Safety Information: Refer to the Safety Data Sheet (SDS).

Homogeneity: This solution was determined to be homogeneous by procedures consistent with the requirements of ISO Guide 34 and ISO Guide 35. Replicate samples of the finished solution were analyzed to confirm its homogeneity, in accordance with QSP 6-13 Assessment of Homogeneity and Stability. To ensure homogeneity, users should not take a smaller sub-sample than specified in the Instructions for Use, as doing so will invalidate the certified values and uncertainties.

Quality Manual Rev: No. 5, 03/01/2013

Further Information: Please contact CPI International for further information about this CRM.

Quality Certifications: This CRM was prepared under a quality management system that is registered/accredited to the following:

- ISO 9001 – Quality Management Systems – Requirements (TUV NORD Cert. No. 44 100 16560231)
- ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories (A2LA Cert. No. 2848.01)
- ISO Guide 34 – General Requirements for the Competence of Reference Material Producers (A2LA Cert. No. 2848.02)
    - ISO Guide 34 references additional requirements specified in ISO Guide 31 and ISO Guide 35.

KEE 10/16/18

2nd source 10ppm Hg standa SRC
HG 10 REF-2 in Water
KER 16-OCT-18 10 ug/mL
S38597 B | Expires: 16-OCT-19

158 Project BK3449 Hg STANDARDS

Continued from Page

DATE/ ANALYST	STD Name	SOURCE S#	STD S#	SOURCE VOL	HNO_3 LOT #	HNO_3 VOL	TOTAL VOL	HNO_3 PIPETTE / SOURCE DISPENSER
01-04-19	Hg 0.1 STD	S37627	S39364	1mL	JTB 205793	5mL	100mL	R293600 / 2924335
	Hg 0.1 REF	S38597	S39365	↓	↓	↓	↓	↓
	ICV Hg	S38597	S39366					
	CCV2 Hg	S37627	S39367					
	ICV Hg (2)	S38597	S39368					
	CCV2 Hg (2)	S37627	S39369					
01-06-19	Hg 0.1 STD	S37627	S39373	1mL	JTB 205793	5mL	100mL	R293600 / 2924335
	Hg 0.1 REF	S38597	S39374					
	ICV Hg	~~S38597~~ S38597	S39375					
	CCV2 Hg	S37627	S39376					
	ICV Hg (2)	S38597	S39377					
	CCV2 Hg (2)	S37627	S39378					
01-07-19	Hg 0.1 STD	S39060	S39385	1mL	JTB 205793	5mL	100mL	R293600 / 2924335
	Hg 0.1 REF	S38597	S39387					
	ICV Hg	S38597	S39388					
	CCV2 Hg	S39060	S39390					
	ICV Hg (2)	S38597	S39391					
	CCV2 Hg (2)	S39060	S39393					

Continued on Page

Read and Understood By

Signed Date Signed Date

ENTHALPY

ANALYTICAL

Enthalpy Analytical
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 305807
ANALYTICAL REPORT
Metals
Matrix: Soil

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : 103S582303.02
Location : RFS MFA Pilot
Level : IV

Sample ID	Lab ID	Sample ID	Lab ID
RFS-MFA-EX-G2-5	305807-001	RFS-MFA-EX-G5-4	305807-014
RFS-MFA-EX-G2-6	305807-002	RFS-MFA-EX-E1-4	305807-015
RFS-MFA-EX-G2-7	305807-003	RFS-MFA-EX-E1-5	305807-016
RFS-MFA-EX-G3-1	305807-004	RFS-MFA-EX-D1-4	305807-017
RFS-MFA-EX-G3-2	305807-005	RFS-MFA-EX-D1-5	305807-018
RFS-MFA-EX-G3-3	305807-006	RFS-MFA-EX-F1-5	305807-019
RFS-MFA-EX-G3-4	305807-007	RFS-MFA-EX-F1-6	305807-020
RFS-MFA-EX-G4-1	305807-008	RFS-MFA-EX-F1-7	305807-021
RFS-MFA-EX-G4-2	305807-009	RFS-MFA-EX-F1-8	305807-022
RFS-MFA-EX-G4-3	305807-010	RFS-MFA-EX-F1-9	305807-023
RFS-MFA-EX-G5-1	305807-011	RFS-MFA-EX-F1-10	305807-024
RFS-MFA-EX-G5-2	305807-012	RFS-MFA-EX-G2-ELEM	305807-025
RFS-MFA-EX-G5-3	305807-013	RFS-MFA-EX-G2-ELEM +	305807-026

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Will Rice Date: 01/08/2019

Will Rice
Project Manager
will.rice@enthalpy.com
(510) 204-2221 Ext 13102

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

CASE NARRATIVE
METALS (EPA 7471A)
SOIL

Laboratory number:	**305807**
Client:	**Tetra Tech EMI**
Project:	**103S582303.02**
Location:	**RFS MFA Pilot**
Request Date:	**12/13/18**
Samples Received:	**12/13/18**

This data package contains sample and QC results for twenty six soil samples, requested for the above referenced project on 12/13/18. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 7471A) Soil:

Responses exceeding the instrument's linear range were observed for mercury in the MS/MSD for batch 266697 and the MS of RFS-MFA-EX-G2-5 (lab # 305807-001).

Mercury was detected above the RL in the method blank for batch 266733; this analyte was detected in samples at a level at least 10 times that of the blank.

No other analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Chain of Custody # _____

C&T LOGIN # 305807

Project No: 103558303.02 Sampler: R. JOHNSON

Project Name: RFS MFA PILOT Report To: JASON BRODERSEN

Project P. O. No: Company: TETRA TECH

EDD Format: Report Level ☐ II ☒ III ☐ IV Telephone: 415 497 9060

Turnaround Time: ☐ RUSH _____ ☒ Standard Email: JASON.BRODERSEN@tetratech.com

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST																
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	ISM PREP - ONLY SUBSAMPLE	NO DRY/SIEVE NECESSARY		MERCURY 7471		TCLP LEVEL MERCURY ONLY											
1	~~RFS~~ RFS-MFA-EXG2-5	~~12/12~~ 12/12	1135		✓			1					✓	X			X		X											
2	RFS-MFA-EXG2-6	12/12/18	1200		✓			1					✓	X			X		X											
3	RFS-MFA-EXG2-7	12/12/18	1230		✓			1					✓	X			X		X											
4	RFS-MFA-EXG3-1	12/12/18	1356		✓			1					✓	X			X		X											
5	RFS-MFA-EXG3-2	12/12/18	1407		✓			1					✓	X			X		X											
6	RFS-MFA-EXG3-3	12/12/18	1424		✓			1					✓	X			X		X											
7	RFS-MFA-EXG3-4	12/12/18	1445		✓			2					✓	X			X		X											
8	RFS-MFA-EXG4-1	12/13/18	0738		✓			1					✓	X			X		X											
9	RFS-MFA-EXG4-2	12/13/18	0755		✓			1					✓	X			X		X											
10	RFS-MFA-EXG4-3	12/13/18	0815		✓			1					✓	X			X		X											
11	RFS-MFA-EXG5-1	12/13/18	0825		✓			1					✓	X			X		X											
12	RFS-MFA-EXG5-2	12/13/18	0835		✓			1					✓	X			X		X											
13	RFS-MFA-EXG5-3	12/13/18	0845		✓			1					✓	X			X		X											

Notes:

CAUTION ELEVATED MERCURY

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:

DATE: 12/13 TIME: 15/38

DATE: TIME:

DATE: TIME:

RECEIVED BY:

DATE: 12-13-18 TIME: 1535

DATE: TIME:

DATE: TIME:

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Chain of Custody # _____

C&T LOGIN # 305807

Project No: 103558230302

Project Name: RFS MFA PILOT

Project P. O. No:

EDD Format: Report Level ☐ II ☒ III ☐ IV

Turnaround Time: ☐ RUSH _____ ☒ Standard

Sampler:

Report To: JASON BREDERSON

Company: TETRA TECH

Telephone:

Email:

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST																
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	15mL PREP - SUBSTANCE ONLY		MERCURY - TOTAL		TCLP METALS MERCURY ONLY												
14	RFS-MFA-EX G5-4	12/13/18	0900					1						X		X		X												
15	RFS-MFA-EX E1-4	12/13/18	0954					1						X		X		X												
16	RFS-MFA-EX E1-5	12/13/18	1030					1						X		X		X												
17	RFS-MFA-EX D1-4	12/13/18	1055					1						X		X		X												
18	RFS-MFA-EX D1-5	12/13/18	1100					1						X		X		X												
19	RFS-MFA-EX F1-5	12/13/18	1305					1						X		X		X												
20	RFS-MFA-EX F1-6	12/13/18	1315					1						X		X		X												
21	RFS-MFA-EX F1-7	12/17/18	1335					1						X		X		X												
22	RFS-MFA-EX F1-8	12/13/18	1345					1						X		X		X												
23	RFS-MFA-EX F1-9	12/13/18	1355					1						X		X		X												
24	RFS-MFA-EX F1-10	12/13/18	1400					1						X		X		X												
* 25	RFS-MFA-EX G2-ELEM	12/12/18	1200					1						X		X		X												
* 26	RFS-MFA-EX G2-ELEM +	12/12/18	1200					1						X		X		X												

Notes:
CAUTION - THESE SAMPLES CONTAIN ELEVATED MERCURY AND VAPORS

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:
DATE: 12/13 TIME: 1535
DATE: TIME:
DATE: TIME:

RECEIVED BY:
DATE: 12-13-18 TIME: 1535
DATE: TIME:
DATE: TIME:

SAMPLE RECEIPT CHECKLIST

Section 1: Login # 305507 Client: Tetra Tech

Date Received: 12/13/16 Project: _____

ENTHALPY ANALYTICAL

Section 2: Samples received in a cooler? ☒ Yes, how many? 2 ☐ No (skip Section 3 below)

If no cooler Sample Temp (°C): _____ using IR Gun # ☐ A, or ☐ B

☐ Samples received on ice directly from the field. Cooling process had begun

If in cooler: Date Opened 12/13/16 By (print) DO (sign) _____

Shipping info (if applicable) _____

Are custody seals present? ☒ No, or ☐ Yes. If yes, where? ☐ on cooler, ☐ on samples, ☐ on package

☐ Date: _____ How many _____ ☐ Signature, ☐ Initials, ☐ None

Were custody seals intact upon arrival? ☐ Yes ☐ No ☒ N/A

Section 3: ***Important*: Notify PM if temperature exceeds 6°C or arrive frozen.**

Packing in cooler: (if other, describe) _____

☐ Bubble Wrap, ☐ Foam blocks, ☒ Bags, ☐ None, ☐ Cloth material, ☐ Cardboard, ☐ Styrofoam, ☐ Paper towels

☐ Samples received on ice directly from the field. Cooling process had begun

Type of ice used: ☒ Wet, ☐ Blue/Gel, ☐ None Temperature blank(s) included? ☐ Yes, ☐ No

Temperature measured using ☐ Thermometer ID: _____, or IR Gun # ☐ A ☐ B

Cooler Temp (°C): #1: 5.5, #2: 5.6, #3: _____, #4: _____, #5: _____, #6: _____, #7: _____

Section 4:	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	X		
Were Method 5035 sampling containers present?		X	
If YES, what time were they transferred to freezer? _____			
Did all bottles arrive unbroken/unopened?	—		
Are there any missing / extra samples?		—	
Are samples in the appropriate containers for indicated tests?	—		
Are sample labels present, in good condition and complete?	—		
Does the container count match the COC?	—		
Do the sample labels agree with custody papers?	—		
Was sufficient amount of sample sent for tests requested?	—		
Did you change the hold time in LIMS for unpreserved VOAs?			—
Did you change the hold time in LIMS for preserved terracores?			—
Are bubbles > 6mm absent in VOA samples?			—
Was the client contacted concerning this sample delivery?		—	
If YES, who was called? _____ By _____ Date: _____			

Section 5:	YES	NO	N/A
Are the samples appropriately preserved? (If N/A, skip the rest of section 5)			—
Did you check preservatives for all bottles for each sample?			
Did you document your preservative check?			

pH strip lot# _____, pH strip lot# _____, pH strip lot# _____

Preservative added:

☐ H2SO4 lot# _____ added to samples _____ on/at _____

☐ HCL lot# _____ added to samples _____ on/at _____

☐ HNO3 lot# _____ added to samples _____ on/at _____

☐ NaOH lot# _____ added to samples _____ on/at _____

Section 6:

Explanations/Comments: _____

Date Logged in 12/14/16 **By (print)** VO **(sign)** VO

Date Labeled 12/14/16 **By (print)** AC **(sign)** AC

Results & QC Summary

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	dry
Matrix:	Soil	Received:	12/13/18
Units:	mg/Kg		

Field ID	Type	Lab ID	Result	RL	MDL	Moisture	Diln Fac	Batch#	Sampled	Prepared	Analyzed
RFS-MFA-EX-G2-5	SAMPLE	305807-001	6,500	210	37	19%	10,000	266733	12/12/18	01/08/19	01/08/19
RFS-MFA-EX-G2-6	SAMPLE	305807-002	2,300	200	35	18%	10,000	266733	12/12/18	01/08/19	01/08/19
RFS-MFA-EX-G2-7	SAMPLE	305807-003	1,600	95	17	19%	5,000	266733	12/12/18	01/08/19	01/08/19
RFS-MFA-EX-G3-1	SAMPLE	305807-004	43	2.1	0.37	17%	100.0	266733	12/12/18	01/08/19	01/08/19
RFS-MFA-EX-G3-2	SAMPLE	305807-005	830	19	3.4	15%	1,000	266733	12/12/18	01/08/19	01/08/19
RFS-MFA-EX-G3-3	SAMPLE	305807-006	9,100	190	34	16%	10,000	266733	12/12/18	01/08/19	01/08/19
RFS-MFA-EX-G3-4	SAMPLE	305807-007	3,200	200	35	16%	10,000	266733	12/12/18	01/08/19	01/08/19
RFS-MFA-EX-G4-1	SAMPLE	305807-008	760	20	3.6	18%	1,000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-G4-2	SAMPLE	305807-009	1,500	190	34	17%	10,000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-G4-3	SAMPLE	305807-010	1,600	92	16	15%	5,000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-G5-1	SAMPLE	305807-011	2,200	210	37	17%	10,000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-G5-2	SAMPLE	305807-012	1,300	190	33	13%	10,000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-G5-3	SAMPLE	305807-013	1,300	190	34	14%	10,000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-G5-4	SAMPLE	305807-014	2,800	210	36	16%	10,000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-E1-4	SAMPLE	305807-015	5.1	2.0	0.34	15%	100.0	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-E1-5	SAMPLE	305807-016	4.8	2.1	0.37	15%	100.0	266733	12/13/18	01/08/19	01/08/19

b= See narrative
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	dry
Matrix:	Soil	Received:	12/13/18
Units:	mg/Kg		

Field ID	Type	Lab ID	Result	RL	MDL	Moisture	Diln Fac	Batch#	Sampled	Prepared	Analyzed
RFS-MFA-EX-D1-4	SAMPLE	305807-017	0.95	0.20	0.035	16%	10.00	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-D1-5	SAMPLE	305807-018	0.91	0.021	0.0037	15%	1.000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-F1-5	SAMPLE	305807-019	180	10	1.8	16%	500.0	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-F1-6	SAMPLE	305807-020	3,200	190	34	16%	10,000	266697	12/13/18	01/07/19	01/07/19
RFS-MFA-EX-F1-7	SAMPLE	305807-021	4,700	220	39	22%	10,000	266697	12/13/18	01/07/19	01/07/19
RFS-MFA-EX-F1-8	SAMPLE	305807-022	14,000	1,100	200	29%	50,000	266697	12/13/18	01/07/19	01/07/19
RFS-MFA-EX-F1-9	SAMPLE	305807-023	16,000	1,200	210	25%	50,000	266697	12/13/18	01/07/19	01/07/19
RFS-MFA-EX-F1-10	SAMPLE	305807-024	910	210	36	24%	10,000	266697	12/13/18	01/07/19	01/07/19
RFS-MFA-EX-G2-ELEM	SAMPLE	305807-025	15,000	1,200	210	25%	50,000	266697	12/12/18	01/07/19	01/07/19
RFS-MFA-EX-G2-ELEM +	SAMPLE	305807-026	25,000	1,300	220	35%	50,000	266697	12/12/18	01/07/19	01/07/19
	BLANK	QC960429	ND	0.017	0.0030		1.000	266697		01/07/19	01/07/19
	BLANK	QC960561	0.028 b	0.018	0.0031		1.000	266733		01/08/19	01/08/19

b= See narrative
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

12.0

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7471A
Analyte:	Mercury	Units:	mg/Kg
Matrix:	Soil		

Field ID	Type	MSS Lab ID	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Basis	Moisture	RPD	Lim	Diln Fac	Batch#	Sampled	Received	Prepared	Analyzed
	BS		QC960430		0.1695	0.1579	93	80-120					1.000	266697			01/07/19	01/07/19
	BSD		QC960431		0.1695	0.1595	94	80-120			1	20	1.000	266697			01/07/19	01/07/19
ZZZZZZZZZZ	MS	305787-001	QC960432	48.12	0.1786	24.99 >LR	-12951 NM	80-120	as received				1.000	266697	12/11/18	12/12/18	01/07/19	01/07/19
ZZZZZZZZZZ	MSD	305787-001	QC960433		0.1695	24.36 >LR	-14021 NM	80-120	as received		NC	20	1.000	266697	12/11/18	12/12/18	01/07/19	01/07/19
	BS		QC960562		0.1639	0.1720	105	80-120					1.000	266733			01/08/19	01/08/19
	BSD		QC960563		0.1667	0.1805	108	80-120			3	20	1.000	266733			01/08/19	01/08/19
RFS-MFA-EX-G2-5	MS	305807-001	QC960564	6,530	0.1899	9,764 >LR	NM	80-120	dry	19%			10,000	266733	12/12/18	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-G2-5	MSD	305807-001	QC960565		0.2205	2,852	NM	80-120	dry	19%	NC	20	10,000	266733	12/12/18	12/13/18	01/08/19	01/08/19

NC= Not Calculated
NM= Not Meaningful: Sample concentration > 4X spike concentration
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	as received
Field ID:	ZZZZZZZZZZ	Diln Fac:	5,000
Type:	Serial Dilution	Batch#:	266697
MSS Lab ID:	305787-001	Sampled:	12/11/18
Lab ID:	QC960434	Received:	12/12/18
Matrix:	Soil	Analyzed:	01/07/19
Units:	mg/Kg		

MSS Result	MSS RL	Result	RL	% Diff	Lim
48.12	16.95	27.51 J	84.75	NC	10

J= Estimated value
NC= Not Calculated
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	dry
Field ID:	RFS-MFA-EX-G2-5	Diln Fac:	50,000
Type:	Serial Dilution	Batch#:	266733
MSS Lab ID:	305807-001	Sampled:	12/12/18
Lab ID:	QC960566	Received:	12/13/18
Matrix:	Soil	Analyzed:	01/08/19
Units:	mg/Kg		

MSS Result	MSS RL	Result	RL	Moisture %	Diff	Lim
6,530	209.2	6,024	1,046	19%	8	10

RL= Reporting Limit

REPORTING SUMMARY FOR 305807 METALS Soil
Enthalpy Analytical - Berkeley

Lab ID	Inst ID	Analyzed	IDF	HG	
305807-001	MET45	01/02/19 19:50	1.0		
305807-001	MET45	01/02/19 20:47	1.0		
305807-001	MET45	01/07/19 11:45	1000		
305807-001	MET45	01/07/19 12:00	10000		
305807-001	MET45	01/08/19 15:31	10000	+	
305807-002	MET45	01/02/19 19:57	1.0		
305807-002	MET45	01/02/19 20:53	1.0		
305807-002	MET45	01/07/19 11:51	1000		
305807-002	MET45	01/07/19 12:02	10000		
305807-002	MET45	01/08/19 15:37	10000	+	
305807-003	MET45	01/02/19 19:58	1.0		
305807-003	MET45	01/02/19 20:55	1.0		
305807-003	MET45	01/07/19 11:52	1000		
305807-003	MET45	01/07/19 12:03	100.0		
305807-003	MET45	01/07/19 13:02	500.0		
305807-003	MET45	01/08/19 15:38	500.0		
305807-003	MET45	01/08/19 16:11	1000		
305807-003	MET45	01/08/19 16:19	5000	+	
305807-004	MET45	01/02/19 20:00	1.0		
305807-004	MET45	01/02/19 20:56	1.0		
305807-004	MET45	01/07/19 11:53	1000		
305807-004	MET45	01/07/19 12:07	100.0		
305807-004	MET45	01/08/19 15:41	100.0	+	
305807-005	MET45	01/02/19 20:06	1.0		
305807-005	MET45	01/07/19 11:57	1000		
305807-005	MET45	01/07/19 12:06	100.0		
305807-005	MET45	01/07/19 14:46	1.0		
305807-005	MET45	01/07/19 14:48	100.0		
305807-005	MET45	01/07/19 15:12	1000		
305807-005	MET45	01/08/19 15:42	1000	+	
305807-006	MET45	01/02/19 20:07	1.0		
305807-006	MET45	01/07/19 12:12	1000		
305807-006	MET45	01/07/19 12:15	10000		
305807-006	MET45	01/07/19 12:23	50000		
305807-006	MET45	01/08/19 15:46	50000		
305807-006	MET45	01/08/19 16:16	10000	+	
305807-007	MET45	01/02/19 20:09	1.0		
305807-007	MET45	01/07/19 12:17	1000		
305807-007	MET45	01/07/19 12:36	1000		
305807-007	MET45	01/07/19 12:46	10000		
305807-007	MET45	01/08/19 15:47	10000	+	
305807-008	MET45	01/02/19 20:10	1.0		
305807-008	MET45	01/07/19 12:18	1000		
305807-008	MET45	01/07/19 12:35	1000		
305807-008	MET45	01/08/19 15:48	1000	+	

REPORTING SUMMARY FOR 305807 METALS Soil
Enthalpy Analytical - Berkeley

Lab ID	Inst ID	Analyzed	IDF	HG	
305807-009	MET45	01/07/19 12:20	1000		
305807-009	MET45	01/07/19 14:51	10000		
305807-009	MET45	01/08/19 15:49	10000	+	
305807-010	MET45	01/07/19 12:22	1000		
305807-010	MET45	01/08/19 15:51	1000		
305807-010	MET45	01/08/19 16:07	5000	+	
305807-011	MET45	01/07/19 12:25	1000		
305807-011	MET45	01/07/19 12:39	10000		
305807-011	MET45	01/08/19 15:52	10000		
305807-011	MET45	01/08/19 16:10	10000	+	
305807-012	MET45	01/07/19 12:29	1000		
305807-012	MET45	01/07/19 12:40	10000		
305807-012	MET45	01/08/19 15:53	10000	+	
305807-013	MET45	01/07/19 12:30	1000		
305807-013	MET45	01/07/19 12:47	10000		
305807-013	MET45	01/08/19 15:55	10000	+	
305807-014	MET45	01/07/19 12:32	1000		
305807-014	MET45	01/07/19 12:45	10000		
305807-014	MET45	01/08/19 15:56	10000	+	
305807-015	MET45	01/07/19 12:38	1000		
305807-015	MET45	01/07/19 12:49	100.0		
305807-015	MET45	01/08/19 15:57	100.0	+	
305807-016	MET45	01/07/19 12:41	1000		
305807-016	MET45	01/07/19 12:50	100.0		
305807-016	MET45	01/08/19 16:01	100.0	+	
305807-017	MET45	01/07/19 12:51	1000		
305807-017	MET45	01/07/19 12:55	100.0		
305807-017	MET45	01/07/19 14:50	1.0		
305807-017	MET45	01/07/19 15:21	1.0		
305807-017	MET45	01/07/19 15:25	10.0		
305807-017	MET45	01/08/19 16:02	10.0	+	
305807-018	MET45	01/07/19 12:52	1000		
305807-018	MET45	01/07/19 12:56	100.0		
305807-018	MET45	01/08/19 16:03	100.0		
305807-018	MET45	01/08/19 16:51	1.0	+	
305807-019	MET45	01/07/19 12:54	1000		
305807-019	MET45	01/07/19 13:04	100.0		
305807-019	MET45	01/08/19 16:05	100.0		
305807-019	MET45	01/08/19 16:09	500.0	+	
305807-020	MET45	01/07/19 13:40	10000		
305807-020	MET45	01/07/19 14:52	1000		
305807-020	MET45	01/07/19 15:27	10000	+	

REPORTING SUMMARY FOR 305807 METALS Soil
Enthalpy Analytical - Berkeley

Lab ID	Inst ID	Analyzed	IDF	HG	
305807-021	MET44	01/03/19 13:16	1.0		
305807-021	MET45	01/07/19 13:41	10000	+	
305807-022	MET45	01/07/19 13:45	10000		
305807-022	MET45	01/07/19 15:28	10000		
305807-022	MET45	01/07/19 16:01	50000	+	
305807-023	MET45	01/07/19 13:46	10000		
305807-023	MET45	01/07/19 15:33	10000		
305807-023	MET45	01/07/19 16:05	50000	+	
305807-024	MET45	01/07/19 13:48	10000		
305807-024	MET45	01/07/19 15:36	10000	+	
305807-025	MET45	01/07/19 13:49	10000		
305807-025	MET45	01/07/19 15:37	10000		
305807-025	MET45	01/07/19 16:06	50000	+	
305807-026	MET45	01/07/19 13:51	10000		
305807-026	MET45	01/07/19 15:40	10000		
305807-026	MET45	01/07/19 16:07	50000	+	
QC960014	MET45	01/02/19 19:47	1.0		
QC960014	MET45	01/02/19 20:43	1.0		
QC960015	MET45	01/02/19 19:48	1.0		
QC960015	MET45	01/02/19 20:44	1.0		
QC960016	MET45	01/02/19 19:49	1.0		
QC960016	MET45	01/02/19 20:46	1.0		
QC960017	MET45	01/02/19 19:52	1.0		
QC960017	MET45	01/02/19 20:48	1.0		
QC960018	MET45	01/02/19 19:54	1.0		
QC960018	MET45	01/02/19 20:50	1.0		
QC960019	MET45	01/02/19 19:55	5.0		
QC960019	MET45	01/02/19 20:52	5.0		
QC960020	MET44	01/03/19 12:21	1.0		
QC960020	MET44	01/03/19 12:48	1.0	+	
QC960021	MET44	01/03/19 12:23	1.0		
QC960021	MET44	01/03/19 12:50	1.0	+	
QC960022	MET44	01/03/19 12:24	1.0		
QC960022	MET44	01/03/19 12:51	1.0	+	
QC960023	MET44	01/03/19 12:27	1000	+	
QC960023	MET44	01/03/19 12:54	1000		

REPORTING SUMMARY FOR 305807 METALS Soil
Enthalpy Analytical - Berkeley

Lab ID	Inst ID	Analyzed	IDF	HG	
QC960024	MET44	01/03/19 12:28	1000	+	
QC960024	MET44	01/03/19 12:55	1000		
QC960025	MET44	01/03/19 12:29	5000		
QC960025	MET44	01/03/19 12:57	5000	+	
QC960423	MET45	01/07/19 11:41	1.0	+	
QC960423	MET45	01/07/19 13:06	1.0		
QC960424	MET45	01/07/19 11:42	1.0	+	
QC960424	MET45	01/07/19 13:07	1.0		
QC960425	MET45	01/07/19 11:43	1.0	+	
QC960425	MET45	01/07/19 13:08	1.0		
QC960426	MET45	01/07/19 11:46	1.0	+	
QC960427	MET45	01/07/19 11:48	1.0	+	
QC960428	MET45	01/07/19 11:49	5000	+	
QC960428	MET45	01/07/19 12:01	50000		
QC960429	MET45	01/07/19 13:14	1.0	+	
QC960430	MET45	01/07/19 13:16	1.0	+	
QC960431	MET45	01/07/19 13:17	1.0	+	
QC960432	MET45	01/07/19 13:19	1.0	+	
QC960433	MET45	01/07/19 13:21	1.0	+	
QC960434	MET45	01/07/19 13:22	50000		
QC960434	MET45	01/07/19 16:14	5000	+	
QC960561	MET45	01/08/19 15:24	1.0	+	
QC960561	MET45	01/08/19 15:30	1.0		
QC960562	MET45	01/08/19 15:25	1.0	+	
QC960563	MET45	01/08/19 15:26	1.0	+	
QC960564	MET45	01/08/19 15:33	10000	+	
QC960565	MET45	01/08/19 15:34	10000	+	
QC960566	MET45	01/08/19 15:35	50000	+	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010771

Instrument : MET45 Begun : 01/07/19 11:31
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				01/07/19 11:31	1.0		
002	met45	ICAL	ICAL1			01/07/19 11:32	1.0	1	
003	met45	ICAL	ICAL2			01/07/19 11:33	1.0	1	
004	met45	ICAL	ICAL3			01/07/19 11:35	1.0	1	
005	met45	ICAL	ICAL4			01/07/19 11:36	1.0	1	
006	met45	ICAL	ICAL5			01/07/19 11:37	1.0	1	
007	met45	ICV				01/07/19 11:38	1.0	2	
008	met45	ICB				01/07/19 11:40	1.0		
009	met45	BLANK	QC960423	Soil	266696	01/07/19 11:41	1.0		
010	met45	BS	QC960424	Soil	266696	01/07/19 11:42	1.0		
011	met45	BSD	QC960425	Soil	266696	01/07/19 11:43	1.0		spk
012	met45	MSS	305807-001	Soil	266696	01/07/19 11:45	1000		spk , 1:HG=40
013	met45	MS	QC960426	Soil	266696	01/07/19 11:46	1.0		1:HG=590
014	met45	MSD	QC960427	Soil	266696	01/07/19 11:48	1.0		1:HG=570
015	met45	SER	QC960428	Soil	266696	01/07/19 11:49	5000		
016	met45	SAMPLE	305807-002	Soil	266696	01/07/19 11:51	1000		spk , 1:HG=18
017	met45	SAMPLE	305807-003	Soil	266696	01/07/19 11:52	1000		spk
018	met45	SAMPLE	305807-004	Soil	266696	01/07/19 11:53	1000		spk
019	met45	CCV				01/07/19 11:55	1.0	3	
020	met45	CCB				01/07/19 11:56	1.0		
021	met45	SAMPLE	305807-005	Soil	266696	01/07/19 11:57	1000		spk
022	met45	X	RINSE			01/07/19 11:58	1.0		
023	met45	MSS	305807-001	Soil	266696	01/07/19 12:00	10000		spk
024	met45	SER	QC960428	Soil	266696	01/07/19 12:01	50000		
025	met45	SAMPLE	305807-002	Soil	266696	01/07/19 12:02	10000		spk
026	met45	SAMPLE	305807-003	Soil	266696	01/07/19 12:03	100.0		spk , 1:HG=140
027	met45	X	RINSE			01/07/19 12:05	1.0		
028	met45	SAMPLE	305807-005	Soil	266696	01/07/19 12:06	100.0		spk
029	met45	SAMPLE	305807-004	Soil	266696	01/07/19 12:07	100.0		spk
030	met45	XSAMPLE	305807-003	Soil	266696	01/07/19 12:09	500.0		spk
031	met45	CCV				01/07/19 12:10	1.0	3	
032	met45	CCB				01/07/19 12:11	1.0		
033	met45	SAMPLE	305807-006	Soil	266696	01/07/19 12:12	1000		spk , 1:HG=45
034	met45	X	RINSE			01/07/19 12:14	1.0		
035	met45	SAMPLE	305807-006	Soil	266696	01/07/19 12:15	10000		spk , 1:HG=11
036	met45	SAMPLE	305807-007	Soil	266696	01/07/19 12:17	1000		spk , 1:HG=22
037	met45	SAMPLE	305807-008	Soil	266696	01/07/19 12:18	1000		spk
038	met45	SAMPLE	305807-009	Soil	266696	01/07/19 12:20	1000		spk , 1:HG=14
039	met45	X	RINSE			01/07/19 12:21	1.0		
040	met45	SAMPLE	305807-010	Soil	266696	01/07/19 12:22	1000		spk
041	met45	SAMPLE	305807-006	Soil	266696	01/07/19 12:23	50000		spk
042	met45	SAMPLE	305807-011	Soil	266696	01/07/19 12:25	1000		spk , 1:HG=23
043	met45	CCV				01/07/19 12:26	1.0	3	
044	met45	CCB				01/07/19 12:28	1.0		
045	met45	SAMPLE	305807-012	Soil	266696	01/07/19 12:29	1000		spk , 1:HG=13
046	met45	SAMPLE	305807-013	Soil	266696	01/07/19 12:30	1000		spk , 1:HG=11
047	met45	SAMPLE	305807-014	Soil	266696	01/07/19 12:32	1000		spk , 1:HG=22
048	met45	X	RINSE			01/07/19 12:34	1.0		
049	met45	SAMPLE	305807-008	Soil	266696	01/07/19 12:35	1000		spk
050	met45	SAMPLE	305807-007	Soil	266696	01/07/19 12:36	1000		spk , 1:HG=22
051	met45	SAMPLE	305807-015	Soil	266696	01/07/19 12:38	1000		spk
052	met45	SAMPLE	305807-011	Soil	266696	01/07/19 12:39	10000		spk

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010771

Instrument : MET45 Begun : 01/07/19 11:31
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	305807-012	Soil	266696	01/07/19 12:40	10000		spk
054	met45	SAMPLE	305807-016	Soil	266696	01/07/19 12:41	1000		spk
055	met45	CCV				01/07/19 12:43	1.0	3	
056	met45	CCB				01/07/19 12:44	1.0		
057	met45	SAMPLE	305807-014	Soil	266696	01/07/19 12:45	10000		spk
058	met45	SAMPLE	305807-007	Soil	266696	01/07/19 12:46	10000		spk
059	met45	SAMPLE	305807-013	Soil	266696	01/07/19 12:47	10000		spk
060	met45	SAMPLE	305807-015	Soil	266696	01/07/19 12:49	100.0		spk
061	met45	SAMPLE	305807-016	Soil	266696	01/07/19 12:50	100.0		spk
062	met45	SAMPLE	305807-017	Soil	266696	01/07/19 12:51	1000		spk
063	met45	SAMPLE	305807-018	Soil	266696	01/07/19 12:52	1000		spk
064	met45	SAMPLE	305807-019	Soil	266696	01/07/19 12:54	1000		spk
065	met45	SAMPLE	305807-017	Soil	266696	01/07/19 12:55	100.0		spk
066	met45	SAMPLE	305807-018	Soil	266696	01/07/19 12:56	100.0		spk
067	met45	CCV				01/07/19 12:57	1.0	3	
068	met45	CCB				01/07/19 12:59	1.0		
069	met45	XSAMPLE	305807-019	Soil	266696	01/07/19 13:00	100.0		spk
070	met45	X	RINSE			01/07/19 13:01	1.0		
071	met45	SAMPLE	305807-003	Soil	266696	01/07/19 13:02	500.0		spk
072	met45	SAMPLE	305807-019	Soil	266696	01/07/19 13:04	100.0		spk
073	met45	X	RINSE2			01/07/19 13:05	1.0		
074	met45	BLANK	QC960423	Soil	266696	01/07/19 13:06	1.0		
075	met45	BS	QC960424	Soil	266696	01/07/19 13:07	1.0		
076	met45	BSD	QC960425	Soil	266696	01/07/19 13:08	1.0		spk
077	met45	X	RINSE2			01/07/19 13:10	1.0		
078	met45	X	RINSE			01/07/19 13:11	1.0		
079	met45	CCV				01/07/19 13:12	1.0	3	
080	met45	CCB				01/07/19 13:13	1.0		
081	met45	BLANK	QC960429	Soil	266697	01/07/19 13:14	1.0		
082	met45	BS	QC960430	Soil	266697	01/07/19 13:16	1.0		
083	met45	BSD	QC960431	Soil	266697	01/07/19 13:17	1.0		
084	met45	MSS	305787-001	Soil	266697	01/07/19 13:18	10000		
085	met45	MS	QC960432	Soil	266697	01/07/19 13:19	1.0		1:HG=280
086	met45	MSD	QC960433	Soil	266697	01/07/19 13:21	1.0		1:HG=290
087	met45	SER	QC960434	Soil	266697	01/07/19 13:22	50000		
088	met45	SAMPLE	305787-002	Soil	266697	01/07/19 13:24	10000		
089	met45	SAMPLE	305787-003	Soil	266697	01/07/19 13:25	10000		
090	met45	SAMPLE	305787-004	Soil	266697	01/07/19 13:26	10000		
091	met45	CCV				01/07/19 13:27	1.0	3	
092	met45	CCB				01/07/19 13:29	1.0		
093	met45	SAMPLE	305787-005	Soil	266697	01/07/19 13:30	10000		
094	met45	SAMPLE	305787-006	Soil	266697	01/07/19 13:31	10000		
095	met45	SAMPLE	305787-007	Soil	266697	01/07/19 13:32	10000		
096	met45	SAMPLE	305787-008	Soil	266697	01/07/19 13:34	10000		
097	met45	SAMPLE	305787-009	Soil	266697	01/07/19 13:35	10000		
098	met45	SAMPLE	305787-010	Soil	266697	01/07/19 13:36	10000		
099	met45	SAMPLE	305787-011	Soil	266697	01/07/19 13:37	10000		
100	met45	SAMPLE	305787-012	Soil	266697	01/07/19 13:39	10000		
101	met45	SAMPLE	305807-020	Soil	266697	01/07/19 13:40	10000		
102	met45	SAMPLE	305807-021	Soil	266697	01/07/19 13:41	10000		
103	met45	CCV				01/07/19 13:42	1.0	3	
104	met45	CCB				01/07/19 13:44	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010771

Instrument : MET45 Begun : 01/07/19 11:31
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met45	SAMPLE	305807-022	Soil	266697	01/07/19 13:45	10000		1:HG=11
106	met45	SAMPLE	305807-023	Soil	266697	01/07/19 13:46	10000		1:HG=11
107	met45	SAMPLE	305807-024	Soil	266697	01/07/19 13:48	10000		
108	met45	SAMPLE	305807-025	Soil	266697	01/07/19 13:49	10000		
109	met45	SAMPLE	305807-026	Soil	266697	01/07/19 13:51	10000		1:HG=19
110	met45	CCV				01/07/19 13:52	1.0	3	
111	met45	CCB				01/07/19 13:53	1.0		

DLC 01/07/19 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 111.

Standards used: 1=S39373 2=S39375 3=S39376

Flags used: spk=5% spike rule

ENTHALPY INITIAL CALIBRATION FOR 305807 METALS Soil: EPA 7470A

Inst : MET45
Calnum : 389010771001
Units : ug/L

Date : 07-JAN-2019 11:31
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	389010771002	ICAL1	07-JAN-2019 11:32	S39373 (500X)
L2	met45	389010771003	ICAL2	07-JAN-2019 11:33	S39373 (200X)
L3	met45	389010771004	ICAL3	07-JAN-2019 11:35	S39373 (50X)
L4	met45	389010771005	ICAL4	07-JAN-2019 11:36	S39373 (20X)
L5	met45	389010771006	ICAL5	07-JAN-2019 11:37	S39373 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0095	0.0266	0.0302	0.0324	0.0329	LIN0	0.10281	30.1503		0.0263	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	-20	0.5000	1	2.0000	-4	5.0000	0	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305807 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 389010771001 Cal Date : 07-JAN-2019

ICV 389010771007 (07-JAN-2019) stds: S39375

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.126	ug/L	3	10	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771008 File : met45 Time : 07-JAN-2019 11:40
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771079 File : met45 Time : 07-JAN-2019 13:12
Cal : 389010771001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0263	0.0317	5.000	4.876	ug/L	-2	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771080 File : met45 Time : 07-JAN-2019 13:13
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771091 File : met45 Time : 07-JAN-2019 13:27
Cal : 389010771001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0263	0.0321	5.000	4.939	ug/L	-1	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771092 File : met45 Time : 07-JAN-2019 13:29
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771103 File : met45 Time : 07-JAN-2019 13:42
Cal : 389010771001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0263	0.0323	5.000	4.975	ug/L	0	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771104 File : met45 Time : 07-JAN-2019 13:44
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010956

Instrument : MET45 Begun : 01/07/19 14:36
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				01/07/19 14:36	1.0		
002	met45	ICAL	ICAL1			01/07/19 14:37	1.0	1	
003	met45	ICAL	ICAL2			01/07/19 14:38	1.0	1	
004	met45	ICAL	ICAL3			01/07/19 14:39	1.0	1	
005	met45	ICAL	ICAL4			01/07/19 14:41	1.0	1	
006	met45	ICAL	ICAL5			01/07/19 14:42	1.0	1	
007	met45	ICV				01/07/19 14:43	1.0	2	
008	met45	ICB				01/07/19 14:44	1.0		
009	met45	SAMPLE	305807-005	Soil	266696	01/07/19 14:46	1.0		spk , 1:HG=450
010	met45	X	RINSE			01/07/19 14:47	1.0		
011	met45	SAMPLE	305807-005	Soil	266696	01/07/19 14:48	100.0		spk , 1:HG=82
012	met45	SAMPLE	305807-017	Soil	266696	01/07/19 14:50	1.0		spk
013	met45	SAMPLE	305807-009	Soil	266696	01/07/19 14:51	10000		spk
014	met45	SAMPLE	305807-020	Soil	266697	01/07/19 14:52	1000		1:HG=170
015	met45	XSAMPLE	305807-022	Soil	266697	01/07/19 14:54	1000		1:HG=180
016	met45	XSAMPLE	305807-023	Soil	266697	01/07/19 14:56	1000		1:HG=260
017	met45	X	RINSE2			01/07/19 14:57	1.0		
018	met45	X	RINSE			01/07/19 14:58	1.0		
019	met45	CCV				01/07/19 14:59	1.0	3	
020	met45	CCB				01/07/19 15:01	1.0		
021	met45	XSAMPLE	305807-024		266696	01/07/19 15:02	1000		
022	met45	XSAMPLE	305807-025		266696	01/07/19 15:04	1000		
023	met45	X	RINSE			01/07/19 15:05	1.0		
024	met45	XSAMPLE	305807-026		266696	01/07/19 15:06	1000		
025	met45	XSAMPLE	305787-003	Soil	266697	01/07/19 15:08	1000		
026	met45	XSAMPLE	305787-010	Soil	266697	01/07/19 15:10	1000		
027	met45	X	RINSE			01/07/19 15:11	1.0		
028	met45	SAMPLE	305807-005	Soil	266696	01/07/19 15:12	1000		spk
029	met45	XSAMPLE	305787-011	Soil	266697	01/07/19 15:13	1000		
030	met45	XSAMPLE	305787-008	Soil	266697	01/07/19 15:14	100000		
031	met45	CCV				01/07/19 15:16	1.0	3	
032	met45	CCB				01/07/19 15:17	1.0		
033	met45	XSAMPLE	305787-009	Soil	266697	01/07/19 15:18	100000		
034	met45	XSAMPLE	305787-012	Soil	266697	01/07/19 15:19	100000		
035	met45	SAMPLE	305807-017	Soil	266696	01/07/19 15:21	1.0		spk , 1:HG=10
036	met45	X	RINSE2			01/07/19 15:22	1.0		
037	met45	X	RINSE			01/07/19 15:23	1.0		
038	met45	SAMPLE	305807-017	Soil	266696	01/07/19 15:25	10.0		spk
039	met45	X	RINSE			01/07/19 15:26	1.0		
040	met45	SAMPLE	305807-020	Soil	266697	01/07/19 15:27	10000		
041	met45	SAMPLE	305807-022	Soil	266697	01/07/19 15:28	10000		1:HG=11
042	met45	X	RINSE			01/07/19 15:30	1.0		
043	met45	CCV				01/07/19 15:31	1.0	3	
044	met45	CCB				01/07/19 15:32	1.0		
045	met45	SAMPLE	305807-023	Soil	266697	01/07/19 15:33	10000		1:HG=13
046	met45	X	R			01/07/19 15:35	1.0		
047	met45	SAMPLE	305807-024	Soil	266697	01/07/19 15:36	10000		
048	met45	SAMPLE	305807-025	Soil	266697	01/07/19 15:37	10000		1:HG=13
049	met45	X	RINSE			01/07/19 15:39	1.0		
050	met45	SAMPLE	305807-026	Soil	266697	01/07/19 15:40	10000		1:HG=19
051	met45	X	RINSE			01/07/19 15:42	1.0		
052	met45	SAMPLE	305787-002	Soil	266697	01/07/19 15:43	100.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010956

Instrument : MET45 Begun : 01/07/19 14:36
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	305787-004	Soil	266697	01/07/19 15:44	100.0		1:HG=23
054	met45	SAMPLE	305787-005	Soil	266697	01/07/19 15:46	100.0		1:HG=12
055	met45	CCV				01/07/19 15:47	1.0	3	
056	met45	CCB				01/07/19 15:49	1.0		
057	met45	SAMPLE	305787-006	Soil	266697	01/07/19 15:50	100.0		
058	met45	SAMPLE	305787-008	Soil	266697	01/07/19 15:51	100.0		
059	met45	SAMPLE	305787-010	Soil	266697	01/07/19 15:52	100.0		1:HG=16
060	met45	X	RINSE1			01/07/19 15:54	1.0		
061	met45	X	RINSE2			01/07/19 15:55	1.0		
062	met45	X	RINSE3			01/07/19 15:56	1.0		
063	met45	X	RINSE5			01/07/19 15:57	1.0		
064	met45	X	RINSE4			01/07/19 15:59	1.0		
065	met45	X	RINSE			01/07/19 16:00	1.0		
066	met45	SAMPLE	305807-022	Soil	266697	01/07/19 16:01	50000		
067	met45	CCV				01/07/19 16:02	1.0	3	
068	met45	CCB				01/07/19 16:03	1.0		
069	met45	SAMPLE	305807-023	Soil	266697	01/07/19 16:05	50000		
070	met45	SAMPLE	305807-025	Soil	266697	01/07/19 16:06	50000		
071	met45	SAMPLE	305807-026	Soil	266697	01/07/19 16:07	50000		
072	met45	SAMPLE	305787-004	Soil	266697	01/07/19 16:09	500.0		
073	met45	SAMPLE	305787-005	Soil	266697	01/07/19 16:10	500.0		
074	met45	SAMPLE	305787-010	Soil	266697	01/07/19 16:11	500.0		
075	met45	MSS	305787-001	Soil	266697	01/07/19 16:12	1000		
076	met45	SER	QC960434	Soil	266697	01/07/19 16:14	5000		
077	met45	X	RINSE1			01/07/19 16:15	1.0		
078	met45	CCV				01/07/19 16:16	1.0	3	
079	met45	CCB				01/07/19 16:17	1.0		
080	met45	SAMPLE	305787-007	Soil	266697	01/07/19 16:27	100.0		
081	met45	SAMPLE	305787-011	Soil	266697	01/07/19 16:28	1000		
082	met45	CCV				01/07/19 16:29	1.0	3	
083	met45	CCB				01/07/19 16:31	1.0		

DLC 01/07/19 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 083.

Standards used: 1=S39373 2=S39375 3=S39376

Flags used: spk=5% spike rule

ENTHALPY INITIAL CALIBRATION FOR 305807 METALS Soil: EPA 7470A

Inst : MET45
Calnum : 389010956001
Units : ug/L

Date : 07-JAN-2019 14:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	389010956002	ICAL1	07-JAN-2019 14:37	S39373 (500X)
L2	met45	389010956003	ICAL2	07-JAN-2019 14:38	S39373 (200X)
L3	met45	389010956004	ICAL3	07-JAN-2019 14:39	S39373 (50X)
L4	met45	389010956005	ICAL4	07-JAN-2019 14:41	S39373 (20X)
L5	met45	389010956006	ICAL5	07-JAN-2019 14:42	S39373 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0255	0.0236	0.0322	0.0328	0.0334	LIN0	0.07384	29.7585		0.0295	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	13	0.5000	-15	2.0000	0	5.0000	-1	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305807 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 389010956001 Cal Date : 07-JAN-2019

ICV 389010956007 (07-JAN-2019) stds: S39375

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.070	ug/L	1	10	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956008 File : met45 Time : 07-JAN-2019 14:44
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956031 File : met45 Time : 07-JAN-2019 15:16
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0341	5.000	5.151	ug/L	3	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956032 File : met45 Time : 07-JAN-2019 15:17
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956043 File : met45 Time : 07-JAN-2019 15:31
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0340	5.000	5.133	ug/L	3	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956044 File : met45 Time : 07-JAN-2019 15:32
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	[0.1244]	0.2000	0.1000	ug/L	!CCB

!=warning CCB=instrument blank

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956055 File : met45 Time : 07-JAN-2019 15:47
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0347	5.000	5.243	ug/L	5	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956056 File : met45 Time : 07-JAN-2019 15:49
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	[0.1125]	0.2000	0.1000	ug/L	!CCB

!=warning CCB=instrument blank

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956067 File : met45 Time : 07-JAN-2019 16:02
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0341	5.000	5.145	ug/L	3	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956068 File : met45 Time : 07-JAN-2019 16:03
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956078 File : met45 Time : 07-JAN-2019 16:16
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0339	5.000	5.115	ug/L	2	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956079 File : met45 Time : 07-JAN-2019 16:17
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389012396

Instrument : MET45
Method : EPA 7470A

Begun : 01/08/19 14:36
SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				01/08/19 14:36	1.0		
002	met45	ICAL	ICAL1			01/08/19 14:37	1.0	1	
003	met45	ICAL	ICAL2			01/08/19 14:38	1.0	1	
004	met45	ICAL	ICAL3			01/08/19 14:39	1.0	1	
005	met45	ICAL	ICAL4			01/08/19 14:40	1.0	1	
006	met45	ICAL	ICAL5			01/08/19 14:42	1.0	1	
007	met45	ICV				01/08/19 14:43	1.0	2	
008	met45	ICB				01/08/19 14:44	1.0		
009	met45	BLANK	QC960584	Soil	266740	01/08/19 14:45	1.0		
010	met45	BS	QC960585	Soil	266740	01/08/19 14:47	1.0		
011	met45	BSD	QC960586	Soil	266740	01/08/19 14:48	1.0		
012	met45	MSS	306113-001	Soil	266740	01/08/19 14:49	1.0		
013	met45	MS	QC960587	Soil	266740	01/08/19 14:50	1.0		
014	met45	MSD	QC960588	Soil	266740	01/08/19 14:52	1.0		
015	met45	SAMPLE	306113-002	Soil	266740	01/08/19 14:53	1.0		
016	met45	SAMPLE	306159-001	Soil	266740	01/08/19 14:54	1.0		
017	met45	SAMPLE	306159-002	Soil	266740	01/08/19 14:55	1.0		
018	met45	SAMPLE	306159-003	Soil	266740	01/08/19 14:56	1.0		
019	met45	CCV				01/08/19 14:58	1.0	3	
020	met45	CCB				01/08/19 14:59	1.0		
021	met45	SAMPLE	306159-004	Soil	266740	01/08/19 15:00	1.0		
022	met45	SAMPLE	306160-001	Soil	266740	01/08/19 15:02	1.0		
023	met45	SAMPLE	306164-001	Soil	266740	01/08/19 15:03	1.0		
024	met45	SAMPLE	306191-001	Soil	266740	01/08/19 15:04	1.0		
025	met45	SAMPLE	306197-001	Soil	266740	01/08/19 15:05	1.0		
026	met45	SAMPLE	306203-001	Soil	266740	01/08/19 15:06	1.0		
027	met45	SAMPLE	306213-001	Miscell.	266740	01/08/19 15:08	1.0		1:HG=12
028	met45	SAMPLE	306213-002	Miscell.	266740	01/08/19 15:09	1.0		
029	met45	X	R			01/08/19 15:10	1.0		
030	met45	SAMPLE	306213-002	Miscell.	266740	01/08/19 15:12	1.0		
031	met45	CCV				01/08/19 15:13	1.0	3	
032	met45	CCB				01/08/19 15:14	1.0		
033	met45	SAMPLE	306213-001	Miscell.	266740	01/08/19 15:15	5.0		
034	met45	SAMPLE	306213-003	Miscell.	266740	01/08/19 15:17	1.0		
035	met45	SAMPLE	306219-006	Soil	266740	01/08/19 15:18	1.0		
036	met45	SAMPLE	306226-001	Miscell.	266740	01/08/19 15:19	1.0		
037	met45	SAMPLE	306231-001	Soil	266740	01/08/19 15:20	1.0		
038	met45	SAMPLE	306234-001	Soil	266740	01/08/19 15:22	1.0		
039	met45	X	RINSE			01/08/19 15:23	1.0		
040	met45	BLANK	QC960561	Soil	266733	01/08/19 15:24	1.0		
041	met45	BS	QC960562	Soil	266733	01/08/19 15:25	1.0		
042	met45	BSD	QC960563	Soil	266733	01/08/19 15:26	1.0		
043	met45	CCV				01/08/19 15:28	1.0	3	
044	met45	CCB				01/08/19 15:29	1.0		
045	met45	BLANK	QC960561	Soil	266733	01/08/19 15:30	1.0		
046	met45	MSS	305807-001	Soil	266733	01/08/19 15:31	10000		
047	met45	MS	QC960564	Soil	266733	01/08/19 15:33	10000		1:HG=10
048	met45	MSD	QC960565	Soil	266733	01/08/19 15:34	10000		
049	met45	SER	QC960566	Soil	266733	01/08/19 15:35	50000		
050	met45	SAMPLE	305807-002	Soil	266733	01/08/19 15:37	10000		
051	met45	SAMPLE	305807-003	Soil	266733	01/08/19 15:38	500.0		1:HG=33
052	met45	X	RINSE			01/08/19 15:39	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389012396

Instrument : MET45 Begun : 01/08/19 14:36
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	305807-004	Soil	266733	01/08/19 15:41	100.0		
054	met45	SAMPLE	305807-005	Soil	266733	01/08/19 15:42	1000		
055	met45	CCV				01/08/19 15:43	1.0	3	
056	met45	CCB				01/08/19 15:44	1.0		
057	met45	SAMPLE	305807-006	Soil	266733	01/08/19 15:46	50000		
058	met45	SAMPLE	305807-007	Soil	266733	01/08/19 15:47	10000		
059	met45	SAMPLE	305807-008	Soil	266733	01/08/19 15:48	1000		
060	met45	SAMPLE	305807-009	Soil	266733	01/08/19 15:49	10000		
061	met45	SAMPLE	305807-010	Soil	266733	01/08/19 15:51	1000		1:HG=17
062	met45	SAMPLE	305807-011	Soil	266733	01/08/19 15:52	10000		
063	met45	SAMPLE	305807-012	Soil	266733	01/08/19 15:53	10000		
064	met45	SAMPLE	305807-013	Soil	266733	01/08/19 15:55	10000		
065	met45	SAMPLE	305807-014	Soil	266733	01/08/19 15:56	10000		
066	met45	SAMPLE	305807-015	Soil	266733	01/08/19 15:57	100.0		
067	met45	CCV				01/08/19 15:58	1.0	3	
068	met45	CCB				01/08/19 16:00	1.0		
069	met45	SAMPLE	305807-016	Soil	266733	01/08/19 16:01	100.0		
070	met45	SAMPLE	305807-017	Soil	266733	01/08/19 16:02	10.0		
071	met45	SAMPLE	305807-018	Soil	266733	01/08/19 16:03	100.0		
072	met45	SAMPLE	305807-019	Soil	266733	01/08/19 16:05	100.0		1:HG=14
073	met45	X	RINSE			01/08/19 16:06	1.0		
074	met45	SAMPLE	305807-010	Soil	266733	01/08/19 16:07	5000		
075	met45	SAMPLE	305807-019	Soil	266733	01/08/19 16:09	500.0		
076	met45	SAMPLE	305807-011	Soil	266733	01/08/19 16:10	10000		
077	met45	SAMPLE	305807-003	Soil	266733	01/08/19 16:11	1000		1:HG=18
078	met45	X	RINSE			01/08/19 16:13	1.0		
079	met45	CCV				01/08/19 16:14	1.0	3	
080	met45	CCB				01/08/19 16:15	1.0		
081	met45	SAMPLE	305807-006	Soil	266733	01/08/19 16:16	10000		
082	met45	X	RINSE			01/08/19 16:18	1.0		
083	met45	SAMPLE	305807-003	Soil	266733	01/08/19 16:19	5000		
084	met45	X	RINSE			01/08/19 16:20	1.0		
085	met45	CCV				01/08/19 16:21	1.0	3	
086	met45	CCB				01/08/19 16:22	1.0		

SL 01/08/19 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 56.

Standards used: 1=S39396 2=S39398 3=S39399

ENTHALPY INITIAL CALIBRATION FOR 305807 METALS Soil: EPA 7470A

Inst : MET45
Calnum : 389012396001
Units : ug/L

Date : 08-JAN-2019 14:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	389012396002	ICAL1	08-JAN-2019 14:37	S39396 (500X)
L2	met45	389012396003	ICAL2	08-JAN-2019 14:38	S39396 (200X)
L3	met45	389012396004	ICAL3	08-JAN-2019 14:39	S39396 (50X)
L4	met45	389012396005	ICAL4	08-JAN-2019 14:40	S39396 (20X)
L5	met45	389012396006	ICAL5	08-JAN-2019 14:42	S39396 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0290	0.0260	0.0283	0.0280	0.0280	LIN0	0.00127	35.7205		0.0279	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	4	0.5000	-7	2.0000	1	5.0000	0	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305807 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 389012396001 Cal Date : 08-JAN-2019

ICV 389012396007 (08-JAN-2019) stds: S39398

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.006	ug/L	0	10	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396008 File : met45 Time : 08-JAN-2019 14:44
Cal : 389012396001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396031 File : met45 Time : 08-JAN-2019 15:13
Cal : 389012396001 Caldate : 08-JAN-2019
Standards: S39399

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0279	0.0266	5.000	4.759	ug/L	-5	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396032 File : met45 Time : 08-JAN-2019 15:14
Cal : 389012396001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396043 File : met45 Time : 08-JAN-2019 15:28
Cal : 389012396001 Caldate : 08-JAN-2019
Standards: S39399

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0279	0.0271	5.000	4.841	ug/L	-3	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396044 File : met45 Time : 08-JAN-2019 15:29
Cal : 389012396001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396055 File : met45 Time : 08-JAN-2019 15:43
Cal : 389012396001 Caldate : 08-JAN-2019
Standards: S39399

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0279	0.0268	5.000	4.788	ug/L	-4	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396056 File : met45 Time : 08-JAN-2019 15:44
Cal : 389012396001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396067 File : met45 Time : 08-JAN-2019 15:58
Cal : 389012396001 Caldate : 08-JAN-2019
Standards: S39399

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0279	0.0270	5.000	4.827	ug/L	-3	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396068 File : met45 Time : 08-JAN-2019 16:00
Cal : 389012396001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396079 File : met45 Time : 08-JAN-2019 16:14
Cal : 389012396001 Caldate : 08-JAN-2019
Standards: S39399

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0279	0.0266	5.000	4.756	ug/L	-5	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396080 File : met45 Time : 08-JAN-2019 16:15
Cal : 389012396001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396085 File : met45 Time : 08-JAN-2019 16:21
Cal : 389012396001 Caldate : 08-JAN-2019
Standards: S39399

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0279	0.0266	5.000	4.749	ug/L	-5	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396086 File : met45 Time : 08-JAN-2019 16:22
Cal : 389012396001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389012521

Instrument : MET45 Begun : 01/08/19 16:41
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				01/08/19 16:41	1.0		
002	met45	ICAL	ICAL1			01/08/19 16:43	1.0	1	
003	met45	ICAL	ICAL2			01/08/19 16:44	1.0	1	
004	met45	ICAL	ICAL3			01/08/19 16:45	1.0	1	
005	met45	ICAL	ICAL4			01/08/19 16:46	1.0	1	
006	met45	ICAL	ICAL5			01/08/19 16:48	1.0	1	
007	met45	ICV				01/08/19 16:49	1.0	2	
008	met45	ICB				01/08/19 16:50	1.0		
009	met45	SAMPLE	305807-018	Soil	266733	01/08/19 16:51	1.0		
010	met45	X	RINSE			01/08/19 16:53	1.0		
011	met45	CCV				01/08/19 16:54	1.0	3	
012	met45	CCB				01/08/19 16:55	1.0		

KER 01/08/19 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 12.

Standards used: 1=S39396 2=S39398 3=S39399

ENTHALPY INITIAL CALIBRATION FOR 305807 METALS Soil: EPA 7470A

Inst : MET45
Calnum : 389012521001
Units : ug/L

Date : 08-JAN-2019 16:41
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	389012521002	ICAL1	08-JAN-2019 16:43	S39396 (500X)
L2	met45	389012521003	ICAL2	08-JAN-2019 16:44	S39396 (200X)
L3	met45	389012521004	ICAL3	08-JAN-2019 16:45	S39396 (50X)
L4	met45	389012521005	ICAL4	08-JAN-2019 16:46	S39396 (20X)
L5	met45	389012521006	ICAL5	08-JAN-2019 16:48	S39396 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0340	0.0304	0.0299	0.0295	0.0289	LIN0	-0.0381	34.5848		0.0305	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	-1	0.5000	-2	2.0000	1	5.0000	1	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

389012521001

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305807 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 389012521001 Cal Date : 08-JAN-2019

ICV 389012521007 (08-JAN-2019) stds: S39398

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.056	ug/L	1	10	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012521008 File : met45 Time : 08-JAN-2019 16:50
Cal : 389012521001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012521011 File : met45 Time : 08-JAN-2019 16:54
Cal : 389012521001 Caldate : 08-JAN-2019
Standards: S39399

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0305	0.0290	5.000	4.980	ug/L	0	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012521012 File : met45 Time : 08-JAN-2019 16:55
Cal : 389012521001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 266697
Started By : DLC
Method : METHOD
Spike #1 ID : S39374

Prep Date : 07-JAN-2019 08:00

Analysis : HG
Finished By : SL
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
305787-001		Soil	.59	50	1	84.75						7471-HG	
305787-002		Soil	.65	50	1	76.92						7471-HG	
305787-003		Soil	.58	50	1	86.21						7471-HG	
305787-004		Soil	.64	50	1	78.13						7471-HG	
305787-005		Soil	.58	50	1	86.21						7471-HG	
305787-006		Soil	.63	50	1	79.37						7471-HG	
305787-007		Soil	.65	50	1	76.92						7471-HG	
305787-008		Soil	.55	50	1	90.91						7471-HG	
305787-009		Soil	.57	50	1	87.72						7471-HG	
305787-010		Soil	.63	50	1	79.37						7471-HG	
305787-011		Soil	.59	50	1	84.75						7471-HG	
305787-012		Soil	.58	50	1	86.21						7471-HG	
305807-020		Soil	.62	50	1	80.65						7471-HG	
305807-021		Soil	.58	50	1	86.21						7471-HG	
305807-022		Soil	.63	50	1	79.37						7471-HG	
305807-023		Soil	.57	50	1	87.72						7471-HG	
305807-024		Soil	.64	50	1	78.13						7471-HG	
305807-025		Soil	.57	50	1	87.72						7471-HG	
305807-026		Soil	.61	50	1	81.97						7471-HG	
QC960429	BLANK	Soil	.58	50	1	86.21							
QC960430	BS	Soil	.59	50	1	84.75		1					
QC960431	BSD	Soil	.59	50	1	84.75		1					
QC960432	MS	Soil	.56	50	1	89.29		1					
QC960433	MSD	Soil	.59	50	1	84.75		1					
QC960434	SER	Soil	.59	50	1	84.75							

Analyst: DLC Date: 01/07/19 Reviewer: PRW Date: 01/07/19

Soil Digestion for Mercury

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266697 Digestion Method: ☒ EPA 7471A/ 7471B ☐ _____ BK 4375

Date Digested: 1-6-2019 Page 3

	Sample #	container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
	Blank	A	0.58	☒50 ☐___	Y	QC 960929
	BS		0.59	☒50 ☐___		30
	BSD		0.59	☒50 ☐___		81
	MS		0.56	☒50 ☐___		82
5	MSD		0.59	☒50 ☐___		83
	305807-020	A	0.62	☒50 ☐___		
	-021		0.58	☒50 ☐___		
	-022		0.63	☒50 ☐___		
	-023		0.57	☒50 ☐___		
10	-024		0.64	☒50 ☐___		
	-025		0.57	☒50 ☐___		
	-026		0.61	☒50 ☐___		
	305787-001	A	0.59	☒50 ☐___		MSS
	-002		0.65	☒50 ☐___		
15	-003		0.58	☒50 ☐___		
	-004		0.64	☒50 ☐___		
	-005		0.58	☒50 ☐___		
	-006		0.63	☒50 ☐___		
	-007		0.65	☒50 ☐___		
20	-008		0.55	☒50 ☐___		
	-009		0.57	☒50 ☐___		
	-010		0.63	☒50 ☐___		
	-011		0.59	☒50 ☐___		
	-012		0.58	☒50 ☐___		
				☐50 ☐___		

Balance ID: B-9 calibration has been checked? ☒ Yes ☐ No

Standards prepared per SOP: MET 5.2, rev. 20

1.0 mL of spike standard was added to all spikes

☐ **CAL digested with this batch? ICAL Std S#**

Pipettes

Vol.(mL)	ID
.1	J28153D
.2-1	R29360D
1-5	2924335
5-10	4645196

Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tubes, Lot # CPI 112818	PC 1-6-19
Blank/LCS 'matrix' ID Chemware 23228917	
S39374	
S39373	
ICV / CCV LIMS S# S39375 / S39376	
Digestion Temperature (°C), and Probe Location 95° | 31	
Digestion block ID Segia	
Thermometer # 64112748	
Digestion Started at (time) 2025	
Aqua Regia (HNO3+ HCl) Reagent ID 010619	
5% $KMnO_4$ / Granular KMnO4 reagent ID 010219A | —	
NaCl.hydroxylamine hydrochloride Reagent ID 010219A	
Stannous Chloride Reagent ID 010719	SL 1-7-19
Digestion Completd at (time) 2055	PC 1-6-19
☐ filtered thru' 0.45 um syringe filter (lot #) S581160103	SL 1-7-19

1-6-19

Prep Chemist / Date

Continued from page Ø

Continued on page _____

Reviewed Online / See LIMS

Version 7.2, July.2017

SAMPLE PREPARATION SUMMARY

Batch # : 266733
Started By : SL
Method : METHOD
Spike #1 ID : S39397

Prep Date : 08-JAN-2019 09:30

Analysis : HG
Finished By : SL
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
305807-001		Soil	.59	50	1	84.75						7471-HG	
305807-002		Soil	.61	50	1	81.97						7471-HG	
305807-003		Soil	.65	50	1	76.92						7471-HG	
305807-004		Soil	.57	50	1	87.72						7471-HG	
305807-005		Soil	.61	50	1	81.97						7471-HG	
305807-006		Soil	.62	50	1	80.65						7471-HG	
305807-007		Soil	.6	50	1	83.33						7471-HG	
305807-008		Soil	.6	50	1	83.33						7471-HG	
305807-009		Soil	.62	50	1	80.65						7471-HG	
305807-010		Soil	.64	50	1	78.13						7471-HG	
305807-011		Soil	.58	50	1	86.21						7471-HG	
305807-012		Soil	.61	50	1	81.97						7471-HG	
305807-013		Soil	.6	50	1	83.33						7471-HG	
305807-014		Soil	.58	50	1	86.21						7471-HG	
305807-015		Soil	.6	50	1	83.33						7471-HG	
305807-016		Soil	.56	50	1	89.29						7471-HG	
305807-017		Soil	.6	50	1	83.33						7471-HG	
305807-018		Soil	.56	50	1	89.29						7471-HG	
305807-019		Soil	.59	50	1	84.75						7471-HG	
QC960561	BLANK	Soil	.57	50	1	87.72							
QC960562	BS	Soil	.61	50	1	81.97		1					
QC960563	BSD	Soil	.6	50	1	83.33		1					
QC960564	MS	Soil	.65	50	1	76.92		1					
QC960565	MSD	Soil	.56	50	1	89.29		1					
QC960566	SER	Soil	.59	50	1	84.75							

Analyst: SL Date: 01/08/19 Reviewer: PRW Date: 01/08/19

Soil Digestion for Mercury — Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266733 | Digestion Method: ☒ EPA 7471A/ 7471B | BK 4375

Date Digested: 01-08-19 | ☐ ____________ | Page 6

Sample #	Container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
BLANK		0.57	☒ 50 ☐___	Y	QC960561
BS		0.61	☒ 50 ☐___	↓	2
BSD		0.60	☒ 50 ☐___	↓	3
MS		0.65	☒ 50 ☐___	↓	4
MSD		0.56	☒ 50 ☐___	↓	5
305807-001	A	0.59	☒ 50 ☐___	↓	~~QC~~ MSS SL 1-8-19
-002	↓	0.61	☒ 50 ☐___	↓	
-003	↓	0.65	☒ 50 ☐___	↓	
-004	↓	0.57	☒ 50 ☐___	↓	
-005	↓	0.61	☒ 50 ☐___	↓	
-006	↓	0.62	☒ 50 ☐___	↓	
-007	↓	0.60	☒ 50 ☐___	↓	
-008	↓	0.60	☒ 50 ☐___	↓	
-009	↓	0.62	☒ 50 ☐___	↓	
-010	↓	0.64	☒ 50 ☐___	↓	
-011	↓	0.58	☒ 50 ☐___	↓	
-012	↓	0.61	☒ 50 ☐___	↓	
-013	↓	0.60	☒ 50 ☐___	↓	
-014	↓	0.58	☒ 50 ☐___	↓	
-015	↓	0.60	☒ 50 ☐___	↓	
-016	↓	0.56	☒ 50 ☐___	↓	
-017	↓	0.60	☒ 50 ☐___	↓	
-018	↓	0.56	☒ 50 ☐___	↓	
-019	↓	0.59	☒ 50 ☐___	↓	
			☐ 50 ☐___		

Balance ID: B-9 calibration has been checked? ☒ Yes ☐ No

Standards prepared per SOP: MET 5.2, rev. 20

	Reagent ID/ LIMS# / Time		Initials / Date
Digestion Tubes, Lot #	CPI 112818 SL 1-8-19		SL 1-8-19
Blank/LCS 'matrix' ID	chemware ~~237~~ 2377901C		↓
1 mL of spike standard was added to all spikes	S39397		↓
☐ **CAL digested with this batch? ICAL Std S#**	S39396		↓
ICV / CCV LIMS S#	S39398 / S39399		↓
Digestion Temperature (°C), and Probe Location	95°	33	↓
Digestion block ID	ARCHES		↓
Thermometer #	A42121		↓
Digestion Started at (time)	1220		↓
1:1 Aqua Regia (HNO_3+ HCl) Reagent ID	010819		↓
5% $KMnO_4$ / Granular KMnO4 reagent ID	010719	—	↓
NaCl.hydroxylamine hydrochloride Reagent ID	010219		↓
Stannous Chloride Reagent ID	~~010819~~ 010719B SL 1-8-19		↓
Digestion Completd at (time)	1250		↓
☐ filtered thru' 0.45 um syringe filter (lot #)	SS81160103		↓

Pipettes

Vol.(mL)	ID
.1	U281530
.2-1	B243600
1-5	2924335
5-10	4645196

[signature] 01-08-19
Prep Chemist / Date

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Reviewed Online / See LIMS
Version 7.2, July.2017

Mercury Raw Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010771

Instrument : MET45 Begun : 01/07/19 11:31
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				01/07/19 11:31	1.0		
002	met45	ICAL	ICAL1			01/07/19 11:32	1.0	1	
003	met45	ICAL	ICAL2			01/07/19 11:33	1.0	1	
004	met45	ICAL	ICAL3			01/07/19 11:35	1.0	1	
005	met45	ICAL	ICAL4			01/07/19 11:36	1.0	1	
006	met45	ICAL	ICAL5			01/07/19 11:37	1.0	1	
007	met45	ICV				01/07/19 11:38	1.0	2	
008	met45	ICB				01/07/19 11:40	1.0		
009	met45	BLANK	QC960423	Soil	266696	01/07/19 11:41	1.0		
010	met45	BS	QC960424	Soil	266696	01/07/19 11:42	1.0		
011	met45	BSD	QC960425	Soil	266696	01/07/19 11:43	1.0		spk
012	met45	MSS	305807-001	Soil	266696	01/07/19 11:45	1000		spk , 1:HG=40
013	met45	MS	QC960426	Soil	266696	01/07/19 11:46	1.0		1:HG=590
014	met45	MSD	QC960427	Soil	266696	01/07/19 11:48	1.0		1:HG=570
015	met45	SER	QC960428	Soil	266696	01/07/19 11:49	5000		
016	met45	SAMPLE	305807-002	Soil	266696	01/07/19 11:51	1000		spk , 1:HG=18
017	met45	SAMPLE	305807-003	Soil	266696	01/07/19 11:52	1000		spk
018	met45	SAMPLE	305807-004	Soil	266696	01/07/19 11:53	1000		spk
019	met45	CCV				01/07/19 11:55	1.0	3	
020	met45	CCB				01/07/19 11:56	1.0		
021	met45	SAMPLE	305807-005	Soil	266696	01/07/19 11:57	1000		spk
022	met45	X	RINSE			01/07/19 11:58	1.0		
023	met45	MSS	305807-001	Soil	266696	01/07/19 12:00	10000		spk
024	met45	SER	QC960428	Soil	266696	01/07/19 12:01	50000		
025	met45	SAMPLE	305807-002	Soil	266696	01/07/19 12:02	10000		spk
026	met45	SAMPLE	305807-003	Soil	266696	01/07/19 12:03	100.0		spk , 1:HG=140
027	met45	X	RINSE			01/07/19 12:05	1.0		
028	met45	SAMPLE	305807-005	Soil	266696	01/07/19 12:06	100.0		spk
029	met45	SAMPLE	305807-004	Soil	266696	01/07/19 12:07	100.0		spk
030	met45	XSAMPLE	305807-003	Soil	266696	01/07/19 12:09	500.0		spk
031	met45	CCV				01/07/19 12:10	1.0	3	
032	met45	CCB				01/07/19 12:11	1.0		
033	met45	SAMPLE	305807-006	Soil	266696	01/07/19 12:12	1000		spk , 1:HG=45
034	met45	X	RINSE			01/07/19 12:14	1.0		
035	met45	SAMPLE	305807-006	Soil	266696	01/07/19 12:15	10000		spk , 1:HG=11
036	met45	SAMPLE	305807-007	Soil	266696	01/07/19 12:17	1000		spk , 1:HG=22
037	met45	SAMPLE	305807-008	Soil	266696	01/07/19 12:18	1000		spk
038	met45	SAMPLE	305807-009	Soil	266696	01/07/19 12:20	1000		spk , 1:HG=14
039	met45	X	RINSE			01/07/19 12:21	1.0		
040	met45	SAMPLE	305807-010	Soil	266696	01/07/19 12:22	1000		spk
041	met45	SAMPLE	305807-006	Soil	266696	01/07/19 12:23	50000		spk
042	met45	SAMPLE	305807-011	Soil	266696	01/07/19 12:25	1000		spk , 1:HG=23
043	met45	CCV				01/07/19 12:26	1.0	3	
044	met45	CCB				01/07/19 12:28	1.0		
045	met45	SAMPLE	305807-012	Soil	266696	01/07/19 12:29	1000		spk , 1:HG=13
046	met45	SAMPLE	305807-013	Soil	266696	01/07/19 12:30	1000		spk , 1:HG=11
047	met45	SAMPLE	305807-014	Soil	266696	01/07/19 12:32	1000		spk , 1:HG=22
048	met45	X	RINSE			01/07/19 12:34	1.0		
049	met45	SAMPLE	305807-008	Soil	266696	01/07/19 12:35	1000		spk
050	met45	SAMPLE	305807-007	Soil	266696	01/07/19 12:36	1000		spk , 1:HG=22
051	met45	SAMPLE	305807-015	Soil	266696	01/07/19 12:38	1000		spk
052	met45	SAMPLE	305807-011	Soil	266696	01/07/19 12:39	10000		spk

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010771

Instrument : MET45 Begun : 01/07/19 11:31
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	305807-012	Soil	266696	01/07/19 12:40	10000		spk
054	met45	SAMPLE	305807-016	Soil	266696	01/07/19 12:41	1000		spk
055	met45	CCV				01/07/19 12:43	1.0	3	
056	met45	CCB				01/07/19 12:44	1.0		
057	met45	SAMPLE	305807-014	Soil	266696	01/07/19 12:45	10000		spk
058	met45	SAMPLE	305807-007	Soil	266696	01/07/19 12:46	10000		spk
059	met45	SAMPLE	305807-013	Soil	266696	01/07/19 12:47	10000		spk
060	met45	SAMPLE	305807-015	Soil	266696	01/07/19 12:49	100.0		spk
061	met45	SAMPLE	305807-016	Soil	266696	01/07/19 12:50	100.0		spk
062	met45	SAMPLE	305807-017	Soil	266696	01/07/19 12:51	1000		spk
063	met45	SAMPLE	305807-018	Soil	266696	01/07/19 12:52	1000		spk
064	met45	SAMPLE	305807-019	Soil	266696	01/07/19 12:54	1000		spk
065	met45	SAMPLE	305807-017	Soil	266696	01/07/19 12:55	100.0		spk
066	met45	SAMPLE	305807-018	Soil	266696	01/07/19 12:56	100.0		spk
067	met45	CCV				01/07/19 12:57	1.0	3	
068	met45	CCB				01/07/19 12:59	1.0		
069	met45	XSAMPLE	305807-019	Soil	266696	01/07/19 13:00	100.0		spk
070	met45	X	RINSE			01/07/19 13:01	1.0		
071	met45	SAMPLE	305807-003	Soil	266696	01/07/19 13:02	500.0		spk
072	met45	SAMPLE	305807-019	Soil	266696	01/07/19 13:04	100.0		spk
073	met45	X	RINSE2			01/07/19 13:05	1.0		
074	met45	BLANK	QC960423	Soil	266696	01/07/19 13:06	1.0		
075	met45	BS	QC960424	Soil	266696	01/07/19 13:07	1.0		
076	met45	BSD	QC960425	Soil	266696	01/07/19 13:08	1.0		spk
077	met45	X	RINSE2			01/07/19 13:10	1.0		
078	met45	X	RINSE			01/07/19 13:11	1.0		
079	met45	CCV				01/07/19 13:12	1.0	3	
080	met45	CCB				01/07/19 13:13	1.0		
081	met45	BLANK	QC960429	Soil	266697	01/07/19 13:14	1.0		
082	met45	BS	QC960430	Soil	266697	01/07/19 13:16	1.0		
083	met45	BSD	QC960431	Soil	266697	01/07/19 13:17	1.0		
084	met45	MSS	305787-001	Soil	266697	01/07/19 13:18	10000		
085	met45	MS	QC960432	Soil	266697	01/07/19 13:19	1.0		1:HG=280
086	met45	MSD	QC960433	Soil	266697	01/07/19 13:21	1.0		1:HG=290
087	met45	SER	QC960434	Soil	266697	01/07/19 13:22	50000		
088	met45	SAMPLE	305787-002	Soil	266697	01/07/19 13:24	10000		
089	met45	SAMPLE	305787-003	Soil	266697	01/07/19 13:25	10000		
090	met45	SAMPLE	305787-004	Soil	266697	01/07/19 13:26	10000		
091	met45	CCV				01/07/19 13:27	1.0	3	
092	met45	CCB				01/07/19 13:29	1.0		
093	met45	SAMPLE	305787-005	Soil	266697	01/07/19 13:30	10000		
094	met45	SAMPLE	305787-006	Soil	266697	01/07/19 13:31	10000		
095	met45	SAMPLE	305787-007	Soil	266697	01/07/19 13:32	10000		
096	met45	SAMPLE	305787-008	Soil	266697	01/07/19 13:34	10000		
097	met45	SAMPLE	305787-009	Soil	266697	01/07/19 13:35	10000		
098	met45	SAMPLE	305787-010	Soil	266697	01/07/19 13:36	10000		
099	met45	SAMPLE	305787-011	Soil	266697	01/07/19 13:37	10000		
100	met45	SAMPLE	305787-012	Soil	266697	01/07/19 13:39	10000		
101	met45	SAMPLE	305807-020	Soil	266697	01/07/19 13:40	10000		
102	met45	SAMPLE	305807-021	Soil	266697	01/07/19 13:41	10000		
103	met45	CCV				01/07/19 13:42	1.0	3	
104	met45	CCB				01/07/19 13:44	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010771

Instrument : MET45 Begun : 01/07/19 11:31
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
105	met45	SAMPLE	305807-022	Soil	266697	01/07/19 13:45	10000		1:HG=11
106	met45	SAMPLE	305807-023	Soil	266697	01/07/19 13:46	10000		1:HG=11
107	met45	SAMPLE	305807-024	Soil	266697	01/07/19 13:48	10000		
108	met45	SAMPLE	305807-025	Soil	266697	01/07/19 13:49	10000		
109	met45	SAMPLE	305807-026	Soil	266697	01/07/19 13:51	10000		1:HG=19
110	met45	CCV				01/07/19 13:52	1.0	3	
111	met45	CCB				01/07/19 13:53	1.0		

DLC 01/07/19 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 111.

Standards used: 1=S39373 2=S39375 3=S39376

Flags used: spk=5% spike rule

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	dry
Matrix:	Soil	Received:	12/13/18
Units:	mg/Kg		

Field ID	Type	Lab ID	Result	RL	MDL	Moisture	Diln Fac	Batch#	Sampled	Prepared	Analyzed
RFS-MFA-EX-G2-5	SAMPLE	305807-001	6,500	210	37	19%	10,000	266733	12/12/18	01/08/19	01/08/19
RFS-MFA-EX-G2-6	SAMPLE	305807-002	2,300	200	35	18%	10,000	266733	12/12/18	01/08/19	01/08/19
RFS-MFA-EX-G2-7	SAMPLE	305807-003	1,600	95	17	19%	5,000	266733	12/12/18	01/08/19	01/08/19
RFS-MFA-EX-G3-1	SAMPLE	305807-004	43	2.1	0.37	17%	100.0	266733	12/12/18	01/08/19	01/08/19
RFS-MFA-EX-G3-2	SAMPLE	305807-005	830	19	3.4	15%	1,000	266733	12/12/18	01/08/19	01/08/19
RFS-MFA-EX-G3-3	SAMPLE	305807-006	9,100	190	34	16%	10,000	266733	12/12/18	01/08/19	01/08/19
RFS-MFA-EX-G3-4	SAMPLE	305807-007	3,200	200	35	16%	10,000	266733	12/12/18	01/08/19	01/08/19
RFS-MFA-EX-G4-1	SAMPLE	305807-008	760	20	3.6	18%	1,000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-G4-2	SAMPLE	305807-009	1,500	190	34	17%	10,000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-G4-3	SAMPLE	305807-010	1,600	92	16	15%	5,000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-G5-1	SAMPLE	305807-011	2,200	210	37	17%	10,000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-G5-2	SAMPLE	305807-012	1,300	190	33	13%	10,000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-G5-3	SAMPLE	305807-013	1,300	190	34	14%	10,000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-G5-4	SAMPLE	305807-014	2,800	210	36	16%	10,000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-E1-4	SAMPLE	305807-015	5.1	2.0	0.34	15%	100.0	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-E1-5	SAMPLE	305807-016	4.8	2.1	0.37	15%	100.0	266733	12/13/18	01/08/19	01/08/19

b= See narrative
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	dry
Matrix:	Soil	Received:	12/13/18
Units:	mg/Kg		

Field ID	Type	Lab ID	Result	RL	MDL	Moisture	Diln Fac	Batch#	Sampled	Prepared	Analyzed
RFS-MFA-EX-D1-4	SAMPLE	305807-017	0.95	0.20	0.035	16%	10.00	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-D1-5	SAMPLE	305807-018	0.91	0.021	0.0037	15%	1.000	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-F1-5	SAMPLE	305807-019	180	10	1.8	16%	500.0	266733	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-F1-6	SAMPLE	305807-020	3,200	190	34	16%	10,000	266697	12/13/18	01/07/19	01/07/19
RFS-MFA-EX-F1-7	SAMPLE	305807-021	4,700	220	39	22%	10,000	266697	12/13/18	01/07/19	01/07/19
RFS-MFA-EX-F1-8	SAMPLE	305807-022	14,000	1,100	200	29%	50,000	266697	12/13/18	01/07/19	01/07/19
RFS-MFA-EX-F1-9	SAMPLE	305807-023	16,000	1,200	210	25%	50,000	266697	12/13/18	01/07/19	01/07/19
RFS-MFA-EX-F1-10	SAMPLE	305807-024	910	210	36	24%	10,000	266697	12/13/18	01/07/19	01/07/19
RFS-MFA-EX-G2-ELEM	SAMPLE	305807-025	15,000	1,200	210	25%	50,000	266697	12/12/18	01/07/19	01/07/19
RFS-MFA-EX-G2-ELEM +	SAMPLE	305807-026	25,000	1,300	220	35%	50,000	266697	12/12/18	01/07/19	01/07/19
	BLANK	QC960429	ND	0.017	0.0030		1.000	266697		01/07/19	01/07/19
	BLANK	QC960561	0.028 b	0.018	0.0031		1.000	266733		01/08/19	01/08/19

b= See narrative
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-021	Client ID	: RFS-MFA-EX-F1-7
Seqnum	: 389010771102	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 13:41
Cal	: 389010771001	Caldate	: 07-JAN-2019		
IDF	: 10000			Units	: mg/Kg

0.58 g --> 50.0 ml = 86.21 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	3700	170		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 102 **Autosampler Location: 90**
Sample ID: 305787-007,266696,1000 **Date Collected: 1/7/2019 1:41:32 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305787-007,266696,1000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.255	4.255	0.1377	0.1429	0.0500	1:42:29 PM	Yes

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7471A
Analyte:	Mercury	Units:	mg/Kg
Matrix:	Soil		

Field ID	Type	MSS Lab ID	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Basis	Moisture	RPD	Lim	Diln Fac	Batch#	Sampled	Received	Prepared	Analyzed
	BS		QC960430		0.1695	0.1579	93	80-120					1.000	266697			01/07/19	01/07/19
	BSD		QC960431		0.1695	0.1595	94	80-120			1	20	1.000	266697			01/07/19	01/07/19
ZZZZZZZZZZ	MS	305787-001	QC960432	48.12	0.1786	24.99 >LR	-12951 NM	80-120	as received				1.000	266697	12/11/18	12/12/18	01/07/19	01/07/19
ZZZZZZZZZZ	MSD	305787-001	QC960433		0.1695	24.36 >LR	-14021 NM	80-120	as received		NC	20	1.000	266697	12/11/18	12/12/18	01/07/19	01/07/19
	BS		QC960562		0.1639	0.1720	105	80-120					1.000	266733			01/08/19	01/08/19
	BSD		QC960563		0.1667	0.1805	108	80-120			3	20	1.000	266733			01/08/19	01/08/19
RFS-MFA-EX-G2-5	MS	305807-001	QC960564	6,530	0.1899	9,764 >LR	NM	80-120	dry	19%			10,000	266733	12/12/18	12/13/18	01/08/19	01/08/19
RFS-MFA-EX-G2-5	MSD	305807-001	QC960565		0.2205	2,852	NM	80-120	dry	19%	NC	20	10,000	266733	12/12/18	12/13/18	01/08/19	01/08/19

NC= Not Calculated
NM= Not Meaningful: Sample concentration > 4X spike concentration
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

ENTHALPY SPIKE USER REPORT FOR 305807 METALS Soil
EPA 7470A

Type : MSS	Type : MS	Type : MSD
Inst : MET45	Inst : MET45	Inst : MET45
Seqnum : 389010956075.1	Seqnum : 389010771085.1	Seqnum : 389010771086.1
File : met45	File : met45	File : met45
IDF : 1000	IDF : 1.0	IDF : 1.0
Lab ID : 305787-001	Lab ID : QC960432	Lab ID : QC960433
Matrix : Soil	Matrix : Soil	Matrix : Soil
Batch : 266697	Batch : 266697	Batch : 266697
Time : 07-JAN-2019 16:12	Time : 07-JAN-2019 13:19	Time : 07-JAN-2019 13:21
Cal : 389010956001	Cal : 389010771001	Cal : 389010771001
Units : mg/Kg		

MSS: 0.59 g --> 50.0 ml = 84.75 ml/g PDF
MS: 0.56 g --> 50.0 ml = 89.29 ml/g PDF
MSD: 0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	MSS	Spiked	MS	%Rec	Spiked	MSD	%Rec	Limits	RPD	Lim	Flags
Mercury	48.12	0.1786	**24.99 >LR**	-12951	0.1695	**24.36 >LR**	-14021	80-120		20	: >LR u

:=recovery not meaningful >LR=overrange u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

Sequence No.: 85 **Autosampler Location: 75**
Sample ID: QC960432,266697,1 **Date Collected: 1/7/2019 1:19:50 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960432,266697,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	280.0	280.0	9.2814	9.2866	1.5490	1:20:46 PM	Yes

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 86 **Autosampler Location: 76**
Sample ID: QC960433,266697,1 **Date Collected: 1/7/2019 1:21:24 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960433,266697,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	287.5	287.5	9.5295	9.5347	1.5600	1:22:20 PM	Yes

ENTHALPY SPIKE USER REPORT FOR 305807 METALS Soil
EPA 7470A

Type : BS
Inst : MET45
Seqnum : 389010771082.1
File : met45
IDF : 1.0
Lab ID : QC960430
Matrix : Soil
Batch : 266697
Time : 07-JAN-2019 13:16
Cal : 389010771001
Units : mg/Kg

Type : BSD
Inst : MET45
Seqnum : 389010771083.1
File : met45
IDF : 1.0
Lab ID : QC960431
Matrix : Soil
Batch : 266697
Time : 07-JAN-2019 13:17
Cal : 389010771001

BS: 0.59 g --> 50.0 ml = 84.75 ml/g PDF
BSD: 0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	Spiked	BS	%Rec	BSD	%Rec	Limits	RPD	Lim	Flags
Mercury	0.1695	0.1579	93	0.1595	94	80-120	1	20	u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 82 **Autosampler Location: 72**
Sample ID: QC960430,266697,1 **Date Collected: 1/7/2019 1:16:10 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960430,266697,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.863	1.863	0.0584	0.0636	0.0204	1:17:06 PM	Yes

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

Sequence No.: 83 **Autosampler Location: 73**
Sample ID: QC960431,266697,1 **Date Collected: 1/7/2019 1:17:23 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960431,266697,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.882	1.882	0.0590	0.0642	0.0205	1:18:19 PM	Yes

ENTHALPY BLANK USER REPORT FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 Lab ID : QC960429
Seqnum : 389010771081.1 Matrix : Soil
File : met45 Batch : 266697 Time : 07-JAN-2019 13:14
Cal : 389010771001 Caldate : 07-JAN-2019
IDF : 1.0 Units : mg/Kg

0.58 g --> 50.0 ml = 86.21 ml/g PDF

Analyte	Result	RL	Flags
Mercury	ND	0.017	u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 81 **Autosampler Location: 71**
Sample ID: QC960429,266697,1 **Date Collected: 1/7/2019 1:14:57 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960429,266697,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.026	0.026	-0.0025	0.0027	0.0009	1:15:53 PM	Yes

ENTHALPY INITIAL CALIBRATION FOR 305807 METALS Soil: EPA 7470A

Inst : MET45
Calnum : 389010771001
Units : ug/L

Date : 07-JAN-2019 11:31
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	389010771002	ICAL1	07-JAN-2019 11:32	S39373 (500X)
L2	met45	389010771003	ICAL2	07-JAN-2019 11:33	S39373 (200X)
L3	met45	389010771004	ICAL3	07-JAN-2019 11:35	S39373 (50X)
L4	met45	389010771005	ICAL4	07-JAN-2019 11:36	S39373 (20X)
L5	met45	389010771006	ICAL5	07-JAN-2019 11:37	S39373 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0095	0.0266	0.0302	0.0324	0.0329	LIN0	0.10281	30.1503		0.0263	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	-20	0.5000	1	2.0000	-4	5.0000	0	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305807 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 389010771001 Cal Date : 07-JAN-2019

ICV 389010771007 (07-JAN-2019) stds: S39375

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.126	ug/L	3	10	

==========

Analysis Begun

Logged In Analyst: mercury **Technique: AA FIMS-MHS**
Spectrometer: FIMS-100, S/N B050-9550 **Autosampler: Cetac**

Sample Information File: C:\Users\Public\PerkinElmer\AA\Data\Sample Information\010319soil.sif
Batch ID:
Results Data Set: 010719soil1
Results Library: C:\Users\Public\PerkinElmer\AA\Data\Results\Results.mdb

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: ICALBLK **Date Collected: 1/7/2019 11:31:30 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICALBLK **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.00]	0.0052	0.0052	0.0019	11:32:26 AM	Yes

Auto-zero performed.

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: ICAL, ICAL1,S39373,500 **Date Collected: 1/7/2019 11:32:43 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL1,S39373,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.2]	0.0019	0.0071	0.0027	11:33:39 AM	Yes

Standard number 1 applied. [0.2]
Correlation Coef.: 1.000000 Slope: 0.00949 Intercept: 0.00000

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: ICAL, ICAL2,S39373,200 **Date Collected: 1/7/2019 11:33:56 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL2,S39373,200 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.5]	0.0133	0.0185	0.0057	11:34:52 AM	Yes

Standard number 2 applied. [0.5]
Correlation Coef.: 0.962008 Slope: 0.02755 Intercept: -0.00135

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: ICAL, ICAL3,S39373,50 **Date Collected: 1/7/2019 11:35:09 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL3,S39373,50 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[2.0]	0.0604	0.0656	0.0208	11:36:06 AM	Yes

Standard number 3 applied. [2.0]
Correlation Coef.: 0.998029 Slope: 0.03113 Intercept: -0.00210

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: ICAL, ICAL4,S39373,20 **Date Collected: 1/7/2019 11:36:23 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL4,S39373,20 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[5.0]	0.1620	0.1672	0.0515	11:37:20 AM	Yes

Standard number 4 applied. [5.0]
Correlation Coef.: 0.999530 Slope: 0.03282 Intercept: -0.00300

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

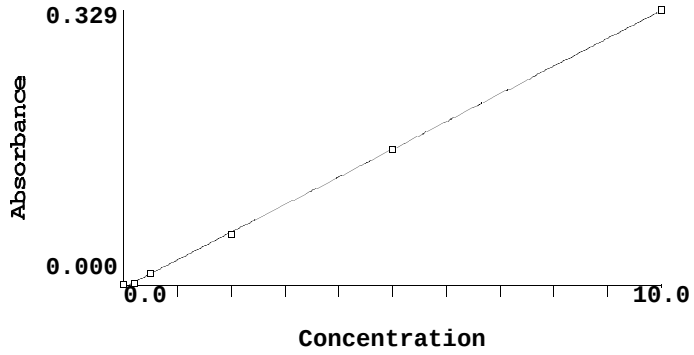
==========

Sequence No.: 6 **Autosampler Location: 6**
Sample ID: ICAL, ICAL5,S39373,10 **Date Collected: 1/7/2019 11:37:38 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL5,S39373,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[10.0]	0.3290	0.3342	0.1021	11:38:35 AM	Yes

Standard number 5 applied. [10.0]
Correlation Coef.: 0.999880 Slope: 0.03316 Intercept: -0.00340



Calibration data for Hg 253.7 **Equation: Linear, Calculated Intercept**

ID	Mean Signal (Abs)	Entered Conc. ug/L	Calculated Conc. ug/L	Standard Deviation	%RSD
ICALBLK	0.0000	0	0.102	----	----
ICAL, ICAL1,S39373,500	0.0019	0.2	0.160	----	----
ICAL, ICAL2,S39373,200	0.0133	0.5	0.504	----	----
ICAL, ICAL3,S39373,50	0.0604	2.0	1.924	----	----
ICAL, ICAL4,S39373,20	0.1620	5.0	4.988	----	----
ICAL, ICAL5,S39373,10	0.3290	10.0	10.022	----	----

Correlation Coef.: 0.999880 Slope: 0.03316 Intercept: -0.00340

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 7 **Autosampler Location: 8**
Sample ID: ICV,S39375,1 **Date Collected: 1/7/2019 11:38:53 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV,S39375,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.126	5.126	0.1666	0.1718	0.0528	11:39:51 AM	Yes

QC value within limits for Hg 253.7 Recovery = 102.52%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771008 File : met45 Time : 07-JAN-2019 11:40
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 8 **Autosampler Location: 9**
Sample ID: ICB **Date Collected: 1/7/2019 11:40:10 AM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.027	0.027	-0.0025	0.0027	0.0010	11:41:07 AM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771079 File : met45 Time : 07-JAN-2019 13:12
Cal : 389010771001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0263	0.0317	5.000	4.876	ug/L	-2	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 79 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 1:12:23 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.877	4.877	0.1583	0.1636	0.0531	1:13:21 PM	Yes

QC value within limits for Hg 253.7 Recovery = 97.54%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771080 File : met45 Time : 07-JAN-2019 13:13
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 80 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 1:13:39 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.055	0.055	-0.0016	0.0037	0.0011	1:14:37 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771091 File : met45 Time : 07-JAN-2019 13:27
Cal : 389010771001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0263	0.0321	5.000	4.939	ug/L	-1	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 91 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 1:27:55 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.938	4.938	0.1604	0.1656	0.0538	1:28:52 PM	Yes

QC value within limits for Hg 253.7 Recovery = 98.76%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771092 File : met45 Time : 07-JAN-2019 13:29
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 92 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 1:29:11 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.026	0.026	-0.0025	0.0027	0.0011	1:30:09 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771103 File : met45 Time : 07-JAN-2019 13:42
Cal : 389010771001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0263	0.0323	5.000	4.975	ug/L	0	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 103 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 1:42:46 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.974	4.974	0.1616	0.1668	0.0535	1:43:44 PM	Yes

QC value within limits for Hg 253.7 Recovery = 99.48%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010771104 File : met45 Time : 07-JAN-2019 13:44
Cal : 389010771001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 104 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 1:44:02 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.051	0.051	-0.0017	0.0035	0.0011	1:45:00 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010956

Instrument : MET45 Begun : 01/07/19 14:36
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				01/07/19 14:36	1.0		
002	met45	ICAL	ICAL1			01/07/19 14:37	1.0	1	
003	met45	ICAL	ICAL2			01/07/19 14:38	1.0	1	
004	met45	ICAL	ICAL3			01/07/19 14:39	1.0	1	
005	met45	ICAL	ICAL4			01/07/19 14:41	1.0	1	
006	met45	ICAL	ICAL5			01/07/19 14:42	1.0	1	
007	met45	ICV				01/07/19 14:43	1.0	2	
008	met45	ICB				01/07/19 14:44	1.0		
009	met45	SAMPLE	305807-005	Soil	266696	01/07/19 14:46	1.0		spk , 1:HG=450
010	met45	X	RINSE			01/07/19 14:47	1.0		
011	met45	SAMPLE	305807-005	Soil	266696	01/07/19 14:48	100.0		spk , 1:HG=82
012	met45	SAMPLE	305807-017	Soil	266696	01/07/19 14:50	1.0		spk
013	met45	SAMPLE	305807-009	Soil	266696	01/07/19 14:51	10000		spk
014	met45	SAMPLE	305807-020	Soil	266697	01/07/19 14:52	1000		1:HG=170
015	met45	XSAMPLE	305807-022	Soil	266697	01/07/19 14:54	1000		1:HG=180
016	met45	XSAMPLE	305807-023	Soil	266697	01/07/19 14:56	1000		1:HG=260
017	met45	X	RINSE2			01/07/19 14:57	1.0		
018	met45	X	RINSE			01/07/19 14:58	1.0		
019	met45	CCV				01/07/19 14:59	1.0	3	
020	met45	CCB				01/07/19 15:01	1.0		
021	met45	XSAMPLE	305807-024		266696	01/07/19 15:02	1000		
022	met45	XSAMPLE	305807-025		266696	01/07/19 15:04	1000		
023	met45	X	RINSE			01/07/19 15:05	1.0		
024	met45	XSAMPLE	305807-026		266696	01/07/19 15:06	1000		
025	met45	XSAMPLE	305787-003	Soil	266697	01/07/19 15:08	1000		
026	met45	XSAMPLE	305787-010	Soil	266697	01/07/19 15:10	1000		
027	met45	X	RINSE			01/07/19 15:11	1.0		
028	met45	SAMPLE	305807-005	Soil	266696	01/07/19 15:12	1000		spk
029	met45	XSAMPLE	305787-011	Soil	266697	01/07/19 15:13	1000		
030	met45	XSAMPLE	305787-008	Soil	266697	01/07/19 15:14	100000		
031	met45	CCV				01/07/19 15:16	1.0	3	
032	met45	CCB				01/07/19 15:17	1.0		
033	met45	XSAMPLE	305787-009	Soil	266697	01/07/19 15:18	100000		
034	met45	XSAMPLE	305787-012	Soil	266697	01/07/19 15:19	100000		
035	met45	SAMPLE	305807-017	Soil	266696	01/07/19 15:21	1.0		spk , 1:HG=10
036	met45	X	RINSE2			01/07/19 15:22	1.0		
037	met45	X	RINSE			01/07/19 15:23	1.0		
038	met45	SAMPLE	305807-017	Soil	266696	01/07/19 15:25	10.0		spk
039	met45	X	RINSE			01/07/19 15:26	1.0		
040	met45	SAMPLE	305807-020	Soil	266697	01/07/19 15:27	10000		
041	met45	SAMPLE	305807-022	Soil	266697	01/07/19 15:28	10000		1:HG=11
042	met45	X	RINSE			01/07/19 15:30	1.0		
043	met45	CCV				01/07/19 15:31	1.0	3	
044	met45	CCB				01/07/19 15:32	1.0		
045	met45	SAMPLE	305807-023	Soil	266697	01/07/19 15:33	10000		1:HG=13
046	met45	X	R			01/07/19 15:35	1.0		
047	met45	SAMPLE	305807-024	Soil	266697	01/07/19 15:36	10000		
048	met45	SAMPLE	305807-025	Soil	266697	01/07/19 15:37	10000		1:HG=13
049	met45	X	RINSE			01/07/19 15:39	1.0		
050	met45	SAMPLE	305807-026	Soil	266697	01/07/19 15:40	10000		1:HG=19
051	met45	X	RINSE			01/07/19 15:42	1.0		
052	met45	SAMPLE	305787-002	Soil	266697	01/07/19 15:43	100.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389010956

Instrument : MET45 Begun : 01/07/19 14:36
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	305787-004	Soil	266697	01/07/19 15:44	100.0		1:HG=23
054	met45	SAMPLE	305787-005	Soil	266697	01/07/19 15:46	100.0		1:HG=12
055	met45	CCV				01/07/19 15:47	1.0	3	
056	met45	CCB				01/07/19 15:49	1.0		
057	met45	SAMPLE	305787-006	Soil	266697	01/07/19 15:50	100.0		
058	met45	SAMPLE	305787-008	Soil	266697	01/07/19 15:51	100.0		
059	met45	SAMPLE	305787-010	Soil	266697	01/07/19 15:52	100.0		1:HG=16
060	met45	X	RINSE1			01/07/19 15:54	1.0		
061	met45	X	RINSE2			01/07/19 15:55	1.0		
062	met45	X	RINSE3			01/07/19 15:56	1.0		
063	met45	X	RINSE5			01/07/19 15:57	1.0		
064	met45	X	RINSE4			01/07/19 15:59	1.0		
065	met45	X	RINSE			01/07/19 16:00	1.0		
066	met45	SAMPLE	305807-022	Soil	266697	01/07/19 16:01	50000		
067	met45	CCV				01/07/19 16:02	1.0	3	
068	met45	CCB				01/07/19 16:03	1.0		
069	met45	SAMPLE	305807-023	Soil	266697	01/07/19 16:05	50000		
070	met45	SAMPLE	305807-025	Soil	266697	01/07/19 16:06	50000		
071	met45	SAMPLE	305807-026	Soil	266697	01/07/19 16:07	50000		
072	met45	SAMPLE	305787-004	Soil	266697	01/07/19 16:09	500.0		
073	met45	SAMPLE	305787-005	Soil	266697	01/07/19 16:10	500.0		
074	met45	SAMPLE	305787-010	Soil	266697	01/07/19 16:11	500.0		
075	met45	MSS	305787-001	Soil	266697	01/07/19 16:12	1000		
076	met45	SER	QC960434	Soil	266697	01/07/19 16:14	5000		
077	met45	X	RINSE1			01/07/19 16:15	1.0		
078	met45	CCV				01/07/19 16:16	1.0	3	
079	met45	CCB				01/07/19 16:17	1.0		
080	met45	SAMPLE	305787-007	Soil	266697	01/07/19 16:27	100.0		
081	met45	SAMPLE	305787-011	Soil	266697	01/07/19 16:28	1000		
082	met45	CCV				01/07/19 16:29	1.0	3	
083	met45	CCB				01/07/19 16:31	1.0		

DLC 01/07/19 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 083.

Standards used: 1=S39373 2=S39375 3=S39376

Flags used: spk=5% spike rule

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst : MET45 Lab ID : 305807-020 Client ID : RFS-MFA-EX-F1-6
Seqnum : 389010956040 Matrix : Soil Acct : TTEMI (MJD)
File : met45 Batch : 266697 Time : 07-JAN-2019 15:27
Cal : 389010956001 Caldate : 07-JAN-2019
IDF : 10000 Units : mg/Kg

0.62 g --> 50.0 ml = 80.65 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	2700	160		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 40 **Autosampler Location: 14**
Sample ID: 305807-020,266696,10000 **Date Collected: 1/7/2019 3:27:24 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-020,266696,10000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.355	3.355	0.1103	0.1159	0.0394	3:28:20 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-022	Client ID	: RFS-MFA-EX-F1-8
Seqnum	: 389010956066	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 16:01
Cal	: 389010956001	Caldate	: 07-JAN-2019		
IDF	: 50000			Units	: mg/Kg

0.63 g --> 50.0 ml = 79.37 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	9700	790		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 66 **Autosampler Location: 131**
Sample ID: 305807-022,266697,50000 **Date Collected: 1/7/2019 4:01:28 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-022,266697,50000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.440	2.440	0.0795	0.0851	0.0300	4:02:25 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-023	Client ID	: RFS-MFA-EX-F1-9
Seqnum	: 389010956069	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 16:05
Cal	: 389010956001	Caldate	: 07-JAN-2019		
IDF	: 50000			Units	: mg/Kg

0.57 g --> 50.0 ml = 87.72 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	12000	880		u

u=use

389010956069

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 69 **Autosampler Location: 132**
Sample ID: 305807-023,266697,50000 **Date Collected: 1/7/2019 4:05:16 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-023,266697,50000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.735	2.735	0.0894	0.0950	0.0331	4:06:13 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-024	Client ID	: RFS-MFA-EX-F1-10
Seqnum	: 389010956047	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 15:36
Cal	: 389010956001	Caldate	: 07-JAN-2019		
IDF	: 10000			Units	: mg/Kg

0.64 g --> 50.0 ml = 78.13 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	690	160		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 47 **Autosampler Location: 17**
Sample ID: 305807-024,266696,10000 **Date Collected: 1/7/2019 3:36:43 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-024,266696,10000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.888	0.888	0.0274	0.0329	0.0111	3:37:39 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst : MET45 Lab ID : 305807-025 Client ID : RFS-MFA-EX-G2-ELEM
Seqnum : 389010956070 Matrix : Soil Acct : TTEMI (MJD)
File : met45 Batch : 266697 Time : 07-JAN-2019 16:06
Cal : 389010956001 Caldate : 07-JAN-2019
IDF : 50000 Units : mg/Kg

0.57 g --> 50.0 ml = 87.72 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	12000	880		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 70 **Autosampler Location: 133**
Sample ID: 305807-025,266697,50000 **Date Collected: 1/7/2019 4:06:31 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-025,266697,50000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.644	2.644	0.0864	0.0919	0.0326	4:07:28 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-026	Client ID	: RFS-MFA-EX-G2-ELEM +
Seqnum	: 389010956071	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266697	Time	: 07-JAN-2019 16:07
Cal	: 389010956001	Caldate	: 07-JAN-2019		
IDF	: 50000			Units	: mg/Kg

0.61 g --> 50.0 ml = 81.97 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	16000	820		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 71 **Autosampler Location: 134**
Sample ID: 305807-026,266697,50000 **Date Collected: 1/7/2019 4:07:46 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-026,266697,50000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.964	3.964	0.1307	0.1363	0.0478	4:08:43 PM	Yes

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	as received
Field ID:	ZZZZZZZZZZ	Diln Fac:	5,000
Type:	Serial Dilution	Batch#:	266697
MSS Lab ID:	305787-001	Sampled:	12/11/18
Lab ID:	QC960434	Received:	12/12/18
Matrix:	Soil	Analyzed:	01/07/19
Units:	mg/Kg		

MSS Result	MSS RL	Result	RL	% Diff	Lim
48.12	16.95	27.51 J	84.75	NC	10

J= Estimated value
NC= Not Calculated
RL= Reporting Limit

ENTHALPY SERIAL DILUTION FOR 305807 METALS Soil
EPA 7470A

Type : MSS
Inst : MET45
Seqnum : 389010956075.1
File : met45
IDF : 1000
Lab ID : 305787-001
Matrix : Soil
Batch : 266697
Time : 07-JAN-2019 16:12
Cal : 389010956001
Units : mg/Kg

Type : SER
Inst : MET45
Seqnum : 389010956076.2
File : met45
IDF : 5000
Lab ID : QC960434
Matrix : Soil
Batch : 266697
Time : 07-JAN-2019 16:14
Cal : 389010956001

MSS: 0.59 g --> 50.0 ml = 84.75 ml/g PDF
SER: 0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	MSS	RL	SER	RL	%D	Lim	Flags
Mercury	48.12	16.95	27.51 J	84.75		10	u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 76 **Autosampler Location: 139**
Sample ID: qc960434,266697,5000 **Date Collected: 1/7/2019 4:14:00 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc960434,266697,5000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.064	0.064	-0.0003	0.0052	0.0019	4:14:57 PM	Yes

ENTHALPY INITIAL CALIBRATION FOR 305807 METALS Soil: EPA 7470A

Inst : MET45
Calnum : 389010956001
Units : ug/L

Date : 07-JAN-2019 14:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	389010956002	ICAL1	07-JAN-2019 14:37	S39373 (500X)
L2	met45	389010956003	ICAL2	07-JAN-2019 14:38	S39373 (200X)
L3	met45	389010956004	ICAL3	07-JAN-2019 14:39	S39373 (50X)
L4	met45	389010956005	ICAL4	07-JAN-2019 14:41	S39373 (20X)
L5	met45	389010956006	ICAL5	07-JAN-2019 14:42	S39373 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0255	0.0236	0.0322	0.0328	0.0334	LIN0	0.07384	29.7585		0.0295	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	13	0.5000	-15	2.0000	0	5.0000	-1	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

389010956001

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305807 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 389010956001 Cal Date : 07-JAN-2019

ICV 389010956007 (07-JAN-2019) stds: S39375

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.070	ug/L	1	10	

==========

Analysis Begun

Logged In Analyst: mercury **Technique: AA FIMS-MHS**
Spectrometer: FIMS-100, S/N B050-9550 **Autosampler: Cetac**

Sample Information File: C:\Users\Public\PerkinElmer\AA\Data\Sample Information\010319soil.sif
Batch ID:
Results Data Set: 010719soil2
Results Library: C:\Users\Public\PerkinElmer\AA\Data\Results\Results.mdb

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: ICALBLK **Date Collected: 1/7/2019 2:36:12 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICALBLK **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.00]	0.0056	0.0056	0.0021	2:37:07 PM	Yes

Auto-zero performed.

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: ICAL, ICAL1,S39373,500 **Date Collected: 1/7/2019 2:37:24 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL1,S39373,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.2]	0.0051	0.0107	0.0032	2:38:20 PM	Yes

Standard number 1 applied. [0.2]
Correlation Coef.: 1.000000 Slope: 0.02572 Intercept: 0.00000

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: ICAL, ICAL2,S39373,200 **Date Collected: 1/7/2019 2:38:37 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL2,S39373,200 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.5]	0.0118	0.0174	0.0059	2:39:33 PM	Yes

Standard number 2 applied. [0.5]
Correlation Coef.: 0.999177 Slope: 0.02352 Intercept: 0.00017

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: ICAL, ICAL3,S39373,50 **Date Collected: 1/7/2019 2:39:51 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL3,S39373,50 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[2.0]	0.0644	0.0700	0.0218	2:40:47 PM	Yes

Standard number 3 applied. [2.0]
Correlation Coef.: 0.997838 Slope: 0.03274 Intercept: -0.00177

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: ICAL, ICAL4,S39373,20 **Date Collected: 1/7/2019 2:41:05 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL4,S39373,20 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[5.0]	0.1642	0.1698	0.0532	2:42:01 PM	Yes

Standard number 4 applied. [5.0]
Correlation Coef.: 0.999687 Slope: 0.03318 Intercept: -0.00200

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

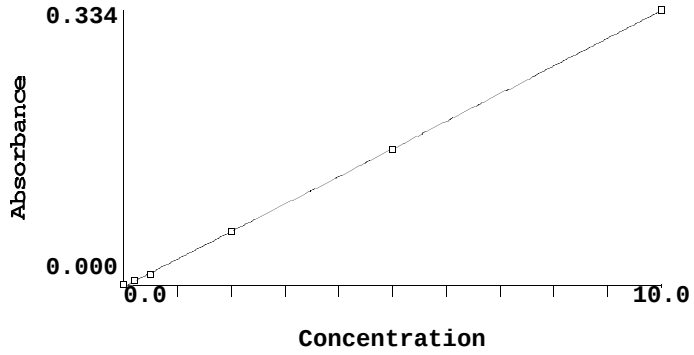
==========

Sequence No.: 6 **Autosampler Location: 6**
Sample ID: ICAL, ICAL5,S39373,10 **Date Collected: 1/7/2019 2:42:19 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL5,S39373,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[10.0]	0.3344	0.3400	0.1056	2:43:16 PM	Yes

Standard number 5 applied. [10.0]
Correlation Coef.: 0.999908 Slope: 0.03360 Intercept: -0.00248



Calibration data for Hg 253.7 **Equation: Linear, Calculated Intercept**

ID	Mean Signal (Abs)	Entered Conc. ug/L	Calculated Conc. ug/L	Standard Deviation	%RSD
ICALBLK	0.0000	0	0.074	----	----
ICAL, ICAL1,S39373,500	0.0051	0.2	0.227	----	----
ICAL, ICAL2,S39373,200	0.0118	0.5	0.425	----	----
ICAL, ICAL3,S39373,50	0.0644	2.0	1.990	----	----
ICAL, ICAL4,S39373,20	0.1642	5.0	4.959	----	----
ICAL, ICAL5,S39373,10	0.3344	10.0	10.026	----	----

Correlation Coef.: 0.999908 Slope: 0.03360 Intercept: -0.00248

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 7 **Autosampler Location: 8**
Sample ID: ICV,S39375,1 **Date Collected: 1/7/2019 2:43:35 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV,S39375,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.070	5.070	0.1679	0.1735	0.0548	2:44:32 PM	Yes

QC value within limits for Hg 253.7 Recovery = 101.40%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956008 File : met45 Time : 07-JAN-2019 14:44
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 8 **Autosampler Location: 9**
Sample ID: ICB **Date Collected: 1/7/2019 2:44:51 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.013	-0.013	-0.0029	0.0027	0.0010	2:45:49 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956031 File : met45 Time : 07-JAN-2019 15:16
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0341	5.000	5.151	ug/L	3	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 31 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 3:16:09 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.150	5.150	0.1706	0.1762	0.0555	3:17:06 PM	Yes

QC value within limits for Hg 253.7 Recovery = 102.99%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956032 File : met45 Time : 07-JAN-2019 15:17
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 32 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 3:17:25 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.072	0.072	-0.0001	0.0055	0.0020	3:18:23 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956043 File : met45 Time : 07-JAN-2019 15:31
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0340	5.000	5.133	ug/L	3	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 43 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 3:31:23 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.134	5.134	0.1700	0.1756	0.0554	3:32:21 PM	Yes

QC value within limits for Hg 253.7 Recovery = 102.67%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956044 File : met45 Time : 07-JAN-2019 15:32
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	[0.1244]	0.2000	0.1000	ug/L	!CCB

!=warning CCB=instrument blank

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 44 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 3:32:39 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.124	0.124	0.0017	0.0073	0.0021	3:33:37 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956055 File : met45 Time : 07-JAN-2019 15:47
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0347	5.000	5.243	ug/L	5	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 55 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 3:47:49 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.244	5.244	0.1737	0.1793	0.0563	3:48:46 PM	Yes

QC value within limits for Hg 253.7 Recovery = 104.87%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956056 File : met45 Time : 07-JAN-2019 15:49
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	[0.1125]	0.2000	0.1000	ug/L	!CCB

!=warning CCB=instrument blank

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 56 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 3:49:05 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.111	0.111	0.0013	0.0068	0.0021	3:50:03 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956067 File : met45 Time : 07-JAN-2019 16:02
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0341	5.000	5.145	ug/L	3	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 67 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 4:02:43 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.144	5.144	0.1704	0.1760	0.0563	4:03:40 PM	Yes

QC value within limits for Hg 253.7 Recovery = 102.88%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956068 File : met45 Time : 07-JAN-2019 16:03
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 68 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 4:03:59 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.046	0.046	-0.0009	0.0047	0.0019	4:04:57 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956078 File : met45 Time : 07-JAN-2019 16:16
Cal : 389010956001 Caldate : 07-JAN-2019
Standards: S39376

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0295	0.0339	5.000	5.115	ug/L	2	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 78 **Autosampler Location: 7**
Sample ID: CCV,S39376,1 **Date Collected: 1/7/2019 4:16:25 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39376,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.116	5.116	0.1694	0.1750	0.0557	4:17:23 PM	Yes

QC value within limits for Hg 253.7 Recovery = 102.32%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389010956079 File : met45 Time : 07-JAN-2019 16:17
Cal : 389010956001 Caldate : 07-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/7/2019 11:05:49 AM**
Method Description: MET 45

==========

Sequence No.: 79 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/7/2019 4:17:41 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.071	0.071	-0.0001	0.0055	0.0019	4:18:39 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389012396

Instrument : MET45
Method : EPA 7470A

Begun : 01/08/19 14:36
SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				01/08/19 14:36	1.0		
002	met45	ICAL	ICAL1			01/08/19 14:37	1.0	1	
003	met45	ICAL	ICAL2			01/08/19 14:38	1.0	1	
004	met45	ICAL	ICAL3			01/08/19 14:39	1.0	1	
005	met45	ICAL	ICAL4			01/08/19 14:40	1.0	1	
006	met45	ICAL	ICAL5			01/08/19 14:42	1.0	1	
007	met45	ICV				01/08/19 14:43	1.0	2	
008	met45	ICB				01/08/19 14:44	1.0		
009	met45	BLANK	QC960584	Soil	266740	01/08/19 14:45	1.0		
010	met45	BS	QC960585	Soil	266740	01/08/19 14:47	1.0		
011	met45	BSD	QC960586	Soil	266740	01/08/19 14:48	1.0		
012	met45	MSS	306113-001	Soil	266740	01/08/19 14:49	1.0		
013	met45	MS	QC960587	Soil	266740	01/08/19 14:50	1.0		
014	met45	MSD	QC960588	Soil	266740	01/08/19 14:52	1.0		
015	met45	SAMPLE	306113-002	Soil	266740	01/08/19 14:53	1.0		
016	met45	SAMPLE	306159-001	Soil	266740	01/08/19 14:54	1.0		
017	met45	SAMPLE	306159-002	Soil	266740	01/08/19 14:55	1.0		
018	met45	SAMPLE	306159-003	Soil	266740	01/08/19 14:56	1.0		
019	met45	CCV				01/08/19 14:58	1.0	3	
020	met45	CCB				01/08/19 14:59	1.0		
021	met45	SAMPLE	306159-004	Soil	266740	01/08/19 15:00	1.0		
022	met45	SAMPLE	306160-001	Soil	266740	01/08/19 15:02	1.0		
023	met45	SAMPLE	306164-001	Soil	266740	01/08/19 15:03	1.0		
024	met45	SAMPLE	306191-001	Soil	266740	01/08/19 15:04	1.0		
025	met45	SAMPLE	306197-001	Soil	266740	01/08/19 15:05	1.0		
026	met45	SAMPLE	306203-001	Soil	266740	01/08/19 15:06	1.0		
027	met45	SAMPLE	306213-001	Miscell.	266740	01/08/19 15:08	1.0		1:HG=12
028	met45	SAMPLE	306213-002	Miscell.	266740	01/08/19 15:09	1.0		
029	met45	X	R			01/08/19 15:10	1.0		
030	met45	SAMPLE	306213-002	Miscell.	266740	01/08/19 15:12	1.0		
031	met45	CCV				01/08/19 15:13	1.0	3	
032	met45	CCB				01/08/19 15:14	1.0		
033	met45	SAMPLE	306213-001	Miscell.	266740	01/08/19 15:15	5.0		
034	met45	SAMPLE	306213-003	Miscell.	266740	01/08/19 15:17	1.0		
035	met45	SAMPLE	306219-006	Soil	266740	01/08/19 15:18	1.0		
036	met45	SAMPLE	306226-001	Miscell.	266740	01/08/19 15:19	1.0		
037	met45	SAMPLE	306231-001	Soil	266740	01/08/19 15:20	1.0		
038	met45	SAMPLE	306234-001	Soil	266740	01/08/19 15:22	1.0		
039	met45	X	RINSE			01/08/19 15:23	1.0		
040	met45	BLANK	QC960561	Soil	266733	01/08/19 15:24	1.0		
041	met45	BS	QC960562	Soil	266733	01/08/19 15:25	1.0		
042	met45	BSD	QC960563	Soil	266733	01/08/19 15:26	1.0		
043	met45	CCV				01/08/19 15:28	1.0	3	
044	met45	CCB				01/08/19 15:29	1.0		
045	met45	BLANK	QC960561	Soil	266733	01/08/19 15:30	1.0		
046	met45	MSS	305807-001	Soil	266733	01/08/19 15:31	10000		
047	met45	MS	QC960564	Soil	266733	01/08/19 15:33	10000		1:HG=10
048	met45	MSD	QC960565	Soil	266733	01/08/19 15:34	10000		
049	met45	SER	QC960566	Soil	266733	01/08/19 15:35	50000		
050	met45	SAMPLE	305807-002	Soil	266733	01/08/19 15:37	10000		
051	met45	SAMPLE	305807-003	Soil	266733	01/08/19 15:38	500.0		1:HG=33
052	met45	X	RINSE			01/08/19 15:39	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389012396

Instrument : MET45 Begun : 01/08/19 14:36
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	305807-004	Soil	266733	01/08/19 15:41	100.0		
054	met45	SAMPLE	305807-005	Soil	266733	01/08/19 15:42	1000		
055	met45	CCV				01/08/19 15:43	1.0	3	
056	met45	CCB				01/08/19 15:44	1.0		
057	met45	SAMPLE	305807-006	Soil	266733	01/08/19 15:46	50000		
058	met45	SAMPLE	305807-007	Soil	266733	01/08/19 15:47	10000		
059	met45	SAMPLE	305807-008	Soil	266733	01/08/19 15:48	1000		
060	met45	SAMPLE	305807-009	Soil	266733	01/08/19 15:49	10000		
061	met45	SAMPLE	305807-010	Soil	266733	01/08/19 15:51	1000		1:HG=17
062	met45	SAMPLE	305807-011	Soil	266733	01/08/19 15:52	10000		
063	met45	SAMPLE	305807-012	Soil	266733	01/08/19 15:53	10000		
064	met45	SAMPLE	305807-013	Soil	266733	01/08/19 15:55	10000		
065	met45	SAMPLE	305807-014	Soil	266733	01/08/19 15:56	10000		
066	met45	SAMPLE	305807-015	Soil	266733	01/08/19 15:57	100.0		
067	met45	CCV				01/08/19 15:58	1.0	3	
068	met45	CCB				01/08/19 16:00	1.0		
069	met45	SAMPLE	305807-016	Soil	266733	01/08/19 16:01	100.0		
070	met45	SAMPLE	305807-017	Soil	266733	01/08/19 16:02	10.0		
071	met45	SAMPLE	305807-018	Soil	266733	01/08/19 16:03	100.0		
072	met45	SAMPLE	305807-019	Soil	266733	01/08/19 16:05	100.0		1:HG=14
073	met45	X	RINSE			01/08/19 16:06	1.0		
074	met45	SAMPLE	305807-010	Soil	266733	01/08/19 16:07	5000		
075	met45	SAMPLE	305807-019	Soil	266733	01/08/19 16:09	500.0		
076	met45	SAMPLE	305807-011	Soil	266733	01/08/19 16:10	10000		
077	met45	SAMPLE	305807-003	Soil	266733	01/08/19 16:11	1000		1:HG=18
078	met45	X	RINSE			01/08/19 16:13	1.0		
079	met45	CCV				01/08/19 16:14	1.0	3	
080	met45	CCB				01/08/19 16:15	1.0		
081	met45	SAMPLE	305807-006	Soil	266733	01/08/19 16:16	10000		
082	met45	X	RINSE			01/08/19 16:18	1.0		
083	met45	SAMPLE	305807-003	Soil	266733	01/08/19 16:19	5000		
084	met45	X	RINSE			01/08/19 16:20	1.0		
085	met45	CCV				01/08/19 16:21	1.0	3	
086	met45	CCB				01/08/19 16:22	1.0		

SL 01/08/19 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 56.

Standards used: 1=S39396 2=S39398 3=S39399

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-001	Client ID	: RFS-MFA-EX-G2-5
Seqnum	: 389012396046	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 15:31
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 10000			Units	: mg/Kg

0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	5300	170	**0.028**	B u

B=method blank contamination u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

Sequence No.: 46 **Autosampler Location: 74**
Sample ID: 305807-001,266733,10000 **Date Collected: 1/8/2019 3:31:52 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-001,266733,10000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	6.241	6.241	0.1747	0.1767	0.0645	3:32:48 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-002	Client ID	: RFS-MFA-EX-G2-6
Seqnum	: 389012396050	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 15:37
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 10000			Units	: mg/Kg

0.61 g --> 50.0 ml = 81.97 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	1900	160	**0.028**	B u

B=method blank contamination u=use

389012396050

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 50 **Autosampler Location: 78**
Sample ID: 305807-002,266733,10000 **Date Collected: 1/8/2019 3:37:07 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-002,266733,10000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.304	2.304	0.0645	0.0665	0.0242	3:38:03 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-003	Client ID	: RFS-MFA-EX-G2-7
Seqnum	: 389012396083	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 16:19
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 5000			Units	: mg/Kg

0.65 g --> 50.0 ml = 76.92 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	1300	77	**0.028**	B u

B=method blank contamination u=use

389012396083

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 83 **Autosampler Location: 79**
Sample ID: 305807-003,266733,500 **Date Collected: 1/8/2019 4:19:16 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-003,266733,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.347	3.347	0.0937	0.0957	0.0359	4:20:12 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-004	Client ID	: RFS-MFA-EX-G3-1
Seqnum	: 389012396053	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 15:41
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 100.0			Units	: mg/Kg

0.57 g --> 50.0 ml = 87.72 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	35	1.8	**0.028**	B u

B=method blank contamination u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 53 **Autosampler Location: 80**
Sample ID: 305807-004,266733,100 **Date Collected: 1/8/2019 3:41:06 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-004,266733,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.030	4.030	0.1128	0.1148	0.0427	3:42:03 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-005	Client ID	: RFS-MFA-EX-G3-2
Seqnum	: 389012396054	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 15:42
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 1000			Units	: mg/Kg

0.61 g --> 50.0 ml = 81.97 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	710	16	**0.028**	B u

B=method blank contamination u=use

389012396054

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 54 **Autosampler Location: 81**
Sample ID: 305807-005,266733,1000 **Date Collected: 1/8/2019 3:42:21 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-005,266733,1000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	8.617	8.617	0.2412	0.2433	0.0892	3:43:17 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-006	Client ID	: RFS-MFA-EX-G3-3
Seqnum	: 389012396081	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 16:16
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 10000			Units	: mg/Kg

0.62 g --> 50.0 ml = 80.65 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	7700	160	**0.028**	B u

B=method blank contamination u=use

389012396081

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 81 **Autosampler Location: 82**
Sample ID: 305807-006,266733,10000 **Date Collected: 1/8/2019 4:16:50 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-006,266733,10000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	9.515	9.515	0.2664	0.2684	0.0984	4:17:47 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-007	Client ID	: RFS-MFA-EX-G3-4
Seqnum	: 389012396058	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 15:47
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 10000			Units	: mg/Kg

0.60 g --> 50.0 ml = 83.33 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	2700	170	**0.028**	B u

B=method blank contamination u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 58 **Autosampler Location: 83**
Sample ID: 305807-007,266733,10000 **Date Collected: 1/8/2019 3:47:24 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-007,266733,10000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.268	3.268	0.0915	0.0935	0.0345	3:48:20 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-008	Client ID	: RFS-MFA-EX-G4-1
Seqnum	: 389012396059	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 15:48
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 1000			Units	: mg/Kg

0.60 g --> 50.0 ml = 83.33 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	630	17	**0.028**	B u

B=method blank contamination u=use

389012396059

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 59 **Autosampler Location: 84**
Sample ID: 305807-008,266733,1000 **Date Collected: 1/8/2019 3:48:37 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-008,266733,1000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	7.518	7.518	0.2104	0.2125	0.0775	3:49:33 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-009	Client ID	: RFS-MFA-EX-G4-2
Seqnum	: 389012396060	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 15:49
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 10000			Units	: mg/Kg

0.62 g --> 50.0 ml = 80.65 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	1200	160	**0.028**	B u

B=method blank contamination u=use

389012396060

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

Sequence No.: 60 **Autosampler Location: 85**
Sample ID: 305807-009,266733,10000 **Date Collected: 1/8/2019 3:49:51 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-009,266733,10000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.523	1.523	0.0426	0.0446	0.0163	3:50:47 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-010	Client ID	: RFS-MFA-EX-G4-3
Seqnum	: 389012396074	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 16:07
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 5000			Units	: mg/Kg

0.64 g --> 50.0 ml = 78.13 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	1400	78	**0.028**	B u

B=method blank contamination u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

Sequence No.: 74 **Autosampler Location: 86**
Sample ID: 305807-010,266733,5000 **Date Collected: 1/8/2019 4:07:51 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-010,266733,5000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.472	3.472	0.0972	0.0992	0.0365	4:08:47 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-011	Client ID	: RFS-MFA-EX-G5-1
Seqnum	: 389012396076	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 16:10
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 10000			Units	: mg/Kg

0.58 g --> 50.0 ml = 86.21 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	1800	170	**0.028**	B u

B=method blank contamination u=use

389012396076

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 76 **Autosampler Location: 87**
Sample ID: 305807-011,266733,10000 **Date Collected: 1/8/2019 4:10:18 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-011,266733,10000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.126	2.126	0.0595	0.0615	0.0228	4:11:14 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-012	Client ID	: RFS-MFA-EX-G5-2
Seqnum	: 389012396063	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 15:53
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 10000			Units	: mg/Kg

0.61 g --> 50.0 ml = 81.97 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	1100	160	**0.028**	B u

B=method blank contamination u=use

389012396063

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 63 **Autosampler Location: 88**
Sample ID: 305807-012,266733,10000 **Date Collected: 1/8/2019 3:53:53 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-012,266733,10000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.388	1.388	0.0388	0.0409	0.0151	3:54:49 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-013	Client ID	: RFS-MFA-EX-G5-3
Seqnum	: 389012396064	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 15:55
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 10000			Units	: mg/Kg

0.60 g --> 50.0 ml = 83.33 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	1100	170	**0.028**	B u

B=method blank contamination u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 64 **Autosampler Location: 89**
Sample ID: 305807-013,266733,10000 **Date Collected: 1/8/2019 3:55:06 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-013,266733,10000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.348	1.348	0.0377	0.0397	0.0145	3:56:03 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-014	Client ID	: RFS-MFA-EX-G5-4
Seqnum	: 389012396065	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 15:56
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 10000			Units	: mg/Kg

0.58 g --> 50.0 ml = 86.21 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	2300	170	**0.028**	B u

B=method blank contamination u=use

389012396065

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 65 **Autosampler Location: 90**
Sample ID: 305807-014,266733,10000 **Date Collected: 1/8/2019 3:56:20 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-014,266733,10000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.715	2.715	0.0760	0.0780	0.0289	3:57:16 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-015	Client ID	: RFS-MFA-EX-E1-4
Seqnum	: 389012396066	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 15:57
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 100.0			Units	: mg/Kg

0.60 g --> 50.0 ml = 83.33 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	4.4	1.7	**0.028**	B u

B=method blank contamination u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 66 **Autosampler Location: 91**
Sample ID: 305807-015,266733,100 **Date Collected: 1/8/2019 3:57:34 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-015,266733,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.524	0.524	0.0146	0.0167	0.0060	3:58:30 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-016	Client ID	: RFS-MFA-EX-E1-5
Seqnum	: 389012396069	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 16:01
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 100.0			Units	: mg/Kg

0.56 g --> 50.0 ml = 89.29 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	4.1	1.8	**0.028**	B u

B=method blank contamination u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

Sequence No.: 69 **Autosampler Location: 92**
Sample ID: 305807-016,266733,100 **Date Collected: 1/8/2019 4:01:21 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-016,266733,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.458	0.458	0.0128	0.0148	0.0055	4:02:17 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-017	Client ID	: RFS-MFA-EX-D1-4
Seqnum	: 389012396070	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 16:02
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 10.0			Units	: mg/Kg

0.60 g --> 50.0 ml = 83.33 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.80	0.17	**0.028**	B u

B=method blank contamination u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

Sequence No.: 70 **Autosampler Location: 93**
Sample ID: 305807-017,266733,10 **Date Collected: 1/8/2019 4:02:35 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-017,266733,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.963	0.963	0.0269	0.0290	0.0107	4:03:32 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-019	Client ID	: RFS-MFA-EX-F1-5
Seqnum	: 389012396075	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 16:09
Cal	: 389012396001	Caldate	: 08-JAN-2019		
IDF	: 500.0			Units	: mg/Kg

0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	150	8.5	**0.028**	B u

B=method blank contamination u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 75 **Autosampler Location: 95**
Sample ID: 305807-019,266733,500 **Date Collected: 1/8/2019 4:09:04 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-019,266733,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.527	3.527	0.0987	0.1007	0.0370	4:10:00 PM	Yes

ENTHALPY SPIKE USER REPORT FOR 305807 METALS Soil
EPA 7470A

Type	: MSS	Type	: MS	Type	: MSD
Inst	: MET45	Inst	: MET45	Inst	: MET45
Seqnum	: 389012396046	Seqnum	: 389012396047.1	Seqnum	: 389012396048.1
File	: met45	File	: met45	File	: met45
IDF	: 10000	IDF	: 10000	IDF	: 10000
Lab ID	: 305807-001	Lab ID	: QC960564	Lab ID	: QC960565
Matrix	: Soil	Matrix	: Soil	Matrix	: Soil
Batch	: 266733	Batch	: 266733	Batch	: 266733
Time	: 08-JAN-2019 15:31	Time	: 08-JAN-2019 15:33	Time	: 08-JAN-2019 15:34
Cal	: 389012396001	Cal	: 389012396001	Cal	: 389012396001
Units	: mg/Kg				

MSS: 0.59 g --> 50.0 ml = 84.75 ml/g PDF
 MS: 0.65 g --> 50.0 ml = 76.92 ml/g PDF
MSD: 0.56 g --> 50.0 ml = 89.29 ml/g PDF

Analyte	MSS	Spiked	MS	%Rec	Spiked	MSD	%Rec	Limits	RPD	Lim	Flags
Mercury	5290	0.1538	**7909 >LR**	NM	0.1786	2310	DO	80-120		20	: >LR u

:=recovery not meaningful >LR=overrange u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 47 **Autosampler Location: 75**
Sample ID: QC960564,266733,1 **Date Collected: 1/8/2019 3:33:05 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960564,266733,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	10.28	10.28	0.2878	0.2898	0.1051	3:34:01 PM	Yes

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 48 **Autosampler Location: 76**
Sample ID: QC960565,266733,1 **Date Collected: 1/8/2019 3:34:40 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960565,266733,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.588	2.588	0.0724	0.0745	0.0274	3:35:36 PM	Yes

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	dry
Field ID:	RFS-MFA-EX-G2-5	Diln Fac:	50,000
Type:	Serial Dilution	Batch#:	266733
MSS Lab ID:	305807-001	Sampled:	12/12/18
Lab ID:	QC960566	Received:	12/13/18
Matrix:	Soil	Analyzed:	01/08/19
Units:	mg/Kg		

MSS Result	MSS RL	Result	RL	Moisture %	Diff	Lim
6,530	209.2	6,024	1,046	19%	8	10

RL= Reporting Limit

ENTHALPY SERIAL DILUTION FOR 305807 METALS Soil
EPA 7470A

Type : MSS
Inst : MET45
Seqnum : 389012396046
File : met45
IDF : 10000
Lab ID : 305807-001
Matrix : Soil
Batch : 266733
Time : 08-JAN-2019 15:31
Cal : 389012396001
Units : mg/Kg

Type : SER
Inst : MET45
Seqnum : 389012396049.1
File : met45
IDF : 50000
Lab ID : QC960566
Matrix : Soil
Batch : 266733
Time : 08-JAN-2019 15:35
Cal : 389012396001

MSS: 0.59 g --> 50.0 ml = 84.75 ml/g PDF
SER: 0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	MSS	RL	SER	RL	%D	Lim	Flags
Mercury	5290	169.5	4879	847.5	8	10	u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

Sequence No.: 49 **Autosampler Location: 77**
Sample ID: QC960566,266733,50000 **Date Collected: 1/8/2019 3:35:53 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960566,266733,50000 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.151	1.151	0.0322	0.0342	0.0129	3:36:49 PM	Yes

ENTHALPY SPIKE USER REPORT FOR 305807 METALS Soil
EPA 7470A

Type : BS
Inst : MET45
Seqnum : 389012396041.1
File : met45
IDF : 1.0
Lab ID : QC960562
Matrix : Soil
Batch : 266733
Time : 08-JAN-2019 15:25
Cal : 389012396001
Units : mg/Kg

Type : BSD
Inst : MET45
Seqnum : 389012396042.1
File : met45
IDF : 1.0
Lab ID : QC960563
Matrix : Soil
Batch : 266733
Time : 08-JAN-2019 15:26
Cal : 389012396001

BS: 0.61 g --> 50.0 ml = 81.97 ml/g PDF
BSD: 0.60 g --> 50.0 ml = 83.33 ml/g PDF

Analyte	Spiked	BS	%Rec	Spiked	BSD	%Rec	Limits	RPD	Lim	Flags
Mercury	0.1639	0.1720	105	0.1667	0.1805	108	80-120	3	20	u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

Sequence No.: 41 **Autosampler Location: 72**
Sample ID: QC960562,266733,1 **Date Collected: 1/8/2019 3:25:39 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960562,266733,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.099	2.099	0.0587	0.0608	0.0201	3:26:35 PM	Yes

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

Sequence No.: 42 **Autosampler Location: 73**
Sample ID: QC960563,266733,1 **Date Collected: 1/8/2019 3:26:52 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960563,266733,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.166	2.166	0.0606	0.0626	0.0209	3:27:48 PM	Yes

ENTHALPY BLANK USER REPORT FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 Lab ID : QC960561
Seqnum : 389012396040.1 Matrix : Soil
File : met45 Batch : 266733 Time : 08-JAN-2019 15:24
Cal : 389012396001 Caldate : 08-JAN-2019
IDF : 1.0 Units : mg/Kg

0.57 g --> 50.0 ml = 87.72 ml/g PDF

Analyte	Result	RL	Flags
Mercury	0.028	0.018	B u **b***

B=method blank contamination b=noncompliant u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

Sequence No.: 40 **Autosampler Location: 71**
Sample ID: QC960561,266733,1 **Date Collected: 1/8/2019 3:24:26 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960561,266733,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.319	0.319	0.0089	0.0109	0.0039	3:25:22 PM	Yes

ENTHALPY INITIAL CALIBRATION FOR 305807 METALS Soil: EPA 7470A

Inst : MET45
Calnum : 389012396001
Units : ug/L

Date : 08-JAN-2019 14:36
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	389012396002	ICAL1	08-JAN-2019 14:37	S39396 (500X)
L2	met45	389012396003	ICAL2	08-JAN-2019 14:38	S39396 (200X)
L3	met45	389012396004	ICAL3	08-JAN-2019 14:39	S39396 (50X)
L4	met45	389012396005	ICAL4	08-JAN-2019 14:40	S39396 (20X)
L5	met45	389012396006	ICAL5	08-JAN-2019 14:42	S39396 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0290	0.0260	0.0283	0.0280	0.0280	LIN0	0.00127	35.7205		0.0279	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	4	0.5000	-7	2.0000	1	5.0000	0	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305807 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 389012396001 Cal Date : 08-JAN-2019

ICV 389012396007 (08-JAN-2019) stds: S39398

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.006	ug/L	0	10	

==========

Analysis Begun

Logged In Analyst: mercury **Technique: AA FIMS-MHS**
Spectrometer: FIMS-100, S/N B050-9550 **Autosampler: Cetac**

Sample Information File: C:\Users\Public\PerkinElmer\AA\Data\Sample Information\010319soil.sif
Batch ID:
Results Data Set: 010819soil1
Results Library: C:\Users\Public\PerkinElmer\AA\Data\Results\Results.mdb

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: ICALBLK **Date Collected: 1/8/2019 2:36:00 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICALBLK **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.00]	0.0020	0.0020	0.0007	2:36:56 PM	Yes

Auto-zero performed.

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: ICAL, ICAL1,S39396,500 **Date Collected: 1/8/2019 2:37:13 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL1,S39396,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.2]	0.0058	0.0079	0.0026	2:38:08 PM	Yes

Standard number 1 applied. [0.2]
Correlation Coef.: 1.000000 Slope: 0.02906 Intercept: 0.00000

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: ICAL, ICAL2,S39396,200 **Date Collected: 1/8/2019 2:38:26 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL2,S39396,200 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.5]	0.0130	0.0150	0.0053	2:39:22 PM	Yes

Standard number 2 applied. [0.5]
Correlation Coef.: 0.998504 Slope: 0.02580 Intercept: 0.00024

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: ICAL, ICAL3,S39396,50 **Date Collected: 1/8/2019 2:39:39 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL3,S39396,50 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[2.0]	0.0566	0.0586	0.0192	2:40:36 PM	Yes

Standard number 3 applied. [2.0]
Correlation Coef.: 0.999719 Slope: 0.02834 Intercept: -0.00029

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: ICAL, ICAL4,S39396,20 **Date Collected: 1/8/2019 2:40:53 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL4,S39396,20 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[5.0]	0.1402	0.1422	0.0465	2:41:50 PM	Yes

Standard number 4 applied. [5.0]
Correlation Coef.: 0.999954 Slope: 0.02810 Intercept: -0.00016

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

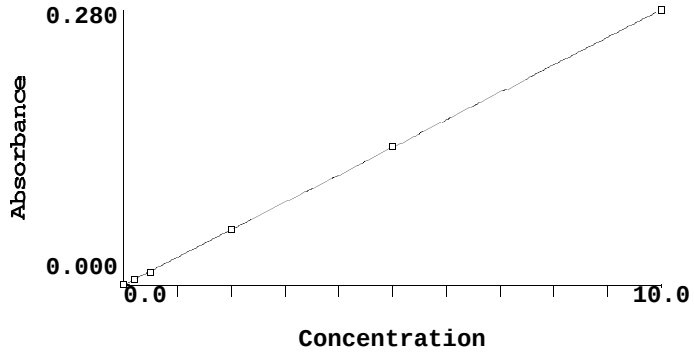
==========

Sequence No.: 6 **Autosampler Location: 6**
Sample ID: ICAL, ICAL5,S39396,10 **Date Collected: 1/8/2019 2:42:08 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL5,S39396,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[10.0]	0.2797	0.2818	0.0905	2:43:05 PM	Yes

Standard number 5 applied. [10.0]
Correlation Coef.: 0.999988 Slope: 0.02800 Intercept: -0.00005



Calibration data for Hg 253.7 **Equation: Linear, Calculated Intercept**

ID	Mean Signal (Abs)	Entered Conc. ug/L	Calculated Conc. ug/L	Standard Deviation	%RSD
ICALBLK	0.0000	0	0.002	----	----
ICAL, ICAL1,S39396,500	0.0058	0.2	0.209	----	----
ICAL, ICAL2,S39396,200	0.0130	0.5	0.465	----	----
ICAL, ICAL3,S39396,50	0.0566	2.0	2.022	----	----
ICAL, ICAL4,S39396,20	0.1402	5.0	5.009	----	----
ICAL, ICAL5,S39396,10	0.2797	10.0	9.993	----	----

Correlation Coef.: 0.999988 Slope: 0.02800 Intercept: -0.00005

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 7 **Autosampler Location: 8**
Sample ID: ICV,S39398,1 **Date Collected: 1/8/2019 2:43:23 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV,S39398,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.005	5.005	0.1401	0.1421	0.0464	2:44:21 PM	Yes

QC value within limits for Hg 253.7 Recovery = 100.10%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396008 File : met45 Time : 08-JAN-2019 14:44
Cal : 389012396001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 8 **Autosampler Location: 9**
Sample ID: ICB **Date Collected: 1/8/2019 2:44:40 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.006	0.006	0.0001	0.0022	0.0008	2:45:37 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396031 File : met45 Time : 08-JAN-2019 15:13
Cal : 389012396001 Caldate : 08-JAN-2019
Standards: S39399

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0279	0.0266	5.000	4.759	ug/L	-5	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 31 **Autosampler Location: 7**
Sample ID: CCV,S39399,1 **Date Collected: 1/8/2019 3:13:18 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39399,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.761	4.761	0.1332	0.1353	0.0453	3:14:15 PM	Yes

QC value within limits for Hg 253.7 Recovery = 95.21%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396032 File : met45 Time : 08-JAN-2019 15:14
Cal : 389012396001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 32 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/8/2019 3:14:33 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.041	-0.041	-0.0012	0.0009	0.0007	3:15:31 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396043 File : met45 Time : 08-JAN-2019 15:28
Cal : 389012396001 Caldate : 08-JAN-2019
Standards: S39399

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0279	0.0271	5.000	4.841	ug/L	-3	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 43 **Autosampler Location: 7**
Sample ID: CCV,S39399,1 **Date Collected: 1/8/2019 3:28:05 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39399,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.842	4.842	0.1355	0.1376	0.0451	3:29:03 PM	Yes

QC value within limits for Hg 253.7 Recovery = 96.83%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396044 File : met45 Time : 08-JAN-2019 15:29
Cal : 389012396001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 44 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/8/2019 3:29:21 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.027	-0.027	-0.0008	0.0012	0.0007	3:30:19 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396055 File : met45 Time : 08-JAN-2019 15:43
Cal : 389012396001 Caldate : 08-JAN-2019
Standards: S39399

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0279	0.0268	5.000	4.788	ug/L	-4	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 55 **Autosampler Location: 7**
Sample ID: CCV,S39399,1 **Date Collected: 1/8/2019 3:43:35 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39399,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.787	4.787	0.1340	0.1360	0.0450	3:44:33 PM	Yes

QC value within limits for Hg 253.7 Recovery = 95.74%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396056 File : met45 Time : 08-JAN-2019 15:44
Cal : 389012396001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 56 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/8/2019 3:44:51 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.031	-0.031	-0.0009	0.0011	0.0007	3:45:49 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396067 File : met45 Time : 08-JAN-2019 15:58
Cal : 389012396001 Caldate : 08-JAN-2019
Standards: S39399

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0279	0.0270	5.000	4.827	ug/L	-3	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 67 **Autosampler Location: 7**
Sample ID: CCV,S39399,1 **Date Collected: 1/8/2019 3:58:48 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39399,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.825	4.825	0.1351	0.1371	0.0447	3:59:45 PM	Yes

QC value within limits for Hg 253.7 Recovery = 96.50%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396068 File : met45 Time : 08-JAN-2019 16:00
Cal : 389012396001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 68 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/8/2019 4:00:03 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.030	-0.030	-0.0009	0.0012	0.0007	4:01:01 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396079 File : met45 Time : 08-JAN-2019 16:14
Cal : 389012396001 Caldate : 08-JAN-2019
Standards: S39399

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0279	0.0266	5.000	4.756	ug/L	-5	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 79 **Autosampler Location: 7**
Sample ID: CCV,S39399,1 **Date Collected: 1/8/2019 4:14:17 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39399,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.755	4.755	0.1331	0.1351	0.0450	4:15:14 PM	Yes

QC value within limits for Hg 253.7 Recovery = 95.09%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396080 File : met45 Time : 08-JAN-2019 16:15
Cal : 389012396001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 80 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/8/2019 4:15:33 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.008	-0.008	-0.0003	0.0018	0.0008	4:16:31 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396085 File : met45 Time : 08-JAN-2019 16:21
Cal : 389012396001 Caldate : 08-JAN-2019
Standards: S39399

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0279	0.0266	5.000	4.749	ug/L	-5	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 85 **Autosampler Location: 7**
Sample ID: CCV,S39399,1 **Date Collected: 1/8/2019 4:21:40 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39399,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.749	4.749	0.1329	0.1350	0.0447	4:22:37 PM	Yes

QC value within limits for Hg 253.7 Recovery = 94.98%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012396086 File : met45 Time : 08-JAN-2019 16:22
Cal : 389012396001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 86 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/8/2019 4:22:56 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.025	-0.025	-0.0007	0.0013	0.0006	4:23:54 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389012521

Instrument : MET45 Begun : 01/08/19 16:41
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				01/08/19 16:41	1.0		
002	met45	ICAL	ICAL1			01/08/19 16:43	1.0	1	
003	met45	ICAL	ICAL2			01/08/19 16:44	1.0	1	
004	met45	ICAL	ICAL3			01/08/19 16:45	1.0	1	
005	met45	ICAL	ICAL4			01/08/19 16:46	1.0	1	
006	met45	ICAL	ICAL5			01/08/19 16:48	1.0	1	
007	met45	ICV				01/08/19 16:49	1.0	2	
008	met45	ICB				01/08/19 16:50	1.0		
009	met45	SAMPLE	305807-018	Soil	266733	01/08/19 16:51	1.0		
010	met45	X	RINSE			01/08/19 16:53	1.0		
011	met45	CCV				01/08/19 16:54	1.0	3	
012	met45	CCB				01/08/19 16:55	1.0		

KER 01/08/19 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 1 through 12.

Standards used: 1=S39396 2=S39398 3=S39399

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-018	Client ID	: RFS-MFA-EX-D1-5
Seqnum	: 389012521009	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266733	Time	: 08-JAN-2019 16:51
Cal	: 389012521001	Caldate	: 08-JAN-2019		
IDF	: 1.0			Units	: mg/Kg

0.56 g --> 50.0 ml = 89.29 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.77	0.018	**0.028**	B u

B=method blank contamination u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 9 **Autosampler Location: 94**
Sample ID: 305807-018,266733,1 **Date Collected: 1/8/2019 4:51:48 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-018,266733,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	8.653	8.653	0.2513	0.2529	0.0865	4:52:45 PM	Yes

ENTHALPY INITIAL CALIBRATION FOR 305807 METALS Soil: EPA 7470A

Inst : MET45
Calnum : 389012521001
Units : ug/L

Date : 08-JAN-2019 16:41
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	389012521002	ICAL1	08-JAN-2019 16:43	S39396 (500X)
L2	met45	389012521003	ICAL2	08-JAN-2019 16:44	S39396 (200X)
L3	met45	389012521004	ICAL3	08-JAN-2019 16:45	S39396 (50X)
L4	met45	389012521005	ICAL4	08-JAN-2019 16:46	S39396 (20X)
L5	met45	389012521006	ICAL5	08-JAN-2019 16:48	S39396 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0340	0.0304	0.0299	0.0295	0.0289	LIN0	-0.0381	34.5848		0.0305	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	-1	0.5000	-2	2.0000	1	5.0000	1	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

389012521001

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305807 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 389012521001 Cal Date : 08-JAN-2019

ICV 389012521007 (08-JAN-2019) stds: S39398

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.056	ug/L	1	10	

==========

Reprocessing Begun
Logged In Analyst: mercury **Technique: AA FIMS-MHS**

Results Data Set (original): 010819soil2
Results Library (original): C:\Users\Public\PerkinElmer\AA\Data\Results\Results.mdb
Results Data Set (reprocessed):
Results Library (reprocessed):

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: ICALBLK **Date Collected: 1/8/2019 4:41:56 PM**
Analyst: **Data Type: Reprocessed on 1/8/2019 4:49:48 PM**
Logged In Analyst (Original) : mercury
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICALBLK **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.00]	-0.0034	0.0016	0.0008	4:42:51 PM	No

Auto-zero performed.

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: ICAL, ICAL1,S39396,500 **Date Collected: 1/8/2019 4:43:08 PM**
Analyst: **Data Type: Reprocessed on 1/8/2019 4:49:48 PM**
Logged In Analyst (Original) : mercury
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL1,S39396,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.2]	0.0068	0.0085	0.0029	4:44:03 PM	No

Standard number 1 applied. [0.2]
Correlation Coef.: 0.999478 Slope: 0.03018 Intercept: 0.00168

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: ICAL, ICAL2,S39396,200 **Date Collected: 1/8/2019 4:44:21 PM**
Analyst: **Data Type: Reprocessed on 1/8/2019 4:49:49 PM**
Logged In Analyst (Original) : mercury
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL2,S39396,200 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.5]	0.0152	0.0168	0.0057	4:45:16 PM	No

Standard number 2 applied. [0.5]
Correlation Coef.: 0.999565 Slope: 0.03011 Intercept: 0.00224

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: ICAL, ICAL3,S39396,50 **Date Collected: 1/8/2019 4:45:34 PM**
Analyst: **Data Type: Reprocessed on 1/8/2019 4:49:49 PM**
Logged In Analyst (Original) : mercury
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL3,S39396,50 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[2.0]	0.0597	0.0613	0.0211	4:46:30 PM	No

Standard number 3 applied. [2.0]
Correlation Coef.: 0.999684 Slope: 0.03020 Intercept: 0.00086

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: ICAL, ICAL4,S39396,20 **Date Collected: 1/8/2019 4:46:48 PM**
Analyst: **Data Type: Reprocessed on 1/8/2019 4:49:49 PM**
Logged In Analyst (Original) : mercury
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL4,S39396,20 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[5.0]	0.1475	0.1491	0.0507	4:47:45 PM	No

Standard number 4 applied. [5.0]
Correlation Coef.: 0.999954 Slope: 0.02993 Intercept: -0.00004

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

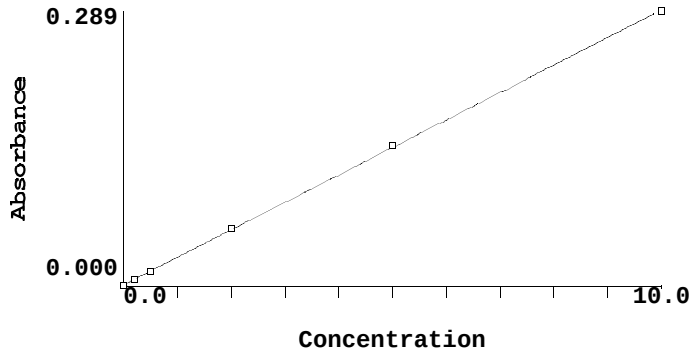
==========

Sequence No.: 6 **Autosampler Location: 6**
Sample ID: ICAL, ICAL5,S39396,10 **Date Collected: 1/8/2019 4:48:03 PM**
Analyst: **Data Type: Reprocessed on 1/8/2019 4:49:49 PM**
Logged In Analyst (Original) : mercury
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL5,S39396,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[10.0]	0.2892	0.2908	0.0987	4:49:00 PM	No

Standard number 5 applied. [10.0]
Correlation Coef.: 0.999951 Slope: 0.02892 Intercept: 0.00110



Calibration data for Hg 253.7 **Equation: Linear, Calculated Intercept**

ID	Mean Signal (Abs)	Entered Conc. ug/L	Calculated Conc. ug/L	Standard Deviation	%RSD
ICALBLK	0.0000	0	-0.038	----	----
ICAL, ICAL1,S39396,500	0.0068	0.2	0.199	----	----
ICAL, ICAL2,S39396,200	0.0152	0.5	0.487	----	----
ICAL, ICAL3,S39396,50	0.0597	2.0	2.025	----	----
ICAL, ICAL4,S39396,20	0.1475	5.0	5.063	----	----
ICAL, ICAL5,S39396,10	0.2892	10.0	9.964	----	----

Correlation Coef.: 0.999951 Slope: 0.02892 Intercept: 0.00110

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 7 **Autosampler Location: 8**
Sample ID: ICV,S39398,1 **Date Collected: 1/8/2019 4:49:18 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV,S39398,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.056	5.056	0.1473	0.1489	0.0508	4:50:15 PM	Yes

QC value within limits for Hg 253.7 Recovery = 101.11%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012521008 File : met45 Time : 08-JAN-2019 16:50
Cal : 389012521001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45
User canceled analysis.

==========

Analysis Begun

Logged In Analyst: mercury **Technique: AA FIMS-MHS**
Spectrometer: FIMS-100, S/N B050-9550 **Autosampler: Cetac**

Sample Information File: C:\Users\Public\PerkinElmer\AA\Data\Sample Information\010319soil.sif
Batch ID:
Results Data Set: 010819soil2
Results Library: C:\Users\Public\PerkinElmer\AA\Data\Results\Results.mdb

==========

Sequence No.: 8 **Autosampler Location: 9**
Sample ID: ICB **Date Collected: 1/8/2019 4:50:31 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.037	-0.037	0.0000	0.0017	0.0009	4:51:29 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012521011 File : met45 Time : 08-JAN-2019 16:54
Cal : 389012521001 Caldate : 08-JAN-2019
Standards: S39399

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0305	0.0290	5.000	4.980	ug/L	0	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 11 **Autosampler Location: 7**
Sample ID: CCV,S39399,1 **Date Collected: 1/8/2019 4:54:14 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39399,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.981	4.981	0.1451	0.1468	0.0504	4:55:11 PM	Yes

QC value within limits for Hg 253.7 Recovery = 99.62%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389012521012 File : met45 Time : 08-JAN-2019 16:55
Cal : 389012521001 Caldate : 08-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/8/2019 12:10:51 PM**
Method Description: MET 45

==========

Sequence No.: 12 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/8/2019 4:55:30 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.004	0.004	0.0012	0.0028	0.0008	4:56:28 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

SAMPLE PREPARATION SUMMARY

Batch # : 266697
Started By : DLC
Method : METHOD
Spike #1 ID : S39374

Prep Date : 07-JAN-2019 08:00

Analysis : HG
Finished By : SL
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
305787-001		Soil	.59	50	1	84.75						7471-HG	
305787-002		Soil	.65	50	1	76.92						7471-HG	
305787-003		Soil	.58	50	1	86.21						7471-HG	
305787-004		Soil	.64	50	1	78.13						7471-HG	
305787-005		Soil	.58	50	1	86.21						7471-HG	
305787-006		Soil	.63	50	1	79.37						7471-HG	
305787-007		Soil	.65	50	1	76.92						7471-HG	
305787-008		Soil	.55	50	1	90.91						7471-HG	
305787-009		Soil	.57	50	1	87.72						7471-HG	
305787-010		Soil	.63	50	1	79.37						7471-HG	
305787-011		Soil	.59	50	1	84.75						7471-HG	
305787-012		Soil	.58	50	1	86.21						7471-HG	
305807-020		Soil	.62	50	1	80.65						7471-HG	
305807-021		Soil	.58	50	1	86.21						7471-HG	
305807-022		Soil	.63	50	1	79.37						7471-HG	
305807-023		Soil	.57	50	1	87.72						7471-HG	
305807-024		Soil	.64	50	1	78.13						7471-HG	
305807-025		Soil	.57	50	1	87.72						7471-HG	
305807-026		Soil	.61	50	1	81.97						7471-HG	
QC960429	BLANK	Soil	.58	50	1	86.21							
QC960430	BS	Soil	.59	50	1	84.75		1					
QC960431	BSD	Soil	.59	50	1	84.75		1					
QC960432	MS	Soil	.56	50	1	89.29		1					
QC960433	MSD	Soil	.59	50	1	84.75		1					
QC960434	SER	Soil	.59	50	1	84.75							

Analyst: DLC Date: 01/07/19 Reviewer: PRW Date: 01/07/19

Soil Digestion for Mercury

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266697 Digestion Method: ☒ EPA 7471A/ 7471B ☐ _____ BK 4375

Date Digested: 1-6-2019 Page 3

	Sample #	container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
	Blank	A	0.58	⌀50 ☐___	Y	QC 960929
	BS		0.59	⌀50 ☐___		30
	BSD		0.59	⌀50 ☐___		81
	MS		0.56	⌀50 ☐___		82
5	MSD		0.59	⌀50 ☐___		83
	305807-020	A	0.62	⌀50 ☐___		
	-021		0.58	⌀50 ☐___		
	-022		0.63	⌀50 ☐___		
	-023		0.57	⌀50 ☐___		
10	-024		0.64	⌀50 ☐___		
	-025		0.57	⌀50 ☐___		
	-026		0.61	⌀50 ☐___		
	305787-001	A	0.59	⌀50 ☐___		MSS
	-002		0.65	⌀50 ☐___		
15	-003		0.58	⌀50 ☐___		
	-004		0.64	⌀50 ☐___		
	-005		0.58	⌀50 ☐___		
	-006		0.63	⌀50 ☐___		
	-007		0.65	⌀50 ☐___		
20	-008		0.55	⌀50 ☐___		
	-009		0.57	⌀50 ☐___		
	-010		0.63	⌀50 ☐___		
	-011		0.59	⌀50 ☐___		
	-012		0.58	⌀50 ☐___		
				☐50 ☐___		

Balance ID: B-9 calibration has been checked? ☒ Yes ☐ No

Standards prepared per SOP: MET 5.2, rev. 20

1.0 mL of spike standard was added to all spikes

☐ **CAL digested with this batch? ICAL Std S#**

Digestion Temperature (°C), and Probe Location

Pipettes

Vol.(mL)	ID
.1	J28153D
.2-1	R29360D
1-5	2924335
5-10	4645196

Reagent ID/ LIMS# / Time	Initials / Date
Digestion Tubes, Lot # CPI 112818	PC 1-6-19
Blank/LCS 'matrix' ID Chemware 23228917	
S39374	
ICAL Std S# S39373	
ICV / CCV LIMS S# S39375 / S39376	
95° | 31	
Digestion block ID Segia	
Thermometer # 64112748	
Digestion Started at (time) 2025	
Aqua Regia (HNO3+ HCl) Reagent ID 010619	
5% $KMnO_4$ / Granular KMnO4 reagent ID 010219A | —	
NaCl.hydroxylamine hydrochloride Reagent ID 010219A	
Stannous Chloride Reagent ID 010719	SL 1-7-19
Digestion Completd at (time) 2055	PC 1-6-19
☐ filtered thru' 0.45 um syringe filter (lot #) S581160103	SL 1-7-19

Prep Chemist / Date

Continued from page Ø

Continued on page _____

Reviewed Online / See LIMS

Version 7.2, July.2017

SAMPLE PREPARATION SUMMARY

Batch # : 266733
Started By : SL
Method : METHOD
Spike #1 ID : S39397

Prep Date : 08-JAN-2019 09:30

Analysis : HG
Finished By : SL
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
305807-001		Soil	.59	50	1	84.75						7471-HG	
305807-002		Soil	.61	50	1	81.97						7471-HG	
305807-003		Soil	.65	50	1	76.92						7471-HG	
305807-004		Soil	.57	50	1	87.72						7471-HG	
305807-005		Soil	.61	50	1	81.97						7471-HG	
305807-006		Soil	.62	50	1	80.65						7471-HG	
305807-007		Soil	.6	50	1	83.33						7471-HG	
305807-008		Soil	.6	50	1	83.33						7471-HG	
305807-009		Soil	.62	50	1	80.65						7471-HG	
305807-010		Soil	.64	50	1	78.13						7471-HG	
305807-011		Soil	.58	50	1	86.21						7471-HG	
305807-012		Soil	.61	50	1	81.97						7471-HG	
305807-013		Soil	.6	50	1	83.33						7471-HG	
305807-014		Soil	.58	50	1	86.21						7471-HG	
305807-015		Soil	.6	50	1	83.33						7471-HG	
305807-016		Soil	.56	50	1	89.29						7471-HG	
305807-017		Soil	.6	50	1	83.33						7471-HG	
305807-018		Soil	.56	50	1	89.29						7471-HG	
305807-019		Soil	.59	50	1	84.75						7471-HG	
QC960561	BLANK	Soil	.57	50	1	87.72							
QC960562	BS	Soil	.61	50	1	81.97		1					
QC960563	BSD	Soil	.6	50	1	83.33		1					
QC960564	MS	Soil	.65	50	1	76.92		1					
QC960565	MSD	Soil	.56	50	1	89.29		1					
QC960566	SER	Soil	.59	50	1	84.75							

Analyst: SL Date: 01/08/19 Reviewer: PRW Date: 01/08/19

Soil Digestion for Mercury — Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266733 — Digestion Method: ☒ EPA 7471A/ 7471B ☐ ______ — BK 4375

Date Digested: 01-08-19 — Page 6

Sample #	Container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
BLANK		0.57	☒ 50 ☐	Y	QC960561
BS		0.61	☒ 50 ☐		2
BSD		0.60	☒ 50 ☐		3
MS		0.65	☒ 50 ☐		4
5 MSD		0.56	☒ 50 ☐		5
305807-001	A	0.59	☒ 50 ☐		~~QC~~ MSS SL 1-8-19
-002		0.61	☒ 50 ☐		
-003		0.65	☒ 50 ☐		
-004		0.57	☒ 50 ☐		
10 -005		0.61	☒ 50 ☐		
-006		0.62	☒ 50 ☐		
-007		0.60	☒ 50 ☐		
-008		0.60	☒ 50 ☐		
-009		0.62	☒ 50 ☐		
15 -010		0.64	☒ 50 ☐		
-011		0.58	☒ 50 ☐		
-012		0.61	☒ 50 ☐		
-013		0.60	☒ 50 ☐		
-014		0.58	☒ 50 ☐		
20 -015		0.60	☒ 50 ☐		
-016		0.56	☒ 50 ☐		
-017		0.60	☒ 50 ☐		
-018		0.56	☒ 50 ☐		
-019		0.59	☒ 50 ☐		
			☐ 50 ☐		

Balance ID: B-9 calibration has been checked? ☒ Yes ☐ No

	Reagent ID/ LIMS# / Time		Initials / Date
Standards prepared per SOP: MET 5.2, rev. 20 — Digestion Tubes, Lot #	CP1112818 SL 1-8-19		SL 1-8-19
Blank/LCS 'matrix' ID	chemware ~~237~~ 2377901C		
1 mL of spike standard was added to all spikes	S39397		
☐ **CAL digested with this batch? ICAL Std S#**	S39396		
ICV / CCV LIMS S#	S39398 / S39399		
Digestion Temperature (°C), and Probe Location	95°	33	
Digestion block ID	ARCHES		
Thermometer #	A42121		
Digestion Started at (time)	1220		
1:1 Aqua Regia (HNO_3+ HCl) Reagent ID	010819		
5% $KMnO_4$ / Granular $KMnO_4$ reagent ID	010719	—	
NaCl.hydroxylamine hydrochloride Reagent ID	010219		
Stannous Chloride Reagent ID	~~010819~~ 010719B SL 1-8-19		
Digestion Completd at (time)	1250		
☐ filtered thru' 0.45 um syringe filter (lot #)	SS81160103		

Pipettes

Vol.(mL)	ID
.1	U281530
.2-1	R293600
1-5	2924335
5-10	4645196

[signature] 01-08-19

Prep Chemist / Date

Continued from page ∅
Continued on page ______

Reviewed Online / See LIMS

Version 7.2, July.2017

Standards

S37627

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Mass Spec Solution
Catalog Number:	MSHGN-10PPM
Lot Number:	M2-HG657422
Matrix:	10% (v/v) HNO3
Value / Analyte(s):	10 µg/mL ea: Mercury
Starting Material:	Hg metal
Starting Material Lot#:	05214TX, R307HGA1, 1780
Starting Material Purity:	99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.000 ± 0.056 µg/mL

Certified Density: 1.050 g/mL (measured at 20 ± 1 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	061204
Hg	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

10ppm Hg SRC in Water
IV HG 10PPM 10 ug/mL
KER 16-JUL-18
S37627 | Expires: 08-MAY-21

KER 7/16/18

Characterization of CRM by two independent methods Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{1/2}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	0.000017	M	Eu	< 0.000203	O	Na	0.000097	M	Se	< 0.013814	O	Zn	0.000001			
O	Al	0.000002	O	Fe	0.000001	M	Nb	< 0.000203	O	Si	0.000004	M	Zr	< 0.001219			
M	As	< 0.002844	M	Ga	< 0.000203	M	Nd	< 0.000203	M	Sm	< 0.000203						
O	Au	< 0.003219	M	Gd	< 0.000203	O	Ni	< 0.001812	M	Sn	< 0.000203						
O	B	< 0.002479	M	Ge	< 0.000609	M	Os	< 0.000202	O	Sr	< 0.000152						
M	Ba	< 0.000203	M	Hf	< 0.000203	O	P	< 0.010730	M	Ta	< 0.000203						
O	Be	< 0.000322	s	Hg	<	M	Pb	< 0.000203	M	Tb	< 0.000203						
M	Bi	< 0.013001	M	Ho	< 0.000203	M	Pd	< 0.000404	M	Te	< 0.001422						
O	Ca	0.000017	M	In	< 0.004063	M	Pr	< 0.000203	M	Th	< 0.000203						
M	Cd	0.000001	M	Ir	< 0.000202	M	Pt	< 0.000203	O	Ti	< 0.000530						
M	Ce	< 0.000203	M	K	0.000004	M	Rb	< 0.001219	O	Tl	< 0.002788						
M	Co	< 0.000406	M	La	< 0.000203	M	Re	< 0.001016	M	Tm	< 0.000203						
O	Cr	0.000002	O	Li	< 0.000180	M	Rh	< 0.000203	M	U	< 0.000813						
M	Cs	< 0.000203	M	Lu	< 0.000203	M	Ru	< 0.000202	M	V	< 0.000406						
M	Cu	< 0.000406	O	Mg	0.000004	O	S	< 0.023508	M	W	< 0.000609						
M	Dy	< 0.000203	M	Mn	< 0.000203	O	Sb	< 0.009657	M	Y	< 0.000203						
M	Er	< 0.000203	O	Mo	< 0.002152	M	Sc	< 0.000406	M	Yb	< 0.000203						

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pippette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+
Chemical Compatibility - Stable in HNO3. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.
Stability - 2-100 ppb levels not stable in 1% HNO3 / LDPE container, stable in 10% HNO3 packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO3 packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO3 / LDPE container.
Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO3); Oxide (Soluble in HNO3); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th ,Rh , Fe, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 08, 2017

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 08, 2021**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Donna Senn
Product Documentation Technician

Donna Senn

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Michael J Booth

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

Paul R Gaines

S38597

CPI INTERNATIONAL

CERTIFICATE OF ANALYSIS

Single-Element Aqueous CRM

Product #: G34-4400-10PPM331-100

Mercury (Hg) – 10 µg/mL

Lot #: 168539-48

Matrix: 2% HNO_3

Element	Certified Concentration & Uncertainty
Hg	10.0 ± 0.1 µg/mL (w/v)
	9.98 ± 0.1 µg/g (w/w)

Intended Use: This solution is intended for use as a certified reference material (CRM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This CRM was manufactured, processed, and certified under a quality management system that is registered/accredited to **ISO 9001, ISO Guide 34**, and **ISO/IEC 17025**. This CRM was prepared to a nominal concentration of 10.0 µg/mL by gravimetric methods using a single-element concentrate dissolved in high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this CRM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentration and uncertainty were determined using the "High Performance ICP-OES" protocol developed by NIST, and both the certified concentration and uncertainty values are traceable to **NIST SRM 3133, lot #061204**. The uncertainty associated with the certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Indicative Values: ICP-MS was used to determine trace metal concentrations for this product (nd = not determined).

Trace Concentrations (µg/L)

Ag	<0.5	Fe	<25	Pb	<0.5
Al	<2	Hg	MAJOR	Sb	<0.5
As	<0.5	K	<50	Se	<2
Ba	<2	Li	<2	Sn	<0.5
Ca	<50	Mg	<10	Sr	<5
Cd	<0.5	Mn	<0.5	Ti	<2
Co	<0.5	Mo	<0.5	Tl	<0.5
Cr	<1	Na	<50	V	<2
Cu	<1	Ni	<1	Zn	<2

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the CRM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original CRM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

October 9, 2018

Certification Date

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

Health and Safety Information: Refer to the Safety Data Sheet (SDS).

Homogeneity: This solution was determined to be homogeneous by procedures consistent with the requirements of ISO Guide 34 and ISO Guide 35. Replicate samples of the finished solution were analyzed to confirm its homogeneity, in accordance with QSP 6-13 Assessment of Homogeneity and Stability. To ensure homogeneity, users should not take a smaller sub-sample than specified in the Instructions for Use, as doing so will invalidate the certified values and uncertainties.

Quality Manual Rev: No. 5, 03/01/2013

Further Information: Please contact CPI International for further information about this CRM.

Quality Certifications: This CRM was prepared under a quality management system that is registered/accredited to the following:

- ISO 9001 – Quality Management Systems – Requirements (TUV NORD Cert. No. 44 100 16560231)
- ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories (A2LA Cert. No. 2848.01)
- ISO Guide 34 – General Requirements for the Competence of Reference Material Producers (A2LA Cert. No. 2848.02)
    - ISO Guide 34 references additional requirements specified in ISO Guide 31 and ISO Guide 35.

KEE 10/16/18

2nd source 10ppm Hg standa SRC
HG 10 REF-2 in Water
KER 16-OCT-18 10 ug/mL
S38597 B | Expires: 16-OCT-19

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 - USA
inorganicventures.com
tel: 800.669.6799 - 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

CERTIFICATE OF ANALYSIS

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Mass Spec Solution
Catalog Number:	MSHGN-10PPM
Lot Number:	N2-HG667078
Matrix:	10% (v/v) HNO3
Value / Analyte(s):	10 µg/mL ea: Mercury
Starting Material:	Hg metal
Starting Material Lot#:	05214TX, R307HGA1, 1780
Starting Material Purity:	99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 9.995 ± 0.056 µg/mL

Density: 1.050 g/mL (measured at 20 ± 4 ºC)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	061204
Hg	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{1/2}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	0.000016	M	Eu	< 0.000203	O	Na	0.000007	M	Se	< 0.013814	O	Zn	0.000001			
O	Al	0.000001	O	Fe	0.000001	M	Nb	< 0.000203	O	Si	0.000004	M	Zr	< 0.001219			
M	As	< 0.002844	M	Ga	< 0.000203	M	Nd	< 0.000203	M	Sm	< 0.000203						
O	Au	< 0.003219	M	Gd	< 0.000203	O	Ni	< 0.001812	M	Sn	< 0.000203						
O	B	< 0.002479	M	Ge	< 0.000609	M	Os	< 0.000202	O	Sr	< 0.000152						
M	Ba	< 0.000203	M	Hf	< 0.000203	O	P	< 0.010730	M	Ta	< 0.000203						
O	Be	< 0.000322	s	Hg	<	M	Pb	< 0.000203	M	Tb	< 0.000203						
M	Bi	< 0.013001	M	Ho	< 0.000203	M	Pd	< 0.000404	M	Te	< 0.001422						
O	Ca	0.000017	M	In	< 0.004063	M	Pr	< 0.000203	M	Th	< 0.000203						
M	Cd	0.000001	M	Ir	< 0.000202	M	Pt	< 0.000203	O	Ti	< 0.000530						
M	Ce	< 0.000203	M	K	0.000004	M	Rb	< 0.001219	O	Tl	< 0.002788						
M	Co	< 0.000406	M	La	< 0.000203	M	Re	< 0.001016	M	Tm	< 0.000203						
O	Cr	0.000001	O	Li	< 0.000180	M	Rh	< 0.000203	M	U	< 0.000813						
M	Cs	< 0.000203	M	Lu	< 0.000203	M	Ru	< 0.000202	M	V	< 0.000406						
M	Cu	< 0.000406	O	Mg	0.000003	O	S	< 0.023508	M	W	< 0.000609						
M	Dy	< 0.000203	M	Mn	< 0.000203	O	Sb	< 0.009657	M	Y	< 0.000203						
M	Er	< 0.000203	O	Mo	< 0.002152	M	Sc	< 0.000406	M	Yb	< 0.000203						

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+
Chemical Compatibility - Stable in HNO3. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.
Stability - 2-100 ppb levels not stable in 1% HNO3 / LDPE container, stable in 10% HNO3 packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO3 packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO3 / LDPE container.
Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO3); Oxide (Soluble in HNO3); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th ,Rh , Fe, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

April 27, 2018

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **April 27, 2022**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

Project BK3449 Hg STANDARDS

Continued from Page

DATE/ ANALYST	STD Name	SOURCE S#	STD S#	SOURCE VOL.	HNO3 LOT #	HNO3 VOL.	TOTAL VOL.	HNO3 PIPETTE / SOURCE DISPENSER
01-04-19	Hg 0.1 STD	S37627	S39364	1mL	JTB 205793	5mL	100mL	R293600 / 2924335
	Hg 0.1 REF	S38597	S39365	↓	↓	↓	↓	↓
	ICV Hg	S38597	S39366					
	CCV2 Hg	S37627	S39367					
	ICV Hg (2)	S38597	S39368					
	CCV2 Hg (2)	S37627	S39369					
01-06-19	Hg 0.1 STD	S37627	S39373	1mL	JTB 205793	5mL	100mL	R293600 / 2924335
	Hg 0.1 REF	S38597	S39374					
	ICV Hg	~~S38597~~ S38597	S39375					
	CCV2 Hg	S37627	S39376					
	ICV Hg (2)	S38597	S39377					
	CCV2 Hg (2)	S37627	S39378					
01-07-19	Hg 0.1 STD	S39060	S39385	1mL	JTB 205793	5mL	100mL	R293600 / 2924335
	Hg 0.1 REF	S38597	S39387					
	ICV Hg	S38597	S39388					
	CCV2 Hg	S39060	S39390					
	ICV Hg (2)	S38597	S39391					
	CCV2 Hg (2)	S39060	S39393					

Continued on Page

Read and Understood By

Signed Date Signed Date

Enthalpy Analytical
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 305807
ANALYTICAL REPORT
Metals
Matrix: TCLP Leachate

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : 103S582303.02
Location : RFS MFA Pilot
Level : IV

Sample ID	Lab ID	Sample ID	Lab ID
RFS-MFA-EX-G2-5	305807-001	RFS-MFA-EX-G5-4	305807-014
RFS-MFA-EX-G2-6	305807-002	RFS-MFA-EX-E1-4	305807-015
RFS-MFA-EX-G2-7	305807-003	RFS-MFA-EX-E1-5	305807-016
RFS-MFA-EX-G3-1	305807-004	RFS-MFA-EX-D1-4	305807-017
RFS-MFA-EX-G3-2	305807-005	RFS-MFA-EX-D1-5	305807-018
RFS-MFA-EX-G3-3	305807-006	RFS-MFA-EX-F1-5	305807-019
RFS-MFA-EX-G3-4	305807-007	RFS-MFA-EX-F1-6	305807-020
RFS-MFA-EX-G4-1	305807-008	RFS-MFA-EX-F1-7	305807-021
RFS-MFA-EX-G4-2	305807-009	RFS-MFA-EX-F1-8	305807-022
RFS-MFA-EX-G4-3	305807-010	RFS-MFA-EX-F1-9	305807-023
RFS-MFA-EX-G5-1	305807-011	RFS-MFA-EX-F1-10	305807-024
RFS-MFA-EX-G5-2	305807-012	RFS-MFA-EX-G2-ELEM	305807-025
RFS-MFA-EX-G5-3	305807-013	RFS-MFA-EX-G2-ELEM +	305807-026

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Will Rice Date: 01/08/2019

Will Rice
Project Manager
will.rice@enthalpy.com
(510) 204-2221 Ext 13102

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

CASE NARRATIVE
METALS (EPA 7470A)
TCLP LEACHATE

Laboratory number:	**305807**
Client:	**Tetra Tech EMI**
Project:	**103S582303.02**
Location:	**RFS MFA Pilot**
Request Date:	**12/13/18**
Samples Received:	**12/13/18**

This data package contains sample and QC results for twenty six soil samples, requested for the above referenced project on 12/13/18. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 7470A) TCLP Leachate:
Mercury was detected between the MDL and the RL in the method blank for batch 266617; this analyte was either not detected in samples at or above the RL, or detected at a level at least 10 times that of the blank.

No other analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Chain of Custody # _____

C&T LOGIN # 305807

Project No: 103552303.02 Sampler: R. JOHNSON

Project Name: RFS MFA PILOT Report To: JASON BRODERSEN

Project P. O. No: Company: TETRA TECH

EDD Format: Report Level ☐ II ☒ III ☐ IV Telephone: 415 497 9060

Turnaround Time: ☐ RUSH _____ ☒ Standard Email: JASON.BRODERSEN@tetratech.com

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST																
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	ISM PREP - ONLY SUBSAMPLE	NO DRY/SIEVE NECESSARY		MERCURY 7471		TCLP LEVEL MERCURY ONLY											
1	~~RFS~~ RFS-MFA-EXG2-5	~~12/12~~ 12/12	1135		✓			1					✓	X			X		X											
2	RFS-MFA-EXG2-6	12/12/18	1200		✓			1					✓	X			X		X											
3	RFS-MFA-EXG2-7	12/12/18	1230		✓			1					✓	X			X		X											
4	RFS-MFA-EXG3-1	12/12/18	1356		✓			1					✓	X			X		X											
5	RFS-MFA-EXG3-2	12/12/18	1407		✓			1					✓	X			X		X											
6	RFS-MFA-EXG3-3	12/12/18	1424		✓			1					✓	X			X		X											
7	RFS-MFA-EXG3-4	12/12/18	1445		✓			2					✓	X			X		X											
8	RFS-MFA-EXG4-1	12/13/18	0738		✓			1					✓	X			X		X											
9	RFS-MFA-EXG4-2	12/13/18	0755		✓			1					✓	X			X		X											
10	RFS-MFA-EXG4-3	12/13/18	0815		✓			1					✓	X			X		X											
11	RFS-MFA-EXG5-1	12/13/18	0825		✓			1					✓	X			X		X											
12	RFS-MFA-EXG5-2	12/13/18	0835		✓			1					✓	X			X		X											
13	RFS-MFA-EXG5-3	12/13/18	0845		✓			1					✓	X			X		X											

Notes:

CAUTION ELEVATED MERCURY

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:

DATE: 12/13 TIME: 15/38

DATE: TIME:

DATE: TIME:

RECEIVED BY:

DATE: 12-13-18 TIME: 1535

DATE: TIME:

DATE: TIME:

CHAIN OF COUSTODY

Page 2 of 2

Chain of Custody #

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 305507

Project No: 103S58230S.02

Project Name: RFS MFA PILOT

Project P. O. No:

EDD Format: Report Level ☐ II ☒ III ☐ IV

Turnaround Time: ☐ RUSH ☒ Standard

Sampler:

Report To: JASON BRODERSON

Company: TETRA TECH

Telephone:

Email:

Lab No.	Sample ID.	Date Collected	Time Collected	Water	Solid			# of Containers	HCl	H2SO4	HNO3	NaOH	None	ISM PREP - SUBSAMPLE ONLY	MERCURY 7471	TCLP LEVEL MERCURY ONLY
14	RFS-MFA-EX G5-4	12/13/18	0900		↓			1					↓	X	X	X
15	RFS-MFA-EX E1-4	12/13/18	0954		↓			1					↓	X	X	X
16	RFS-MFA-EX E1-5	12/13/18	1030		↓			1					↓	X	X	X
17	RFS-MFA-EX D1-4	12/13/18	1055		↓			1					↓	X	X	X
18	RFS-MFA-EX D1-5	12/13/18	1100		↓			1					↓	X	X	X
19	RFS-MFA-EX F1-5	12/13/18	1305		↓			1					↓	X	X	X
20	RFS-MFA-EX F1-6	12/13/18	1315		↓			1					↓	X	X	X
21	RFS-MFA-EX F1-7	12/17/18	1335		↓			1					↓	X	X	X
22	RFS-MFA-EX F1-8	12/13/18	1345		↓			1					↓	X	X	X
23	RFS-MFA-EX F1-9	12/13/18	1355		↓			1					↓	X	X	X
24	RFS-MFA-EX F1-10	12/13/18	1400		↓			1					↓	X	X	X
* 25	RFS-MFA-EX G2-ELEM	12/12/18	1200		↓			1					↓	X	X	X
* 26	RFS-MFA-EX G2-ELEM +	12/12/18	1200		↓			1					↓	X	X	X

Notes:
CAUTION - THESE SAMPLES CONTAIN ELEVATED MERCURY AND VAPORS

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:	DATE:	TIME:	RECEIVED BY:	DATE:	TIME:
[signature]	12/13	1535	[signature]	12-13-18	1535

SAMPLE RECEIPT CHECKLIST

Section 1: Login # 305507 Client: Tetra Tech

Date Received: 12/13/16 Project: _____

ENTHALPY ANALYTICAL

Section 2: Samples received in a cooler? ☒ Yes, how many? 2 ☐ No (skip Section 3 below)

If no cooler Sample Temp (°C): _____ using IR Gun # ☐ A, or ☐ B

☐ Samples received on ice directly from the field. Cooling process had begun

If in cooler: Date Opened 12/13/16 By (print) DO (sign) _____

Shipping info (if applicable) _____

Are custody seals present? ☒ No, or ☐ Yes. If yes, where? ☐ on cooler, ☐ on samples, ☐ on package

☐ Date: _____ How many _____ ☐ Signature, ☐ Initials, ☐ None

Were custody seals intact upon arrival? ☐ Yes ☐ No ☒ N/A

Section 3: ***Important*: Notify PM if temperature exceeds 6°C or arrive frozen.**

Packing in cooler: (if other, describe) _____

☐ Bubble Wrap, ☐ Foam blocks, ☒ Bags, ☐ None, ☐ Cloth material, ☐ Cardboard, ☐ Styrofoam, ☐ Paper towels

☐ Samples received on ice directly from the field. Cooling process had begun

Type of ice used: ☒ Wet, ☐ Blue/Gel, ☐ None Temperature blank(s) included? ☐ Yes, ☐ No

Temperature measured using ☐ Thermometer ID: _____, or IR Gun # ☐ A ☐ B

Cooler Temp (°C): #1: 5.5, #2: 5.6, #3: _____, #4: _____, #5: _____, #6: _____, #7: _____

Section 4:	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	X		
Were Method 5035 sampling containers present?		X	
If YES, what time were they transferred to freezer? _____			
Did all bottles arrive unbroken/unopened?	—		
Are there any missing / extra samples?		—	
Are samples in the appropriate containers for indicated tests?	—		
Are sample labels present, in good condition and complete?	—		
Does the container count match the COC?	—		
Do the sample labels agree with custody papers?	—		
Was sufficient amount of sample sent for tests requested?	—		
Did you change the hold time in LIMS for unpreserved VOAs?			—
Did you change the hold time in LIMS for preserved terracores?			—
Are bubbles > 6mm absent in VOA samples?			—
Was the client contacted concerning this sample delivery?		—	
If YES, who was called? _____ By _____ Date: _____			

Section 5:	YES	NO	N/A
Are the samples appropriately preserved? (If N/A, skip the rest of section 5)			—
Did you check preservatives for all bottles for each sample?			
Did you document your preservative check?			

pH strip lot# _____, pH strip lot# _____, pH strip lot# _____

Preservative added:

☐ H2SO4 lot# _____ added to samples _____ on/at _____

☐ HCL lot# _____ added to samples _____ on/at _____

☐ HNO3 lot# _____ added to samples _____ on/at _____

☐ NaOH lot# _____ added to samples _____ on/at _____

Section 6:

Explanations/Comments: _____

Date Logged in 12/14/16 **By (print)** VO **(sign)** VO

Date Labeled 12/14/16 **By (print)** AC **(sign)** AC

Results & QC Summary

ENTHALPY ANALYTICAL

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7470A
Analyte:	Mercury	Received:	12/13/18
Matrix:	TCLP Leachate	Prepared:	01/03/19
Units:	mg/L	Analyzed:	01/03/19

Field ID	Type	Lab ID		Result	RL	MDL	Diln Fac	Batch#	Sampled
RFS-MFA-EX-G2-5	SAMPLE	305807-001		0.37	0.10	0.020	100.0	266616	12/12/18
RFS-MFA-EX-G2-6	SAMPLE	305807-002		0.28	0.10	0.020	100.0	266616	12/12/18
RFS-MFA-EX-G2-7	SAMPLE	305807-003		0.15	0.10	0.020	100.0	266616	12/12/18
RFS-MFA-EX-G3-1	SAMPLE	305807-004		0.0016	0.0010	0.00020	1.000	266616	12/12/18
RFS-MFA-EX-G3-2	SAMPLE	305807-005		0.42	0.10	0.020	100.0	266616	12/12/18
RFS-MFA-EX-G3-3	SAMPLE	305807-006		0.77	0.10	0.020	100.0	266616	12/12/18
RFS-MFA-EX-G3-4	SAMPLE	305807-007		0.27	0.010	0.0020	10.00	266616	12/12/18
RFS-MFA-EX-G4-1	SAMPLE	305807-008		0.023	0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-G4-2	SAMPLE	305807-009		0.18	0.10	0.020	100.0	266616	12/13/18
RFS-MFA-EX-G4-3	SAMPLE	305807-010		0.048	0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-G5-1	SAMPLE	305807-011		0.055	0.010	0.0020	10.00	266616	12/13/18
RFS-MFA-EX-G5-2	SAMPLE	305807-012		0.040	0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-G5-3	SAMPLE	305807-013		0.039	0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-G5-4	SAMPLE	305807-014		0.056	0.010	0.0020	10.00	266616	12/13/18
RFS-MFA-EX-E1-4	SAMPLE	305807-015		0.00028 J	0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-E1-5	SAMPLE	305807-016	ND		0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-D1-4	SAMPLE	305807-017		0.00037 J	0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-D1-5	SAMPLE	305807-018	ND		0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-F1-5	SAMPLE	305807-019		0.00054 J	0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-F1-6	SAMPLE	305807-020		0.022	0.0010	0.00020	1.000	266617	12/13/18
RFS-MFA-EX-F1-7	SAMPLE	305807-021	ND		0.0010	0.00020	1.000	266617	12/13/18
RFS-MFA-EX-F1-8	SAMPLE	305807-022		1.3	0.10	0.020	100.0	266617	12/13/18
RFS-MFA-EX-F1-9	SAMPLE	305807-023		1.2	0.10	0.020	100.0	266617	12/13/18
RFS-MFA-EX-F1-10	SAMPLE	305807-024		0.68	0.10	0.020	100.0	266617	12/13/18
RFS-MFA-EX-G2-ELEM	SAMPLE	305807-025		2.4	0.10	0.020	100.0	266617	12/12/18
RFS-MFA-EX-G2-ELEM +	SAMPLE	305807-026		2.2	0.10	0.020	100.0	266617	12/12/18
	BLANK	QC960117	ND		0.0010	0.00020	1.000	266616	
	BLANK	QC960126		0.00021 J	0.0010	0.00020	1.000	266617	
	BLANK	QC960127	ND		0.0010	0.00020	1.000	266617	

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7470A
Analyte:	Mercury	Prepared:	01/03/19
Units:	mg/L	Analyzed:	01/03/19

Field ID	Type	MSS Lab ID	Lab ID	Matrix	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac	Batch#	Sampled	Received
	BS		QC960112	Water		0.002000	0.002057	103	80-120			1.000	266616		
	BSD		QC960113	Water		0.002000	0.002046	102	80-120	1	24	1.000	266616		
RFS-MFA-EX-G2-5	MS	305807-001	QC960114	TCLP Leachate	0.3689	0.01000	0.3968	NM	64-120			100.0	266616	12/12/18	12/13/18
RFS-MFA-EX-G2-5	MSD	305807-001	QC960115	TCLP Leachate		0.01000	0.3865	NM	64-120	3	30	100.0	266616	12/12/18	12/13/18
	BS		QC960121	Water		0.002000	0.001775	89	80-120			1.000	266617		
	BSD		QC960122	Water		0.002000	0.001778	89	80-120	0	24	1.000	266617		
ZZZZZZZZZZ	MS	306109-001	QC960123	Water	<0.00004000	0.002000	0.001520	76	64-120			1.000	266617	12/28/18	12/28/18
ZZZZZZZZZZ	MSD	306109-001	QC960124	Water		0.002000	0.001496	75	64-120	2	30	1.000	266617	12/28/18	12/28/18

NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	mg/L
Field ID:	RFS-MFA-EX-G2-5	Diln Fac:	500.0
Type:	Serial Dilution	Batch#:	266616
MSS Lab ID:	305807-001	Sampled:	12/12/18
Lab ID:	QC960116	Received:	12/13/18
Matrix:	TCLP Leachate	Analyzed:	01/03/19

MSS Result	MSS RL	Result	RL	% Diff	Lim
0.3689	0.1000	0.2207 J	0.5000	NC	10

J= Estimated value
NC= Not Calculated
RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	mg/L
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	266617
MSS Lab ID:	306109-001	Sampled:	12/28/18
Lab ID:	QC960125	Received:	12/28/18
Matrix:	Water	Analyzed:	01/03/19

MSS Result	MSS RL	Result	RL	% Diff	Lim
ND	0.0002000	ND	0.001000	NC	10

NC= Not Calculated
ND= Not Detected at or above MDL
RL= Reporting Limit

REPORTING SUMMARY FOR 305807 METALS TCLP Leachate
Enthalpy Analytical - Berkeley

Lab ID	Inst ID	Analyzed	IDF	HG	
305807-001	MET45	01/03/19 14:53	1.0		
305807-001	MET45	01/03/19 16:11	100.0	+	
305807-002	MET45	01/03/19 15:00	1.0		
305807-002	MET45	01/03/19 16:15	100.0	+	
305807-003	MET45	01/03/19 15:02	1.0		
305807-003	MET45	01/03/19 16:17	100.0	+	
305807-004	MET45	01/03/19 15:06	1.0	+	
305807-005	MET45	01/03/19 15:07	1.0		
305807-005	MET45	01/03/19 16:18	100.0	+	
305807-006	MET45	01/03/19 15:09	1.0		
305807-006	MET45	01/03/19 16:19	100.0	+	
305807-007	MET45	01/03/19 15:11	1.0		
305807-007	MET45	01/03/19 16:20	100.0		
305807-007	MET45	01/03/19 16:49	10.0	+	
305807-008	MET45	01/03/19 15:12	1.0		
305807-008	MET45	01/03/19 16:28	1.0	+	
305807-009	MET45	01/03/19 15:13	1.0		
305807-009	MET45	01/03/19 16:24	100.0	+	
305807-010	MET45	01/03/19 15:15	1.0		
305807-010	MET45	01/03/19 16:29	1.0	+	
305807-011	MET45	01/03/19 15:16	1.0		
305807-011	MET45	01/03/19 16:25	10.0	+	
305807-012	MET45	01/03/19 15:18	1.0		
305807-012	MET45	01/03/19 16:30	1.0	+	
305807-013	MET45	01/03/19 15:19	1.0	+	
305807-014	MET45	01/03/19 15:23	1.0		
305807-014	MET45	01/03/19 16:27	10.0	+	
305807-015	MET45	01/03/19 15:24	1.0		
305807-015	MET45	01/03/19 16:32	1.0	+	
305807-016	MET45	01/03/19 15:26	1.0	+	
305807-017	MET45	01/03/19 15:27	1.0	+	
305807-018	MET45	01/03/19 15:28	1.0	+	
305807-019	MET45	01/03/19 15:29	1.0	+	
305807-020	MET45	01/03/19 15:46	1.0	+	

REPORTING SUMMARY FOR 305807 METALS TCLP Leachate
Enthalpy Analytical - Berkeley

Lab ID	Inst ID	Analyzed	IDF	HG	
305807-021	MET45	01/03/19 15:48	1.0	+	
305807-022	MET45	01/03/19 15:49	1.0		
305807-022	MET45	01/03/19 16:41	100.0	+	
305807-023	MET45	01/03/19 15:53	1.0		
305807-023	MET45	01/03/19 16:43	100.0	+	
305807-024	MET45	01/03/19 15:55	1.0		
305807-024	MET45	01/03/19 16:44	100.0	+	
305807-025	MET45	01/03/19 15:56	1.0		
305807-025	MET45	01/03/19 16:45	100.0	+	
305807-026	MET45	01/03/19 15:58	1.0		
305807-026	MET45	01/03/19 16:46	100.0	+	
QC960111	MET45	01/03/19 14:49	1.0	+	
QC960112	MET45	01/03/19 14:50	1.0	+	
QC960113	MET45	01/03/19 14:52	1.0	+	
QC960114	MET45	01/03/19 14:54	1.0		
QC960114	MET45	01/03/19 16:12	100.0	+	
QC960115	MET45	01/03/19 14:56	1.0		
QC960115	MET45	01/03/19 16:13	100.0	+	
QC960116	MET45	01/03/19 14:58	5.0		
QC960116	MET45	01/03/19 16:14	500.0	+	
QC960117	MET45	01/03/19 14:59	1.0	+	
QC960120	MET45	01/03/19 15:32	1.0	+	
QC960121	MET45	01/03/19 15:33	1.0		
QC960121	MET45	01/03/19 16:34	1.0	+	
QC960122	MET45	01/03/19 15:34	1.0		
QC960122	MET45	01/03/19 16:35	1.0	+	
QC960123	MET45	01/03/19 15:39	1.0	+	
QC960124	MET45	01/03/19 15:40	1.0	+	
QC960125	MET45	01/03/19 15:42	5.0	+	
QC960126	MET45	01/03/19 15:43	1.0	+	
QC960127	MET45	01/03/19 15:44	1.0	+	

REPORTING SUMMARY FOR 305807 METALS TCLP Leachate
Enthalpy Analytical - Berkeley

Lab ID	Inst ID	Analyzed	IDF	HG	
QC960128	MET45	01/03/19 15:45	1.0		
QC960128	MET45	01/03/19 16:40	1.0	+	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389005199

Instrument : MET45 Begun : 01/03/19 14:39
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				01/03/19 14:39	1.0		
002	met45	ICAL	ICAL1			01/03/19 14:40	1.0	1	
003	met45	ICAL	ICAL2			01/03/19 14:42	1.0	1	
004	met45	ICAL	ICAL3			01/03/19 14:43	1.0	1	
005	met45	ICAL	ICAL4			01/03/19 14:44	1.0	1	
006	met45	ICAL	ICAL5			01/03/19 14:45	1.0	1	
007	met45	ICV				01/03/19 14:47	1.0	2	
008	met45	ICB				01/03/19 14:48	1.0		
009	met45	BLANK	QC960111	Water	266616	01/03/19 14:49	1.0		
010	met45	BS	QC960112	Water	266616	01/03/19 14:50	1.0		
011	met45	BSD	QC960113	Water	266616	01/03/19 14:52	1.0		
012	met45	MSS	305807-001	TCLP Leachate	266616	01/03/19 14:53	1.0		1:HG=59
013	met45	MS	QC960114	TCLP Leachate	266616	01/03/19 14:54	1.0		1:HG=61
014	met45	MSD	QC960115	TCLP Leachate	266616	01/03/19 14:56	1.0		1:HG=60
015	met45	SER	QC960116	TCLP Leachate	266616	01/03/19 14:58	5.0		1:HG=18
016	met45	BLANK	QC960117	TCLP Leachate	266616	01/03/19 14:59	1.0		
017	met45	SAMPLE	305807-002	TCLP Leachate	266616	01/03/19 15:00	1.0		1:HG=47
018	met45	SAMPLE	305807-003	TCLP Leachate	266616	01/03/19 15:02	1.0		1:HG=30
019	met45	CCV				01/03/19 15:04	1.0	3	
020	met45	CCB				01/03/19 15:05	1.0		
021	met45	SAMPLE	305807-004	TCLP Leachate	266616	01/03/19 15:06	1.0		
022	met45	SAMPLE	305807-005	TCLP Leachate	266616	01/03/19 15:07	1.0		1:HG=32
023	met45	SAMPLE	305807-006	TCLP Leachate	266616	01/03/19 15:09	1.0		1:HG=94
024	met45	SAMPLE	305807-007	TCLP Leachate	266616	01/03/19 15:11	1.0		1:HG=42
025	met45	SAMPLE	305807-008	TCLP Leachate	266616	01/03/19 15:12	1.0		
026	met45	SAMPLE	305807-009	TCLP Leachate	266616	01/03/19 15:13	1.0		1:HG=32
027	met45	SAMPLE	305807-010	TCLP Leachate	266616	01/03/19 15:15	1.0		
028	met45	SAMPLE	305807-011	TCLP Leachate	266616	01/03/19 15:16	1.0		1:HG=12
029	met45	SAMPLE	305807-012	TCLP Leachate	266616	01/03/19 15:18	1.0		
030	met45	SAMPLE	305807-013	TCLP Leachate	266616	01/03/19 15:19	1.0		
031	met45	CCV				01/03/19 15:20	1.0	3	
032	met45	CCB				01/03/19 15:21	1.0		
033	met45	SAMPLE	305807-014	TCLP Leachate	266616	01/03/19 15:23	1.0		1:HG=11
034	met45	SAMPLE	305807-015	TCLP Leachate	266616	01/03/19 15:24	1.0		
035	met45	SAMPLE	305807-016	TCLP Leachate	266616	01/03/19 15:26	1.0		
036	met45	SAMPLE	305807-017	TCLP Leachate	266616	01/03/19 15:27	1.0		
037	met45	SAMPLE	305807-018	TCLP Leachate	266616	01/03/19 15:28	1.0		
038	met45	SAMPLE	305807-019	TCLP Leachate	266616	01/03/19 15:29	1.0		
039	met45	X	RINSE			01/03/19 15:30	1.0		
040	met45	BLANK	QC960120	Water	266617	01/03/19 15:32	1.0		
041	met45	BS	QC960121	Water	266617	01/03/19 15:33	1.0		spk
042	met45	BSD	QC960122	Water	266617	01/03/19 15:34	1.0		spk
043	met45	CCV				01/03/19 15:35	1.0	3	
044	met45	CCB				01/03/19 15:37	1.0		
045	met45	MSS	306109-001	Water	266617	01/03/19 15:38	1.0		
046	met45	MS	QC960123	Water	266617	01/03/19 15:39	1.0		
047	met45	MSD	QC960124	Water	266617	01/03/19 15:40	1.0		
048	met45	SER	QC960125	Water	266617	01/03/19 15:42	5.0		
049	met45	BLANK	QC960126	TCLP Leachate	266617	01/03/19 15:43	1.0		
050	met45	BLANK	QC960127	TCLP Leachate	266617	01/03/19 15:44	1.0		
051	met45	BLANK	QC960128	WET Leachate	266617	01/03/19 15:45	1.0		
052	met45	SAMPLE	305807-020	TCLP Leachate	266617	01/03/19 15:46	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389005199

Instrument : MET45 Begun : 01/03/19 14:39
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	305807-021	TCLP Leachate	266617	01/03/19 15:48	1.0		
054	met45	SAMPLE	305807-022	TCLP Leachate	266617	01/03/19 15:49	1.0		1:HG=140
055	met45	CCV				01/03/19 15:51	1.0	3	
056	met45	CCB				01/03/19 15:52	1.0		
057	met45	SAMPLE	305807-023	TCLP Leachate	266617	01/03/19 15:53	1.0		1:HG=130
058	met45	SAMPLE	305807-024	TCLP Leachate	266617	01/03/19 15:55	1.0		1:HG=88
059	met45	SAMPLE	305807-025	TCLP Leachate	266617	01/03/19 15:56	1.0		1:HG=170
060	met45	SAMPLE	305807-026	TCLP Leachate	266617	01/03/19 15:58	1.0		1:HG=160
061	met45	SAMPLE	306107-001	Water	266617	01/03/19 15:59	1.0		
062	met45	SAMPLE	306107-003	Water	266617	01/03/19 16:01	1.0		
063	met45	SAMPLE	306112-001	Water	266617	01/03/19 16:02	1.0		
064	met45	SAMPLE	306147-002	Water	266617	01/03/19 16:03	1.0		
065	met45	SAMPLE	306091-001	WET Leachate	266617	01/03/19 16:04	1.0		
066	met45	SAMPLE	306103-002	WET Leachate	266617	01/03/19 16:06	1.0		
067	met45	CCV				01/03/19 16:07	1.0	3	
068	met45	CCB				01/03/19 16:08	1.0		
069	met45	X	RINSE			01/03/19 16:09	1.0		
070	met45	MSS	305807-001	TCLP Leachate	266616	01/03/19 16:11	100.0		
071	met45	MS	QC960114	TCLP Leachate	266616	01/03/19 16:12	100.0		
072	met45	MSD	QC960115	TCLP Leachate	266616	01/03/19 16:13	100.0		
073	met45	SER	QC960116	TCLP Leachate	266616	01/03/19 16:14	500.0		
074	met45	SAMPLE	305807-002	TCLP Leachate	266616	01/03/19 16:15	100.0		
075	met45	SAMPLE	305807-003	TCLP Leachate	266616	01/03/19 16:17	100.0		
076	met45	SAMPLE	305807-005	TCLP Leachate	266616	01/03/19 16:18	100.0		
077	met45	SAMPLE	305807-006	TCLP Leachate	266616	01/03/19 16:19	100.0		
078	met45	SAMPLE	305807-007	TCLP Leachate	266616	01/03/19 16:20	100.0		
079	met45	CCV				01/03/19 16:22	1.0	3	
080	met45	CCB				01/03/19 16:23	1.0		
081	met45	SAMPLE	305807-009	TCLP Leachate	266616	01/03/19 16:24	100.0		
082	met45	SAMPLE	305807-011	TCLP Leachate	266616	01/03/19 16:25	10.0		
083	met45	SAMPLE	305807-014	TCLP Leachate	266616	01/03/19 16:27	10.0		
084	met45	SAMPLE	305807-008	TCLP Leachate	266616	01/03/19 16:28	1.0		
085	met45	SAMPLE	305807-010	TCLP Leachate	266616	01/03/19 16:29	1.0		
086	met45	SAMPLE	305807-012	TCLP Leachate	266616	01/03/19 16:30	1.0		
087	met45	SAMPLE	305807-015	TCLP Leachate	266616	01/03/19 16:32	1.0		
088	met45	X	RINSE			01/03/19 16:33	1.0		
089	met45	BS	QC960121	Water	266617	01/03/19 16:34	1.0		
090	met45	BSD	QC960122	Water	266617	01/03/19 16:35	1.0		
091	met45	CCV				01/03/19 16:36	1.0	3	
092	met45	CCB				01/03/19 16:38	1.0		
093	met45	X	RINSE			01/03/19 16:39	1.0		
094	met45	BLANK	QC960128	WET Leachate	266617	01/03/19 16:40	1.0		
095	met45	SAMPLE	305807-022	TCLP Leachate	266617	01/03/19 16:41	100.0		
096	met45	SAMPLE	305807-023	TCLP Leachate	266617	01/03/19 16:43	100.0		
097	met45	SAMPLE	305807-024	TCLP Leachate	266617	01/03/19 16:44	100.0		
098	met45	SAMPLE	305807-025	TCLP Leachate	266617	01/03/19 16:45	100.0		
099	met45	SAMPLE	305807-026	TCLP Leachate	266617	01/03/19 16:46	100.0		
100	met45	SAMPLE	306107-001	Water	266617	01/03/19 16:47	1.0		
101	met45	SAMPLE	305807-007	TCLP Leachate	266616	01/03/19 16:49	10.0		
102	met45	CCV				01/03/19 16:50	1.0	3	
103	met45	CCB				01/03/19 16:51	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389005199

Instrument : MET45 Begun : 01/03/19 14:39
Method : EPA 7470A SOP Version : hg_water_rv19

DLC 01/03/19 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 103.

Standards used: 1=S39354 2=S39356 3=S39357

Flags used: spk=5% spike rule

ENTHALPY INITIAL CALIBRATION FOR 305807 METALS TCLP Leachate: EPA 7470A

Inst : MET45
Calnum : 389005199001
Units : ug/L

Date : 03-JAN-2019 14:39
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	389005199002	ICAL1	03-JAN-2019 14:40	S39354 (500X)
L2	met45	389005199003	ICAL2	03-JAN-2019 14:42	S39354 (200X)
L3	met45	389005199004	ICAL3	03-JAN-2019 14:43	S39354 (50X)
L4	met45	389005199005	ICAL4	03-JAN-2019 14:44	S39354 (20X)
L5	met45	389005199006	ICAL5	03-JAN-2019 14:45	S39354 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0320	0.0312	0.0341	0.0335	0.0340	LIN0	0.02067	29.3912		0.0330	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	4	0.5000	-4	2.0000	1	5.0000	-1	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

389005199001

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45
Calnum : 389005199001 Cal Date : 03-JAN-2019

ICV 389005199007 (03-JAN-2019) stds: S39356

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.735	ug/L	-5	10	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199008 File : met45 Time : 03-JAN-2019 14:48
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199019 File : met45 Time : 03-JAN-2019 15:04
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0337	5.000	4.979	ug/L	0	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199020 File : met45 Time : 03-JAN-2019 15:05
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199031 File : met45 Time : 03-JAN-2019 15:20
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0340	5.000	5.023	ug/L	0	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199032 File : met45 Time : 03-JAN-2019 15:21
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199043 File : met45 Time : 03-JAN-2019 15:35
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0335	5.000	4.947	ug/L	-1	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199044 File : met45 Time : 03-JAN-2019 15:37
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199055 File : met45 Time : 03-JAN-2019 15:51
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0332	5.000	4.897	ug/L	-2	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199056 File : met45 Time : 03-JAN-2019 15:52
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199067 File : met45 Time : 03-JAN-2019 16:07
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0327	5.000	4.832	ug/L	-3	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199068 File : met45 Time : 03-JAN-2019 16:08
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199079 File : met45 Time : 03-JAN-2019 16:22
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0326	5.000	4.814	ug/L	-4	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199080 File : met45 Time : 03-JAN-2019 16:23
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199091 File : met45 Time : 03-JAN-2019 16:36
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0322	5.000	4.759	ug/L	-5	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199092 File : met45 Time : 03-JAN-2019 16:38
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199102 File : met45 Time : 03-JAN-2019 16:50
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0320	5.000	4.729	ug/L	-5	20	

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199103 File : met45 Time : 03-JAN-2019 16:51
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 266616
Started By : SL
Method : METHOD
Spike #1 ID : S39355

Prep Date : 03-JAN-2019 10:45

Analysis : HG
Finished By : SL
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
305807-001		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-002		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-003		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-004		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-005		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-006		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-007		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-008		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-009		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-010		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-011		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-012		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-013		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-014		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-015		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-016		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-017		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-018		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-019		TCLP Leachate	10	50	1	5.0						7470-HG	
QC960111	BLANK	Water	50	50	1	1.0							
QC960112	BS	Water	50	50	1	1.0		1					
QC960113	BSD	Water	50	50	1	1.0		1					
QC960114	MS	TCLP Leachate	10	50	1	5.0		1					
QC960115	MSD	TCLP Leachate	10	50	1	5.0		1					
QC960116	SER	TCLP Leachate	10	50	1	5.0							
QC960117	BLANK	TCLP Leachate	10	50	1	5.0							

Analyst: DLC Date: 01/03/19 Reviewer: PRW Date: 01/03/19

Water Digestion for Mercury

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266616 Digestion Method: ☒ EPA 7470A/ EPA 245.1 BK 4374

Date Digested: 01-03-19 ☐ _____ Page 3

	Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
	BLANK		☒ 50 ☐	☒ 50 ☐	N	QC 960111
	BS		☒ 50 ☐	☒ 50 ☐		2
	BSD		☒ 50 ☐	☒ 50 ☐		3
	MS		☐ 50 ☒ 10	☒ 50 ☐		4
5	MSD		☐ 50 ☒ 10	☒ 50 ☐		5
	305807-001		☐ 50 ☒ 10	☒ 50 ☐		MS5, TCLP Leachate
	-002		☐ 50 ☒ 10	☒ 50 ☐		
	-003		☐ 50 ☒ 10	☒ 50 ☐		
	-004		☐ 50 ☒ 10	☒ 50 ☐		
10	-005		☐ 50 ☒ 10	☒ 50 ☐		
	-006		☐ 50 ☒ 10	☒ 50 ☐		
	-007		☐ 50 ☒ 10	☒ 50 ☐		
	-008		☐ 50 ☒ 10	☒ 50 ☐		
	-009		☐ 50 ☒ 10	☒ 50 ☐		
15	-010		☐ 50 ☒ 10	☒ 50 ☐		
	-011		☐ 50 ☒ 10	☒ 50 ☐		
	-012		☐ 50 ☒ 10	☒ 50 ☐		
	-013		☐ 50 ☒ 10	☒ 50 ☐		
	-014		☐ 50 ☒ 10	☒ 50 ☐		
20	-015		☐ 50 ☒ 10	☒ 50 ☐		
	-016		☐ 50 ☒ 10	☒ 50 ☐		
	-017		☐ 50 ☒ 10	☒ 50 ☐		
	-018		☐ 50 ☒ 10	☒ 50 ☐		
	-019		☐ 50 ☒ 10	☒ 50 ☐		
	TCLPBLK QC959093		☐ 50 ☒ 10	☒ 50 ☐		QC 960114

Standards prepared per SOP: MET 5.1, rev. 20

Reagent ID/ LIMS# / Time	Initials / Date
☐ pH paper used to verify preservation, lot #	SL 01-03-19
- Digestion Tube Lot #	CPI 112818
1 mL of spike solution was added to all spikes	539355
Using pipette #	R293600
☐ CAL digested with this batch? ICAL Std S#	539354
ICV / CCV LIMS S#	539356 / 539357
Digestion Temperature (°C), Block and Probe Location	94° | 28
Digestion Block ID: SEQUOIA Thermometer #	G412748
Digestion Started at (time)	1045
concentrated H_2SO_4	BDH2018012397
concentrated HNO_3	JTB205793
5% $KMnO_4$ / Granular KMnO4 Reagent ID	010219A | —
5% $K_2S_2O_8$ Reagent ID	122618
NaCl.hydroxylamine hydrochloride Reagent ID	010219A
Stannous Chloride Reagent ID	010219A
Digestion Completed at (time)	1245
☐ filtered thru' 0.45 um syringe filter (lot #)	

Pipettes

Vol.(mL)	ID
.1	J281530
.2-1	R293600
1-5	2924335
5-10	4645196

01-03-19

Prep Chemist / Date

Continued from page Ø

Continued on page _____

Reviewed Online / See LIMS

Version 5.1, Jan.2017

SPLP/TCLP EXTRACTION LOG **Enthalpy Analytical LLC - Berkeley**

LIMS Batch #: 266347 Date/ Time ON: 12-21-18 0513 Page: 2 BK 4368

Extraction Method: ☑ EPA 1311: TCLP Temp (°C) ON: 22

☐ EPA 1312: SPLP Date/ Time OFF: 12-21-18 2320 Thermometer ID: 111755122

Rotator #'s: 5,1,3 Temp (°C) ON: 21-23 Temperature Limits: 21 - 25 C

Sample #	SL	Sample Mass (g)	Free Liq (y/n)*	Sieved? (y/n)*	Sample pH	pH after +1N HCl	Fluid #	Extract Vol (mL)	Final pH	*Comments
BLK 959093		Ø	Ø	Ø	Ø	Ø	1	☑2000 ☐____	4.89	
305807-001	A	100.10	N	N	7.19	1.98		☑2000 ☐____	4.96	(MIS-NO DRY)
-002		100.04			5.88	1.97		☑2000 ☐____	4.93	
-003		100.16			6.27	1.94		☑2000 ☐____	4.97	
-004		100.05			7.34	1.93		☑2000 ☐____	4.96	
-005		100.04			7.59	1.93		☑2000 ☐____	4.98	
-006		100.14			7.58	1.95		☑2000 ☐____	4.98	
-007		100.10			7.15	1.95		☑2000 ☐____	4.94	
-008		100.28			7.32	1.94		☑2000 ☐____	4.98	
-009		100.27			7.88	1.91		☑2000 ☐____	4.95	
-010		100.08			7.20	1.95		☑2000 ☐____	4.96	
-011		100.09			7.21	1.95		☑2000 ☐____	4.96	
-012		100.23			7.75	1.94		☑2000 ☐____	5.03	
-013		100.28			7.76	1.97		☑2000 ☐____	5.19	
-014		100.07			7.87	2.02		☑2000 ☐____	5.36	
-015		100.07			8.22	1.98		☑2000 ☐____	5.13	
-016		100.13			8.24	1.99		☑2000 ☐____	5.03	
-017		100.20			7.98	1.96		☑2000 ☐____	5.03	
-018		100.09			8.18	1.95		☑2000 ☐____	5.02	
-019		100.10			7.68	1.96		☑2000 ☐____	5.06	
-020		100.13			5.23	~~1.94~~		☑2000 ☐____	4.96	
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		

Balance ID: B-13 calibration has been checked? ☑ Yes ☐ No

pH Meter ID: D13869 has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS #		Date/ Initials
☑ glass beaker/watch glass, or ☐ disposable tube/watch glass, lot#	12-14-18 ESS		12-21-18 MN
added 3.5 mL of 1 N HCl, Reagent ID/ pipette ID	4118020-092118	LS5696G	
TCLP Fluid #1 pH: 4.88 - 4.98 su — Sodium Hydroxide (NaOH)	1BD275003 BDH		
TCLP Fluid #2 pH: 2.83 - 3.03 su — Acetic acid (HOAc)	20170317O5 BDH		
SPLP Fluid #1 pH: 4.15 - 4.25 su — Fluid #1 pH, Prep Date	4.89/4.89/4.91	12-19-18/12-21-18	
SPLP Fluid #2 pH: 4.95 - 5.05 su — Fluid #2 pH, Prep Date	—	—	
Hot Plate Thermometer (Temperature, Serial #)	50 °C	ID: 41538I5	
filtered thru TCLP filter paper, lot#	CPI 171164		
acidified to pH <2 with 1 mL HNO3	111B060 FISHER		
pH paper strips, lot#	HC 547770		

Analyst / Date 12-21-18

Version 6.1 Effective July 2017 **Reviewed Online / See LIMS**

SAMPLE PREPARATION SUMMARY

Batch # : 266617
Started By : SL
Method : METHOD
Spike #1 ID : S39355

Prep Date : 03-JAN-2019 10:45

Analysis : HG
Finished By : SL
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
305807-020		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-021		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-022		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-023		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-024		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-025		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-026		TCLP Leachate	10	50	1	5.0						7470-HG	
306091-001		WET Leachate	10	50	1	5.0						T22/HG	
306103-002		WET Leachate	10	50	1	5.0						7470-HG	
306107-001		Water	50	50	1	1.0						PP13/HG-200	
306107-003		Water	50	50	1	1.0						PP13/HG-200	
306109-001		Water	50	50	1	1.0						T22/HG	
306112-001		Water	50	50	1	1.0						T22/HG	
306147-002		Water	50	50	1	1.0						245.1-HG	
QC960120	BLANK	Water	50	50	1	1.0							
QC960121	BS	Water	50	50	1	1.0		1					
QC960122	BSD	Water	50	50	1	1.0		1					
QC960123	MS	Water	50	50	1	1.0		1					
QC960124	MSD	Water	50	50	1	1.0		1					
QC960125	SER	Water	50	50	1	1.0							
QC960126	BLANK	TCLP Leachate	10	50	1	5.0							
QC960127	BLANK	TCLP Leachate	10	50	1	5.0							
QC960128	BLANK	WET Leachate	10	50	1	5.0							

Analyst: DLC Date: 01/03/19 Reviewer: PRW Date: 01/03/19

Water Digestion for Mercury — Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266617 — Digestion Method: ☒ EPA 7470A/ EPA 245.1 — BK 4374

Date Digested: 01-03-19 — ☐ _____ — Page 4

	Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
	BLANK		☒ 50 ☐	☒ 50 ☐	Y	QC 960120
	BS		☒ 50 ☐	☒ 50 ☐	↓	1
	BSD		☒ 50 ☐	☒ 50 ☐	↓	2
	MS		☒ 50 ☐	☒ 50 ☐	N	3
5	MSD		☒ 50 ☐	☒ 50 ☐	↓	4
	306107-001	J	☒ 50 ☐	☒ 50 ☐	↓	
	↓ -003	D	☒ 50 ☐	☒ 50 ☐	↓	
	306109-001	E	☒ 50 ☐	☒ 50 ☐	↓	MSs
	306112-001	E	☒ 50 ☐	☒ 50 ☐	Y	
10	306147-002	A	☒ 50 ☐	☒ 50 ☐	N	
	306091-001		☐ 50 ☒ 10	☒ 50 ☐	↓	WET Leachate; added granular KMnO4
	306103-002		☐ 50 ☒ 10	☒ 50 ☐	↓	↓
	305807-020		☐ 50 ☒ 10	☒ 50 ☐	↓	TCLP Leachate
	↓ -021		☐ 50 ☒ 10	☒ 50 ☐	↓	↓
15	-022		☐ 50 ☒ 10	☒ 50 ☐	↓	
	-023		☐ 50 ☒ 10	☒ 50 ☐	↓	
	-024		☐ 50 ☒ 10	☒ 50 ☐	↓	
	-025		☐ 50 ☒ 10	☒ 50 ☐	↓	
	↓ -026		☐ 50 ☒ 10	☒ 50 ☐	↓	↓
20	TCLP BLK 1 QC 959093		☐ 50 ☒ 10	☒ 50 ☐	↓	QC 960126
	TCLP BLK 2 QC 959641		☐ 50 ☒ 10	☒ 50 ☐	↓	7
	WET BLK QC 959640		☐ 50 ☒ 10	☒ 50 ☐	↓	↓ 8, added granular KMnO4
			☐ 50 ☐	☐ 50 ☐	↓	
			☐ 50 ☐	☐ 50 ☐	↓	
			☐ 50 ☐	☐ 50 ☐	↓	

Standards prepared per SOP: MET 5.1, rev. 20

Reagent ID/ LIMS# / Time	Initials / Date
☐ pH paper used to verify preservation, lot #	9C 01-03-19
Digestion Tube Lot #	EP1112818
1 mL of spike solution was added to all spikes	S39355
Using pipette #	R293600
☐ CAL digested with this batch? ICAL Std S#	S39354
ICV / CCV LIMS S#	S39356 / S39357
Digestion Temperature (°C), Block and Probe Location	94° | 28
Digestion Block ID: SEG001A Thermometer #	6412748
Digestion Started at (time)	1045
concentrated H_2SO_4	BDH20180123907
concentrated HNO_3	JTB205793
5% $KMnO_4$ / Granular KMnO4 Reagent ID	010219A | VWR 253660092
5% $K_2S_2O_8$ Reagent ID (421-3/18)	0122618
NaCl.hydroxylamine hydrochloride Reagent ID	010219A
Stannous Chloride Reagent ID	010219A
Digestion Completed at (time)	1245
☐ filtered thru' 0.45 um syringe filter (lot #)	SS811GD103

Pipettes

Vol.(mL)	ID
.1	15851530
.2-1	R293600
1-5	20221335
5-10	4645196

01-03-19
Prep Chemist / Date

Continued from page 0
Continued on page _____

Reviewed Online / See LIMS
Version 5.1, Jan.2017

Stan / Pipe Vol.(

SPLP/TCLP EXTRACTION LOG **Enthalpy Analytical LLC - Berkeley**

LIMS Batch #: 266347 Date/ Time ON: 12-21-18 0513 Page: 2 BK 4368

Extraction Method: ☑ EPA 1311: TCLP Temp (°C) ON: 22

☐ EPA 1312: SPLP Date/ Time OFF: 12-21-18 2320 Thermometer ID: 111755122

Rotator #'s: 5,1,3 Temp (°C) ON: 21-23 Temperature Limits: 21 - 25 C

Sample #	SL	Sample Mass (g)	Free Liq (y/n)*	Sieved? (y/n)*	Sample pH	pH after +1N HCl	Fluid #	Extract Vol (mL)	Final pH	*Comments
BLK 959093		Ø	Ø	Ø	Ø	Ø	1	☑2000 ☐____	4.89	
305807-001	A	100.10	N	N	7.19	1.98		☑2000 ☐____	4.96	(MIS-NO DAY)
-002		100.04			5.88	1.97		☑2000 ☐____	4.93	
-003		100.16			6.27	1.94		☑2000 ☐____	4.97	
-004		100.05			7.34	1.93		☑2000 ☐____	4.96	
-005		100.04			7.59	1.93		☑2000 ☐____	4.98	
-006		100.14			7.58	1.95		☑2000 ☐____	4.98	
-007		100.10			7.15	1.95		☑2000 ☐____	4.94	
-008		100.28			7.32	1.94		☑2000 ☐____	4.98	
-009		100.27			7.18	1.91		☑2000 ☐____	4.95	
-010		100.08			7.20	1.95		☑2000 ☐____	4.96	
-011		100.09			7.21	1.95		☑2000 ☐____	4.96	
-012		100.23			7.75	1.94		☑2000 ☐____	5.03	
-013		100.28			7.76	1.97		☑2000 ☐____	5.19	
-014		100.07			7.87	2.02		☑2000 ☐____	5.36	
-015		100.07			8.22	1.98		☑2000 ☐____	5.13	
-016		100.13			8.24	1.99		☑2000 ☐____	5.03	
-017		100.20			7.98	1.96		☑2000 ☐____	5.03	
-018		100.09			8.18	1.95		☑2000 ☐____	5.02	
-019		100.10			7.68	1.96		☑2000 ☐____	5.06	
-020		100.13			5.23	~~1.94~~		☑2000 ☐____	4.96	
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		

Balance ID: B-13 calibration has been checked? ☑ Yes ☐ No

pH Meter ID: 013869 has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS #		Date/ Initials
☑ glass beaker/watch glass, or ☐ disposable tube/watch glass, lot#	12-14-18 ESS		12-21-18 MN
added 3.5 mL of 1 N HCl, Reagent ID/ pipette ID	4118020-092118	LS5696G	
TCLP Fluid #1 pH: 4.88 - 4.98 su — Sodium Hydroxide (NaOH)	18D275003 BDH		
TCLP Fluid #2 pH: 2.83 - 3.03 su — Acetic acid (HOAc)	20170317O5 BDH		
SPLP Fluid #1 pH: 4.15 - 4.25 su — Fluid #1 pH, Prep Date	4.89/4.89/4.91	12-19-18/12-21-18	
SPLP Fluid #2 pH: 4.95 - 5.05 su — Fluid #2 pH, Prep Date	—	—	
Hot Plate Thermometer (Temperature, Serial #)	50 °C	ID: 4153815	
filtered thru TCLP filter paper, lot#	CPI 171164		
acidified to pH <2 with 1 mL HNO3	1118060 FISHER		
pH paper strips, lot#	HC 547770		

12-21-18

Analyst / Date

Version 6.1 Effective July 2017 **Reviewed Online / See LIMS**

SPLP/TCLP EXTRACTION LOG

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266492
Extraction Method: ☑ EPA 1311: TCLP ☐ EPA 1312: SPLP
Rotator #'s: 5

Date/ Time ON: 12-28-18 0505
Temp (°C) ON: 21
Date/ Time OFF: 12-28-18 2300
Temp (°C) ON: 21.23

Page: 5 **BK 4368**
Thermometer ID: 111755122
Temperature Limits: 21 - 25 C

Sample #	SL	Sample Mass (g)	Free Liq (y/n)*	Sieved? (y/n)*	Sample pH	pH after +1N HCl	Fluid #	Extract Vol (mL)	Final pH	*Comments
BLK 959641		Ø	Ø	Ø	Ø	Ø	1	☑2000 ☐____	4.88	
305807-021	A	100.18	N	N	4.75	N/A	1	☑2000 ☐____	4.88	(MIS-DOPY)
-022	1	100.03			4.43			☑2000 ☐____	4.88	
-023		100.07			4.90			☑2000 ☐____	4.88	
-024		100.05			4.43			☑2000 ☐____	4.88	
-025		50.16			N/A			☐ 2000 ☑1000	4.92	(LIMITED SAMPLE)
-026		30.13			↓	↓		☐ 2000 ☑600	4.96	↓
306025-001		100.29			8.25	1.88		☑2000 ☐____	5.10	
-002	↓	100.13	↓	↓	8.20	1.89	↓	☑2000 ☐____	5.25	
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
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								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		

Balance ID: B-13 calibration has been checked? ☑ Yes ☐ No
pH Meter ID: 013869 has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS #		Date/ Initials
☑ glass beaker/watch glass, or ☐ disposable tube/watch glass, lot#	12-21-18 ESS		12-28-18 MV
added 3.5 mL of 1 N HCl, Reagent ID/ pipette ID	4118020-092118	L556966	
TCLP Fluid #1 pH: 4.88 - 4.98 su — Sodium Hydroxide (NaOH)	18D275003 BDH		
TCLP Fluid #2 pH: 2.83 - 3.03 su — Acetic acid (HOAc)	20170317O5 BDH		
SPLP Fluid #1 pH: 4.15 - 4.25 su — Fluid #1 pH, Prep Date	4.88	12-28-18	
SPLP Fluid #2 pH: 4.95 - 5.05 su — Fluid #2 pH, Prep Date	—	—	
Hot Plate Thermometer (Temperature, Serial #)	50 °C	ID: 453815	
filtered thru TCLP filter paper, lot#	CPI 171164		
acidified to pH <2 with 1 mL HNO3	1118060 FISHER		
pH paper strips, lot#	HC 547770		↓

12-28-18
Analyst / Date

Version 6.1 Effective July 2017 **Reviewed Online / See LIMS**

W.E.T (STLC) EXTRACTION LOG version 201805 Enthalpy Analytical LLC - Berkely

LIMS Batch #: 266491 Date/ Time ON: 12-28-18 0345 Page: 5

Extraction Method: WET Temp (C) ON: 22 Benchbook#: BK 4368

Rotator #'s: 3 Date/ Time OFF: 12-30-18 03:40 **Balance Used:**

Temp (C) OFF: 21°C - 23°C ☑ B-13

calibration checked? ☑ Yes ☐ No

Sample # / Letter	Sample Mass (g)	Sieved? (y/n)*	Extract Vol (mL)	N2 purge	*Comments
BLK 959640	∅	∅	☑ 500 ☐	YES	
306005-005 A	50.01	N	☑ 500 ☐	↓	306005-1→4 (12.5g ea)
-015	50.04	↓	☑ 500 ☐		-11→14
-020	50.03		☑ 500 ☐		-16→19
306035-001	50.19		☑ 500 ☐		
-002	50.01		☑ 500 ☐		
306037-001 F	50.23		☑ 500 ☐		
-002	50.23		☑ 500 ☐		
306039-001 A	50.10		☑ 500 ☐		
306054-001	50.13		☑ 500 ☐		
-002	50.12		☑ 500 ☐		
-003	50.17		☑ 500 ☐		
-004	50.19		☑ 500 ☐		
306057-001	50.05		☑ 500 ☐		
-002	50.19		☑ 500 ☐		
306058-001 B	50.09	↓	☑ 500 ☐		305927-001
306091-001 A	50.15	N	☑ 500 ☐	↑	(ADDED AT 12-29-18)
306103-001 A→D	50.04		☑ 500 ☐		305932-001 (A→D 12.5g ea)
-002	50.08		☑ 500 ☐		-002
-003	50.10		☑ 500 ☐		-003
306114-001	50.10	↓	☑ 500 ☐	↓	305841-1 (A→D 50g ea)
			☐ 500 ☐		Time/date off 12-31-18 @ 02:00
			☐ 500 ☐		
			☐ 500 ☐		

Final vol. entered for V.V. based off from LIMS entry for final volume -DES 12-31-18

Thermometer ID: 111755122

Temperature Limits: 20 - 40 C

pH Meter ID: 013869

Extraction Fluid pH Limits: 4.9 - 5.1 su

	Mfg & Lot #		Date/ Initials
Used Citric Acid	K50315842 EMD		12-28-18 MV
Used Sodium Hydroxide (NaOH)	18D275003 BDH		↓
Extraction Fluid pH, Prep Date	4.92/4.93	12-15-18/12-28-18	↓
Extract filtered through 0.45um cellulose fiber filter paper	2806350046-LSS		12-30-18 VV
Metals extracts acidified to 5% HNO_3	1118060 - Fisher		↓
Leachates Relinquished to coldroom, Shelf #	102		↓

[signature] 12-28-18

Extraction Chemist Date

Reviewed Online / See LIMS

Mercury Raw Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389005199

Instrument : MET45 Begun : 01/03/19 14:39
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				01/03/19 14:39	1.0		
002	met45	ICAL	ICAL1			01/03/19 14:40	1.0	1	
003	met45	ICAL	ICAL2			01/03/19 14:42	1.0	1	
004	met45	ICAL	ICAL3			01/03/19 14:43	1.0	1	
005	met45	ICAL	ICAL4			01/03/19 14:44	1.0	1	
006	met45	ICAL	ICAL5			01/03/19 14:45	1.0	1	
007	met45	ICV				01/03/19 14:47	1.0	2	
008	met45	ICB				01/03/19 14:48	1.0		
009	met45	BLANK	QC960111	Water	266616	01/03/19 14:49	1.0		
010	met45	BS	QC960112	Water	266616	01/03/19 14:50	1.0		
011	met45	BSD	QC960113	Water	266616	01/03/19 14:52	1.0		
012	met45	MSS	305807-001	TCLP Leachate	266616	01/03/19 14:53	1.0		1:HG=59
013	met45	MS	QC960114	TCLP Leachate	266616	01/03/19 14:54	1.0		1:HG=61
014	met45	MSD	QC960115	TCLP Leachate	266616	01/03/19 14:56	1.0		1:HG=60
015	met45	SER	QC960116	TCLP Leachate	266616	01/03/19 14:58	5.0		1:HG=18
016	met45	BLANK	QC960117	TCLP Leachate	266616	01/03/19 14:59	1.0		
017	met45	SAMPLE	305807-002	TCLP Leachate	266616	01/03/19 15:00	1.0		1:HG=47
018	met45	SAMPLE	305807-003	TCLP Leachate	266616	01/03/19 15:02	1.0		1:HG=30
019	met45	CCV				01/03/19 15:04	1.0	3	
020	met45	CCB				01/03/19 15:05	1.0		
021	met45	SAMPLE	305807-004	TCLP Leachate	266616	01/03/19 15:06	1.0		
022	met45	SAMPLE	305807-005	TCLP Leachate	266616	01/03/19 15:07	1.0		1:HG=32
023	met45	SAMPLE	305807-006	TCLP Leachate	266616	01/03/19 15:09	1.0		1:HG=94
024	met45	SAMPLE	305807-007	TCLP Leachate	266616	01/03/19 15:11	1.0		1:HG=42
025	met45	SAMPLE	305807-008	TCLP Leachate	266616	01/03/19 15:12	1.0		
026	met45	SAMPLE	305807-009	TCLP Leachate	266616	01/03/19 15:13	1.0		1:HG=32
027	met45	SAMPLE	305807-010	TCLP Leachate	266616	01/03/19 15:15	1.0		
028	met45	SAMPLE	305807-011	TCLP Leachate	266616	01/03/19 15:16	1.0		1:HG=12
029	met45	SAMPLE	305807-012	TCLP Leachate	266616	01/03/19 15:18	1.0		
030	met45	SAMPLE	305807-013	TCLP Leachate	266616	01/03/19 15:19	1.0		
031	met45	CCV				01/03/19 15:20	1.0	3	
032	met45	CCB				01/03/19 15:21	1.0		
033	met45	SAMPLE	305807-014	TCLP Leachate	266616	01/03/19 15:23	1.0		1:HG=11
034	met45	SAMPLE	305807-015	TCLP Leachate	266616	01/03/19 15:24	1.0		
035	met45	SAMPLE	305807-016	TCLP Leachate	266616	01/03/19 15:26	1.0		
036	met45	SAMPLE	305807-017	TCLP Leachate	266616	01/03/19 15:27	1.0		
037	met45	SAMPLE	305807-018	TCLP Leachate	266616	01/03/19 15:28	1.0		
038	met45	SAMPLE	305807-019	TCLP Leachate	266616	01/03/19 15:29	1.0		
039	met45	X	RINSE			01/03/19 15:30	1.0		
040	met45	BLANK	QC960120	Water	266617	01/03/19 15:32	1.0		
041	met45	BS	QC960121	Water	266617	01/03/19 15:33	1.0		spk
042	met45	BSD	QC960122	Water	266617	01/03/19 15:34	1.0		spk
043	met45	CCV				01/03/19 15:35	1.0	3	
044	met45	CCB				01/03/19 15:37	1.0		
045	met45	MSS	306109-001	Water	266617	01/03/19 15:38	1.0		
046	met45	MS	QC960123	Water	266617	01/03/19 15:39	1.0		
047	met45	MSD	QC960124	Water	266617	01/03/19 15:40	1.0		
048	met45	SER	QC960125	Water	266617	01/03/19 15:42	5.0		
049	met45	BLANK	QC960126	TCLP Leachate	266617	01/03/19 15:43	1.0		
050	met45	BLANK	QC960127	TCLP Leachate	266617	01/03/19 15:44	1.0		
051	met45	BLANK	QC960128	WET Leachate	266617	01/03/19 15:45	1.0		
052	met45	SAMPLE	305807-020	TCLP Leachate	266617	01/03/19 15:46	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389005199

Instrument : MET45 Begun : 01/03/19 14:39
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	305807-021	TCLP Leachate	266617	01/03/19 15:48	1.0		
054	met45	SAMPLE	305807-022	TCLP Leachate	266617	01/03/19 15:49	1.0		1:HG=140
055	met45	CCV				01/03/19 15:51	1.0	3	
056	met45	CCB				01/03/19 15:52	1.0		
057	met45	SAMPLE	305807-023	TCLP Leachate	266617	01/03/19 15:53	1.0		1:HG=130
058	met45	SAMPLE	305807-024	TCLP Leachate	266617	01/03/19 15:55	1.0		1:HG=88
059	met45	SAMPLE	305807-025	TCLP Leachate	266617	01/03/19 15:56	1.0		1:HG=170
060	met45	SAMPLE	305807-026	TCLP Leachate	266617	01/03/19 15:58	1.0		1:HG=160
061	met45	SAMPLE	306107-001	Water	266617	01/03/19 15:59	1.0		
062	met45	SAMPLE	306107-003	Water	266617	01/03/19 16:01	1.0		
063	met45	SAMPLE	306112-001	Water	266617	01/03/19 16:02	1.0		
064	met45	SAMPLE	306147-002	Water	266617	01/03/19 16:03	1.0		
065	met45	SAMPLE	306091-001	WET Leachate	266617	01/03/19 16:04	1.0		
066	met45	SAMPLE	306103-002	WET Leachate	266617	01/03/19 16:06	1.0		
067	met45	CCV				01/03/19 16:07	1.0	3	
068	met45	CCB				01/03/19 16:08	1.0		
069	met45	X	RINSE			01/03/19 16:09	1.0		
070	met45	MSS	305807-001	TCLP Leachate	266616	01/03/19 16:11	100.0		
071	met45	MS	QC960114	TCLP Leachate	266616	01/03/19 16:12	100.0		
072	met45	MSD	QC960115	TCLP Leachate	266616	01/03/19 16:13	100.0		
073	met45	SER	QC960116	TCLP Leachate	266616	01/03/19 16:14	500.0		
074	met45	SAMPLE	305807-002	TCLP Leachate	266616	01/03/19 16:15	100.0		
075	met45	SAMPLE	305807-003	TCLP Leachate	266616	01/03/19 16:17	100.0		
076	met45	SAMPLE	305807-005	TCLP Leachate	266616	01/03/19 16:18	100.0		
077	met45	SAMPLE	305807-006	TCLP Leachate	266616	01/03/19 16:19	100.0		
078	met45	SAMPLE	305807-007	TCLP Leachate	266616	01/03/19 16:20	100.0		
079	met45	CCV				01/03/19 16:22	1.0	3	
080	met45	CCB				01/03/19 16:23	1.0		
081	met45	SAMPLE	305807-009	TCLP Leachate	266616	01/03/19 16:24	100.0		
082	met45	SAMPLE	305807-011	TCLP Leachate	266616	01/03/19 16:25	10.0		
083	met45	SAMPLE	305807-014	TCLP Leachate	266616	01/03/19 16:27	10.0		
084	met45	SAMPLE	305807-008	TCLP Leachate	266616	01/03/19 16:28	1.0		
085	met45	SAMPLE	305807-010	TCLP Leachate	266616	01/03/19 16:29	1.0		
086	met45	SAMPLE	305807-012	TCLP Leachate	266616	01/03/19 16:30	1.0		
087	met45	SAMPLE	305807-015	TCLP Leachate	266616	01/03/19 16:32	1.0		
088	met45	X	RINSE			01/03/19 16:33	1.0		
089	met45	BS	QC960121	Water	266617	01/03/19 16:34	1.0		
090	met45	BSD	QC960122	Water	266617	01/03/19 16:35	1.0		
091	met45	CCV				01/03/19 16:36	1.0	3	
092	met45	CCB				01/03/19 16:38	1.0		
093	met45	X	RINSE			01/03/19 16:39	1.0		
094	met45	BLANK	QC960128	WET Leachate	266617	01/03/19 16:40	1.0		
095	met45	SAMPLE	305807-022	TCLP Leachate	266617	01/03/19 16:41	100.0		
096	met45	SAMPLE	305807-023	TCLP Leachate	266617	01/03/19 16:43	100.0		
097	met45	SAMPLE	305807-024	TCLP Leachate	266617	01/03/19 16:44	100.0		
098	met45	SAMPLE	305807-025	TCLP Leachate	266617	01/03/19 16:45	100.0		
099	met45	SAMPLE	305807-026	TCLP Leachate	266617	01/03/19 16:46	100.0		
100	met45	SAMPLE	306107-001	Water	266617	01/03/19 16:47	1.0		
101	met45	SAMPLE	305807-007	TCLP Leachate	266616	01/03/19 16:49	10.0		
102	met45	CCV				01/03/19 16:50	1.0	3	
103	met45	CCB				01/03/19 16:51	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 389005199

Instrument : MET45 Begun : 01/03/19 14:39
Method : EPA 7470A SOP Version : hg_water_rv19

DLC 01/03/19 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 103.

Standards used: 1=S39354 2=S39356 3=S39357
Flags used: spk=5% spike rule

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7470A
Analyte:	Mercury	Received:	12/13/18
Matrix:	TCLP Leachate	Prepared:	01/03/19
Units:	mg/L	Analyzed:	01/03/19

Field ID	Type	Lab ID		Result	RL	MDL	Diln Fac	Batch#	Sampled
RFS-MFA-EX-G2-5	SAMPLE	305807-001		0.37	0.10	0.020	100.0	266616	12/12/18
RFS-MFA-EX-G2-6	SAMPLE	305807-002		0.28	0.10	0.020	100.0	266616	12/12/18
RFS-MFA-EX-G2-7	SAMPLE	305807-003		0.15	0.10	0.020	100.0	266616	12/12/18
RFS-MFA-EX-G3-1	SAMPLE	305807-004		0.0016	0.0010	0.00020	1.000	266616	12/12/18
RFS-MFA-EX-G3-2	SAMPLE	305807-005		0.42	0.10	0.020	100.0	266616	12/12/18
RFS-MFA-EX-G3-3	SAMPLE	305807-006		0.77	0.10	0.020	100.0	266616	12/12/18
RFS-MFA-EX-G3-4	SAMPLE	305807-007		0.27	0.010	0.0020	10.00	266616	12/12/18
RFS-MFA-EX-G4-1	SAMPLE	305807-008		0.023	0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-G4-2	SAMPLE	305807-009		0.18	0.10	0.020	100.0	266616	12/13/18
RFS-MFA-EX-G4-3	SAMPLE	305807-010		0.048	0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-G5-1	SAMPLE	305807-011		0.055	0.010	0.0020	10.00	266616	12/13/18
RFS-MFA-EX-G5-2	SAMPLE	305807-012		0.040	0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-G5-3	SAMPLE	305807-013		0.039	0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-G5-4	SAMPLE	305807-014		0.056	0.010	0.0020	10.00	266616	12/13/18
RFS-MFA-EX-E1-4	SAMPLE	305807-015		0.00028 J	0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-E1-5	SAMPLE	305807-016	ND		0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-D1-4	SAMPLE	305807-017		0.00037 J	0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-D1-5	SAMPLE	305807-018	ND		0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-F1-5	SAMPLE	305807-019		0.00054 J	0.0010	0.00020	1.000	266616	12/13/18
RFS-MFA-EX-F1-6	SAMPLE	305807-020		0.022	0.0010	0.00020	1.000	266617	12/13/18
RFS-MFA-EX-F1-7	SAMPLE	305807-021	ND		0.0010	0.00020	1.000	266617	12/13/18
RFS-MFA-EX-F1-8	SAMPLE	305807-022		1.3	0.10	0.020	100.0	266617	12/13/18
RFS-MFA-EX-F1-9	SAMPLE	305807-023		1.2	0.10	0.020	100.0	266617	12/13/18
RFS-MFA-EX-F1-10	SAMPLE	305807-024		0.68	0.10	0.020	100.0	266617	12/13/18
RFS-MFA-EX-G2-ELEM	SAMPLE	305807-025		2.4	0.10	0.020	100.0	266617	12/12/18
RFS-MFA-EX-G2-ELEM +	SAMPLE	305807-026		2.2	0.10	0.020	100.0	266617	12/12/18
	BLANK	QC960117	ND		0.0010	0.00020	1.000	266616	
	BLANK	QC960126		0.00021 J	0.0010	0.00020	1.000	266617	
	BLANK	QC960127	ND		0.0010	0.00020	1.000	266617	

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-001	Client ID	: RFS-MFA-EX-G2-5
Seqnum	: 389005199070	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 16:11
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 100.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.37	0.10		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 70 **Autosampler Location: 37**
Sample ID: 305807-001,266616,100 **Date Collected: 1/3/2019 4:11:04 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-001,266616,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.738	0.738	0.0244	0.0280	0.0104	4:12:00 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-002	Client ID	: RFS-MFA-EX-G2-6
Seqnum	: 389005199074	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 16:15
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 100.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.28	0.10		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 74 **Autosampler Location: 41**
Sample ID: 305807-002,266616,100 **Date Collected: 1/3/2019 4:15:56 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-002,266616,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.557	0.557	0.0183	0.0218	0.0082	4:16:52 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-003	Client ID	: RFS-MFA-EX-G2-7
Seqnum	: 389005199075	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 16:17
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 100.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.15	0.10		u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 75 **Autosampler Location: 42**
Sample ID: 305807-003,266616,100 **Date Collected: 1/3/2019 4:17:09 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-003,266616,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.307	0.307	0.0098	0.0133	0.0051	4:18:05 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-004	Client ID	: RFS-MFA-EX-G3-1
Seqnum	: 389005199021	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 15:06
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.0016	0.0010		u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 21 **Autosampler Location: 21**
Sample ID: 305807-004,266616,1 **Date Collected: 1/3/2019 3:06:39 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-004,266616,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.327	0.327	0.0104	0.0140	0.0048	3:07:35 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-005	Client ID	: RFS-MFA-EX-G3-2
Seqnum	: 389005199076	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 16:18
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 100.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.42	0.10		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 76 **Autosampler Location: 43**
Sample ID: 305807-005,266616,100 **Date Collected: 1/3/2019 4:18:23 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-005,266616,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.844	0.844	0.0280	0.0316	0.0121	4:19:19 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-006	Client ID	: RFS-MFA-EX-G3-3
Seqnum	: 389005199077	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 16:19
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 100.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.77	0.10		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 77 **Autosampler Location: 44**
Sample ID: 305807-006,266616,100 **Date Collected: 1/3/2019 4:19:37 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-006,266616,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.532	1.532	0.0514	0.0550	0.0206	4:20:34 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-007	Client ID	: RFS-MFA-EX-G3-4
Seqnum	: 389005199101	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 16:49
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 10.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.27	0.010		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 101 **Autosampler Location: 49**
Sample ID: 305807-007,266616,10 **Date Collected: 1/3/2019 4:49:10 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-007,266616,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.334	5.334	0.1808	0.1843	0.0672	4:50:06 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-008	Client ID	: RFS-MFA-EX-G4-1
Seqnum	: 389005199084	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 16:28
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.023	0.0010		u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 84 **Autosampler Location: 25**
Sample ID: 305807-008,266616,1 **Date Collected: 1/3/2019 4:28:20 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-008,266616,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.595	4.595	0.1557	0.1592	0.0593	4:29:16 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-009	Client ID	: RFS-MFA-EX-G4-2
Seqnum	: 389005199081	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 16:24
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 100.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.18	0.10		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 81 **Autosampler Location: 46**
Sample ID: 305807-009,266616,100 **Date Collected: 1/3/2019 4:24:40 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-009,266616,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.359	0.359	0.0115	0.0151	0.0056	4:25:37 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-010	Client ID	: RFS-MFA-EX-G4-3
Seqnum	: 389005199085	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 16:29
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.048	0.0010		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 85 **Autosampler Location: 27**
Sample ID: 305807-010,266616,1 **Date Collected: 1/3/2019 4:29:33 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-010,266616,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	9.591	9.591	0.3256	0.3291	0.1202	4:30:29 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-011	Client ID	: RFS-MFA-EX-G5-1
Seqnum	: 389005199082	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 16:25
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 10.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.055	0.010		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 82 **Autosampler Location: 47**
Sample ID: 305807-011,266616,10 **Date Collected: 1/3/2019 4:25:55 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-011,266616,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.093	1.093	0.0365	0.0401	0.0160	4:26:51 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-012	Client ID	: RFS-MFA-EX-G5-2
Seqnum	: 389005199086	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 16:30
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.040	0.0010		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 86 **Autosampler Location: 29**
Sample ID: 305807-012,266616,1 **Date Collected: 1/3/2019 4:30:46 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-012,266616,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	8.025	8.025	0.2723	0.2759	0.1026	4:31:42 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-013	Client ID	: RFS-MFA-EX-G5-3
Seqnum	: 389005199030	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 15:19
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.039	0.0010		u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 30 **Autosampler Location: 30**
Sample ID: 305807-013,266616,1 **Date Collected: 1/3/2019 3:19:27 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-013,266616,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	7.845	7.845	0.2662	0.2698	0.0967	3:20:23 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-014	Client ID	: RFS-MFA-EX-G5-4
Seqnum	: 389005199083	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 16:27
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 10.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.056	0.010		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 83 **Autosampler Location: 48**
Sample ID: 305807-014,266616,10 **Date Collected: 1/3/2019 4:27:08 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-014,266616,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.121	1.121	0.0375	0.0410	0.0156	4:28:03 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-015	Client ID	: RFS-MFA-EX-E1-4
Seqnum	: 389005199087	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 16:32
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.00028 J	0.0010		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 87 **Autosampler Location: 32**
Sample ID: 305807-015,266616,1 **Date Collected: 1/3/2019 4:32:00 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-015,266616,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.054	0.054	0.0012	0.0047	0.0019	4:32:56 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-016	Client ID	: RFS-MFA-EX-E1-5
Seqnum	: 389005199035	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 15:26
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	ND	0.0010		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 35 **Autosampler Location: 33**
Sample ID: 305807-016,266616,1 **Date Collected: 1/3/2019 3:26:04 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-016,266616,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.066	-0.066	-0.0029	0.0006	0.0002	3:27:01 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-017	Client ID	: RFS-MFA-EX-D1-4
Seqnum	: 389005199036	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 15:27
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.00037 J	0.0010		u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 36 **Autosampler Location: 34**
Sample ID: 305807-017,266616,1 **Date Collected: 1/3/2019 3:27:19 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-017,266616,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.074	0.074	0.0018	0.0054	0.0022	3:28:16 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-018	Client ID	: RFS-MFA-EX-D1-5
Seqnum	: 389005199037	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 15:28
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	ND	0.0010		u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 37 **Autosampler Location: 35**
Sample ID: 305807-018,266616,1 **Date Collected: 1/3/2019 3:28:34 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-018,266616,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.035	0.035	0.0005	0.0041	0.0017	3:29:29 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-019	Client ID	: RFS-MFA-EX-F1-5
Seqnum	: 389005199038	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266616	Time	: 03-JAN-2019 15:29
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.00054 J	0.0010		u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 38 **Autosampler Location: 36**
Sample ID: 305807-019,266616,1 **Date Collected: 1/3/2019 3:29:46 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-019,266616,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.109	0.109	0.0030	0.0066	0.0022	3:30:41 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-020	Client ID	: RFS-MFA-EX-F1-6
Seqnum	: 389005199052	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266617	Time	: 03-JAN-2019 15:46
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.022	0.0010		u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 52 **Autosampler Location: 81**
Sample ID: 305807-020,266617,1 **Date Collected: 1/3/2019 3:46:58 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-020,266617,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.447	4.447	0.1506	0.1541	0.0566	3:47:54 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-021	Client ID	: RFS-MFA-EX-F1-7
Seqnum	: 389005199053	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266617	Time	: 03-JAN-2019 15:48
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	ND	0.0010		u

u=use

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Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 53 **Autosampler Location: 82**
Sample ID: 305807-021,266617,1 **Date Collected: 1/3/2019 3:48:12 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-021,266617,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.004	-0.004	-0.0008	0.0028	0.0009	3:49:09 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-022	Client ID	: RFS-MFA-EX-F1-8
Seqnum	: 389005199095	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266617	Time	: 03-JAN-2019 16:41
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 100.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	1.3	0.10		u

u=use

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Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 95 **Autosampler Location: 74**
Sample ID: 305807-022,266617,100 **Date Collected: 1/3/2019 4:41:49 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-022,266617,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.509	2.509	0.0847	0.0882	0.0318	4:42:45 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-023	Client ID	: RFS-MFA-EX-F1-9
Seqnum	: 389005199096	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266617	Time	: 03-JAN-2019 16:43
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 100.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	1.2	0.10		u

u=use

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Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 96 **Autosampler Location: 75**
Sample ID: 305807-023,266617,100 **Date Collected: 1/3/2019 4:43:02 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-023,266617,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.492	2.492	0.0841	0.0877	0.0319	4:43:58 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-024	Client ID	: RFS-MFA-EX-F1-10
Seqnum	: 389005199097	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266617	Time	: 03-JAN-2019 16:44
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 100.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.68	0.10		u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 97 **Autosampler Location: 76**
Sample ID: 305807-024,266617,100 **Date Collected: 1/3/2019 4:44:15 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-024,266617,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.360	1.360	0.0456	0.0491	0.0182	4:45:11 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305807-025	Client ID	: RFS-MFA-EX-G2-ELEM
Seqnum	: 389005199098	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266617	Time	: 03-JAN-2019 16:45
Cal	: 389005199001	Caldate	: 03-JAN-2019		
IDF	: 100.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	2.4	0.10		u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 98 **Autosampler Location: 77**
Sample ID: 305807-025,266617,100 **Date Collected: 1/3/2019 4:45:29 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-025,266617,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.801	4.801	0.1627	0.1662	0.0610	4:46:25 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst : MET45 Lab ID : 305807-026 Client ID : RFS-MFA-EX-G2-ELEM +
Seqnum : 389005199099 Matrix : TCLP Leachate Acct : TTEMI (MJD)
File : met45 Batch : 266617 Time : 03-JAN-2019 16:46
Cal : 389005199001 Caldate : 03-JAN-2019
IDF : 100.0 Units : mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	2.2	0.10		u

u=use

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Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 99 **Autosampler Location: 78**
Sample ID: 305807-026,266617,100 **Date Collected: 1/3/2019 4:46:42 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305807-026,266617,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.468	4.468	0.1513	0.1549	0.0558	4:47:39 PM	Yes

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7470A
Analyte:	Mercury	Prepared:	01/03/19
Units:	mg/L	Analyzed:	01/03/19

Field ID	Type	MSS Lab ID	Lab ID	Matrix	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim	Diln Fac	Batch#	Sampled	Received
	BS		QC960112	Water		0.002000	0.002057	103	80-120			1.000	266616		
	BSD		QC960113	Water		0.002000	0.002046	102	80-120	1	24	1.000	266616		
RFS-MFA-EX-G2-5	MS	305807-001	QC960114	TCLP Leachate	0.3689	0.01000	0.3968	NM	64-120			100.0	266616	12/12/18	12/13/18
RFS-MFA-EX-G2-5	MSD	305807-001	QC960115	TCLP Leachate		0.01000	0.3865	NM	64-120	3	30	100.0	266616	12/12/18	12/13/18
	BS		QC960121	Water		0.002000	0.001775	89	80-120			1.000	266617		
	BSD		QC960122	Water		0.002000	0.001778	89	80-120	0	24	1.000	266617		
ZZZZZZZZZZ	MS	306109-001	QC960123	Water	<0.00004000	0.002000	0.001520	76	64-120			1.000	266617	12/28/18	12/28/18
ZZZZZZZZZZ	MSD	306109-001	QC960124	Water		0.002000	0.001496	75	64-120	2	30	1.000	266617	12/28/18	12/28/18

NM= Not Meaningful: Sample concentration > 4X spike concentration
RPD= Relative Percent Difference

ENTHALPY SPIKE USER REPORT FOR 305807 METALS TCLP Leachate
EPA 7470A

Type : MSS	Type : MS	Type : MSD
Inst : MET45	Inst : MET45	Inst : MET45
Seqnum : 389005199070	Seqnum : 389005199071.1	Seqnum : 389005199072.1
File : met45	File : met45	File : met45
IDF : 100.0	IDF : 100.0	IDF : 100.0
Lab ID : 305807-001	Lab ID : QC960114	Lab ID : QC960115
Matrix : TCLP Leachate	Matrix : TCLP Leachate	Matrix : TCLP Leachate
Batch : 266616	Batch : 266616	Batch : 266616
Time : 03-JAN-2019 16:11	Time : 03-JAN-2019 16:12	Time : 03-JAN-2019 16:13
Cal : 389005199001	Cal : 389005199001	Cal : 389005199001
Units : mg/L		

MSS: 10.00 mL --> 50.0 ml = 5.0 ml/ml PDF
MS: 10.00 mL --> 50.0 ml = 5.0 ml/ml PDF
MSD: 10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	MSS	Spiked	MS	%Rec	MSD	%Rec	Limits	RPD	Lim	Flags
Mercury	0.3689	0.01000	0.3968	DO	0.3865	DO	64-120	3	30	: u

:=recovery not meaningful u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 71 **Autosampler Location: 38**
Sample ID: QC960114,266616,100 **Date Collected: 1/3/2019 4:12:16 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960114,266616,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.793	0.793	0.0263	0.0298	0.0111	4:13:12 PM	Yes

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 72 **Autosampler Location: 39**
Sample ID: QC960115,266616,100 **Date Collected: 1/3/2019 4:13:29 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960115,266616,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.771	0.771	0.0256	0.0291	0.0111	4:14:25 PM	Yes

ENTHALPY SPIKE USER REPORT FOR 305807 METALS TCLP Leachate
EPA 7470A

Type : MSS	Type : MS	Type : MSD
Inst : MET45	Inst : MET45	Inst : MET45
Seqnum : 389005199045	Seqnum : 389005199046.1	Seqnum : 389005199047.1
File : met45	File : met45	File : met45
IDF : 1.0	IDF : 1.0	IDF : 1.0
Lab ID : 306109-001	Lab ID : QC960123	Lab ID : QC960124
Matrix : Water	Matrix : Water	Matrix : Water
Batch : 266617	Batch : 266617	Batch : 266617
Time : 03-JAN-2019 15:38	Time : 03-JAN-2019 15:39	Time : 03-JAN-2019 15:40
Cal : 389005199001	Cal : 389005199001	Cal : 389005199001
Units : mg/L		

MSS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
MS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
MSD: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	MSS	Spiked	MS	%Rec	MSD	%Rec	Limits	RPD	Lim	Flags
Mercury	ND	0.002000	0.001520	76	0.001496	75	64-120	2	30	u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 46 **Autosampler Location: 75**
Sample ID: QC960123,266617,1 **Date Collected: 1/3/2019 3:39:35 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960123,266617,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.519	1.519	0.0510	0.0546	0.0175	3:40:31 PM	Yes

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 47 **Autosampler Location: 76**
Sample ID: QC960124,266617,1 **Date Collected: 1/3/2019 3:40:48 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960124,266617,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.496	1.496	0.0502	0.0538	0.0174	3:41:44 PM	Yes

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	mg/L
Field ID:	RFS-MFA-EX-G2-5	Diln Fac:	500.0
Type:	Serial Dilution	Batch#:	266616
MSS Lab ID:	305807-001	Sampled:	12/12/18
Lab ID:	QC960116	Received:	12/13/18
Matrix:	TCLP Leachate	Analyzed:	01/03/19

MSS Result	MSS RL	Result	RL	% Diff	Lim
0.3689	0.1000	0.2207 J	0.5000	NC	10

J= Estimated value
NC= Not Calculated
RL= Reporting Limit

ENTHALPY SERIAL DILUTION FOR 305807 METALS TCLP Leachate
EPA 7470A

Type : MSS
Inst : MET45
Seqnum : 389005199070
File : met45
IDF : 100.0
Lab ID : 305807-001
Matrix : TCLP Leachate
Batch : 266616
Time : 03-JAN-2019 16:11
Cal : 389005199001
Units : mg/L

Type : SER
Inst : MET45
Seqnum : 389005199073.1
File : met45
IDF : 500.0
Lab ID : QC960116
Matrix : TCLP Leachate
Batch : 266616
Time : 03-JAN-2019 16:14
Cal : 389005199001

MSS: 10.00 mL --> 50.0 ml = 5.0 ml/ml PDF
SER: 10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	MSS	RL	SER	RL	%D	Lim	Flags
Mercury	0.3689	0.1000	0.2207 J	0.5000		10	u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 73 **Autosampler Location: 40**
Sample ID: QC960116,266616,500 **Date Collected: 1/3/2019 4:14:42 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960116,266616,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.088	0.088	0.0023	0.0059	0.0019	4:15:38 PM	Yes

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7470A
Analyte:	Mercury	Units:	mg/L
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	266617
MSS Lab ID:	306109-001	Sampled:	12/28/18
Lab ID:	QC960125	Received:	12/28/18
Matrix:	Water	Analyzed:	01/03/19

MSS Result	MSS RL	Result	RL	% Diff	Lim
ND	0.0002000	ND	0.001000	NC	10

NC= Not Calculated
ND= Not Detected at or above MDL
RL= Reporting Limit

ENTHALPY SERIAL DILUTION FOR 305807 METALS TCLP Leachate
EPA 7470A

Type : MSS
Inst : MET45
Seqnum : 389005199045
File : met45
IDF : 1.0
Lab ID : 306109-001
Matrix : Water
Batch : 266617
Time : 03-JAN-2019 15:38
Cal : 389005199001
Units : mg/L

Type : SER
Inst : MET45
Seqnum : 389005199048.1
File : met45
IDF : 5.0
Lab ID : QC960125
Matrix : Water
Batch : 266617
Time : 03-JAN-2019 15:42
Cal : 389005199001

MSS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
SER: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	MSS	RL	SER	RL	%D	Lim	Flags
Mercury	ND	0.0002000	ND	0.001000		10	u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 48 **Autosampler Location: 77**
Sample ID: QC960125,266617,5 **Date Collected: 1/3/2019 3:42:01 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960125,266617,5 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.094	-0.094	-0.0039	-0.0003	0.0003	3:42:58 PM	Yes

ENTHALPY SPIKE USER REPORT FOR 305807 METALS TCLP Leachate
EPA 7470A

Type : BS
Inst : MET45
Seqnum : 389005199010.1
File : met45
IDF : 1.0
Lab ID : QC960112
Matrix : Water
Batch : 266616
Time : 03-JAN-2019 14:50
Cal : 389005199001
Units : mg/L

Type : BSD
Inst : MET45
Seqnum : 389005199011.1
File : met45
IDF : 1.0
Lab ID : QC960113
Matrix : Water
Batch : 266616
Time : 03-JAN-2019 14:52
Cal : 389005199001

BS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
BSD: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Spiked	BS	%Rec	BSD	%Rec	Limits	RPD	Lim	Flags
Mercury	0.002000	0.002057	103	0.002046	102	80-120	1	24	u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 10 **Autosampler Location: 12**
Sample ID: QC960112,266616,1 **Date Collected: 1/3/2019 2:50:53 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960112,266616,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.058	2.058	0.0693	0.0729	0.0254	2:51:49 PM	Yes

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 11 **Autosampler Location: 13**
Sample ID: QC960113,266616,1 **Date Collected: 1/3/2019 2:52:06 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960113,266616,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.046	2.046	0.0689	0.0725	0.0255	2:53:01 PM	Yes

ENTHALPY SPIKE USER REPORT FOR 305807 METALS TCLP Leachate
EPA 7470A

Type : BS
Inst : MET45
Seqnum : 389005199089.1
File : met45
IDF : 1.0
Lab ID : QC960121
Matrix : Water
Batch : 266617
Time : 03-JAN-2019 16:34
Cal : 389005199001
Units : mg/L

Type : BSD
Inst : MET45
Seqnum : 389005199090.1
File : met45
IDF : 1.0
Lab ID : QC960122
Matrix : Water
Batch : 266617
Time : 03-JAN-2019 16:35
Cal : 389005199001

BS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
BSD: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Spiked	BS	%Rec	BSD	%Rec	Limits	RPD	Lim	Flags
Mercury	0.002000	0.001775	89	0.001778	89	80-120	0	24	u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 89 **Autosampler Location: 71**
Sample ID: QC960121,266617,1 **Date Collected: 1/3/2019 4:34:25 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960121,266617,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.774	1.774	0.0597	0.0632	0.0229	4:35:21 PM	Yes

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 90 **Autosampler Location: 72**
Sample ID: QC960122,266617,1 **Date Collected: 1/3/2019 4:35:38 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960122,266617,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.779	1.779	0.0598	0.0634	0.0237	4:36:34 PM	Yes

ENTHALPY BLANK USER REPORT FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 Lab ID : QC960117
Seqnum : 389005199016.1 Matrix : TCLP Leachate
File : met45 Batch : 266616 Time : 03-JAN-2019 14:59
Cal : 389005199001 Caldate : 03-JAN-2019
IDF : 1.0 Units : mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Flags
Mercury	ND	0.0010	u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 16 **Autosampler Location: 18**
Sample ID: QC960117,266616,1 **Date Collected: 1/3/2019 2:59:39 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960117,266616,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.039	0.039	0.0006	0.0042	0.0017	3:00:35 PM	Yes

ENTHALPY BLANK USER REPORT FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 Lab ID : QC960126
Seqnum : 389005199049.1 Matrix : TCLP Leachate
File : met45 Batch : 266617 Time : 03-JAN-2019 15:43
Cal : 389005199001 Caldate : 03-JAN-2019
IDF : 1.0 Units : mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Flags
Mercury	0.00021 J	0.0010	u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 49 **Autosampler Location: 78**
Sample ID: QC960126,266617,1 **Date Collected: 1/3/2019 3:43:15 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960126,266617,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.040	0.040	0.0007	0.0042	0.0018	3:44:11 PM	Yes

ENTHALPY BLANK USER REPORT FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 Lab ID : QC960127
Seqnum : 389005199050.1 Matrix : TCLP Leachate
File : met45 Batch : 266617 Time : 03-JAN-2019 15:44
Cal : 389005199001 Caldate : 03-JAN-2019
IDF : 1.0 Units : mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Flags
Mercury	ND	0.0010	u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

Sequence No.: 50 **Autosampler Location: 79**
Sample ID: QC960127,266617,1 **Date Collected: 1/3/2019 3:44:29 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: QC960127,266617,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.029	0.029	0.0003	0.0039	0.0020	3:45:25 PM	Yes

ENTHALPY INITIAL CALIBRATION FOR 305807 METALS TCLP Leachate: EPA 7470A

Inst : MET45
Calnum : 389005199001
Units : ug/L

Date : 03-JAN-2019 14:39
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	389005199002	ICAL1	03-JAN-2019 14:40	S39354 (500X)
L2	met45	389005199003	ICAL2	03-JAN-2019 14:42	S39354 (200X)
L3	met45	389005199004	ICAL3	03-JAN-2019 14:43	S39354 (50X)
L4	met45	389005199005	ICAL4	03-JAN-2019 14:44	S39354 (20X)
L5	met45	389005199006	ICAL5	03-JAN-2019 14:45	S39354 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0320	0.0312	0.0341	0.0335	0.0340	LIN0	0.02067	29.3912		0.0330	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	4	0.5000	-4	2.0000	1	5.0000	-1	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

389005199001

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45
Calnum : 389005199001 Cal Date : 03-JAN-2019

ICV 389005199007 (03-JAN-2019) stds: S39356

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.735	ug/L	-5	10	

==========

Analysis Begun

Logged In Analyst: mercury **Technique: AA FIMS-MHS**
Spectrometer: FIMS-100, S/N B050-9550 **Autosampler: Cetac**

Sample Information File: C:\Users\Public\PerkinElmer\AA\Data\Sample Information\010319soil.sif
Batch ID:
Results Data Set: 010319water
Results Library: C:\Users\Public\PerkinElmer\AA\Data\Results\Results.mdb

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: ICALBLK **Date Collected: 1/3/2019 2:39:44 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICALBLK **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.00]	0.0036	0.0036	0.0016	2:40:40 PM	Yes

Auto-zero performed.

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: ICAL, ICAL1,S39354,500 **Date Collected: 1/3/2019 2:40:57 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL1,S39354,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.2]	0.0064	0.0100	0.0039	2:41:53 PM	Yes

Standard number 1 applied. [0.2]
Correlation Coef.: 1.000000 Slope: 0.03225 Intercept: 0.00000

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: ICAL, ICAL2,S39354,200 **Date Collected: 1/3/2019 2:42:10 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL2,S39354,200 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.5]	0.0156	0.0192	0.0076	2:43:06 PM	Yes

Standard number 2 applied. [0.5]
Correlation Coef.: 0.999889 Slope: 0.03118 Intercept: 0.00008

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: ICAL, ICAL3,S39354,50 **Date Collected: 1/3/2019 2:43:23 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL3,S39354,50 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[2.0]	0.0682	0.0718	0.0255	2:44:20 PM	Yes

Standard number 3 applied. [2.0]
Correlation Coef.: 0.999773 Slope: 0.03429 Intercept: -0.00057

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: ICAL, ICAL4,S39354,20 **Date Collected: 1/3/2019 2:44:38 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL4,S39354,20 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[5.0]	0.1674	0.1709	0.0613	2:45:34 PM	Yes

Standard number 4 applied. [5.0]
Correlation Coef.: 0.999932 Slope: 0.03360 Intercept: -0.00020

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

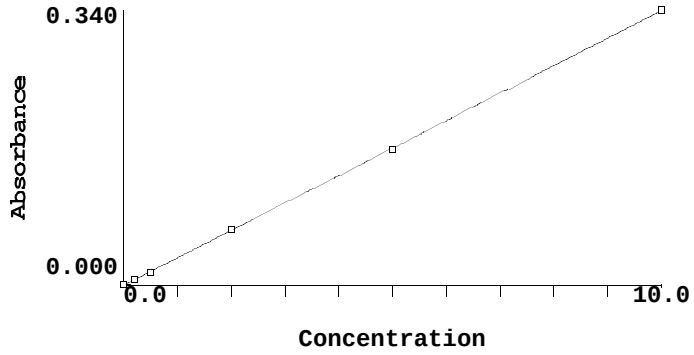
==========

Sequence No.: 6 **Autosampler Location: 6**
Sample ID: ICAL, ICAL5,S39354,10 **Date Collected: 1/3/2019 2:45:52 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL5,S39354,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[10.0]	0.3404	0.3439	0.1212	2:46:49 PM	Yes

Standard number 5 applied. [10.0]
Correlation Coef.: 0.999962 Slope: 0.03402 Intercept: -0.00068



Calibration data for Hg 253.7 **Equation: Linear, Calculated Intercept**

ID	Mean Signal (Abs)	Entered Conc. ug/L	Calculated Conc. ug/L	Standard Deviation	%RSD
ICALBLK	0.0000	0	0.020	----	----
ICAL, ICAL1,S39354,500	0.0064	0.2	0.210	----	----
ICAL, ICAL2,S39354,200	0.0156	0.5	0.479	----	----
ICAL, ICAL3,S39354,50	0.0682	2.0	2.026	----	----
ICAL, ICAL4,S39354,20	0.1674	5.0	4.940	----	----
ICAL, ICAL5,S39354,10	0.3404	10.0	10.026	----	----

Correlation Coef.: 0.999962 Slope: 0.03402 Intercept: -0.00068

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 7 **Autosampler Location: 8**
Sample ID: ICV,S39356,1 **Date Collected: 1/3/2019 2:47:08 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV,S39356,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.735	4.735	0.1604	0.1640	0.0573	2:48:05 PM	Yes

QC value within limits for Hg 253.7 Recovery = 94.70%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199008 File : met45 Time : 03-JAN-2019 14:48
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 8 **Autosampler Location: 9**
Sample ID: ICB **Date Collected: 1/3/2019 2:48:24 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.088	0.088	0.0023	0.0059	0.0016	2:49:22 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199019 File : met45 Time : 03-JAN-2019 15:04
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0337	5.000	4.979	ug/L	0	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 19 **Autosampler Location: 7**
Sample ID: CCV,S39357,1 **Date Collected: 1/3/2019 3:04:05 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39357,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.979	4.979	0.1687	0.1723	0.0620	3:05:03 PM	Yes

QC value within limits for Hg 253.7 Recovery = 99.58%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199020 File : met45 Time : 03-JAN-2019 15:05
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 20 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/3/2019 3:05:21 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.002	-0.002	-0.0007	0.0028	0.0017	3:06:19 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199031 File : met45 Time : 03-JAN-2019 15:20
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0340	5.000	5.023	ug/L	0	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 31 **Autosampler Location: 7**
Sample ID: CCV,S39357,1 **Date Collected: 1/3/2019 3:20:41 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39357,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.022	5.022	0.1702	0.1737	0.0625	3:21:38 PM	Yes

QC value within limits for Hg 253.7 Recovery = 100.45%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199032 File : met45 Time : 03-JAN-2019 15:21
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 32 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/3/2019 3:21:56 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.012	0.012	-0.0003	0.0033	0.0017	3:22:54 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199043 File : met45 Time : 03-JAN-2019 15:35
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0335	5.000	4.947	ug/L	-1	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 43 **Autosampler Location: 7**
Sample ID: CCV,S39357,1 **Date Collected: 1/3/2019 3:35:49 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39357,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.946	4.946	0.1676	0.1711	0.0619	3:36:46 PM	Yes

QC value within limits for Hg 253.7 Recovery = 98.92%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199044 File : met45 Time : 03-JAN-2019 15:37
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 44 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/3/2019 3:37:04 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.059	0.059	0.0013	0.0049	0.0017	3:38:02 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199055 File : met45 Time : 03-JAN-2019 15:51
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0332	5.000	4.897	ug/L	-2	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 55 **Autosampler Location: 7**
Sample ID: CCV,S39357,1 **Date Collected: 1/3/2019 3:51:02 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39357,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.898	4.898	0.1659	0.1695	0.0616	3:52:00 PM	Yes

QC value within limits for Hg 253.7 Recovery = 97.96%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199056 File : met45 Time : 03-JAN-2019 15:52
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 56 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/3/2019 3:52:18 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.093	0.093	0.0025	0.0060	0.0017	3:53:16 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199067 File : met45 Time : 03-JAN-2019 16:07
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0327	5.000	4.832	ug/L	-3	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 67 **Autosampler Location: 7**
Sample ID: CCV,S39357,1 **Date Collected: 1/3/2019 4:07:20 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39357,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.831	4.831	0.1637	0.1672	0.0622	4:08:17 PM	Yes

QC value within limits for Hg 253.7 Recovery = 96.62%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199068 File : met45 Time : 03-JAN-2019 16:08
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 68 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/3/2019 4:08:36 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.040	0.040	0.0007	0.0042	0.0018	4:09:34 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199079 File : met45 Time : 03-JAN-2019 16:22
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0326	5.000	4.814	ug/L	-4	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 79 **Autosampler Location: 7**
Sample ID: CCV,S39357,1 **Date Collected: 1/3/2019 4:22:07 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39357,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.814	4.814	0.1631	0.1666	0.0613	4:23:04 PM	Yes

QC value within limits for Hg 253.7 Recovery = 96.28%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199080 File : met45 Time : 03-JAN-2019 16:23
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 80 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/3/2019 4:23:23 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.038	0.038	0.0006	0.0042	0.0018	4:24:21 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199091 File : met45 Time : 03-JAN-2019 16:36
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0322	5.000	4.759	ug/L	-5	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 91 **Autosampler Location: 7**
Sample ID: CCV,S39357,1 **Date Collected: 1/3/2019 4:36:51 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39357,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.759	4.759	0.1612	0.1648	0.0598	4:37:49 PM	Yes

QC value within limits for Hg 253.7 Recovery = 95.19%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199092 File : met45 Time : 03-JAN-2019 16:38
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 92 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/3/2019 4:38:07 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.048	0.048	0.0010	0.0045	0.0018	4:39:05 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199102 File : met45 Time : 03-JAN-2019 16:50
Cal : 389005199001 Caldate : 03-JAN-2019
Standards: S39357

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0330	0.0320	5.000	4.729	ug/L	-5	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 102 **Autosampler Location: 7**
Sample ID: CCV,S39357,1 **Date Collected: 1/3/2019 4:50:23 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39357,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.729	4.729	0.1602	0.1637	0.0597	4:51:20 PM	Yes

QC value within limits for Hg 253.7 Recovery = 94.58%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305807 METALS TCLP Leachate
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 389005199103 File : met45 Time : 03-JAN-2019 16:51
Cal : 389005199001 Caldate : 03-JAN-2019

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 1/3/2019 2:36:18 PM**
Method Description: MET 45

==========

Sequence No.: 103 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 1/3/2019 4:51:39 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.038	0.038	0.0006	0.0042	0.0016	4:52:37 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

SAMPLE PREPARATION SUMMARY

Batch # : 266616
Started By : SL
Method : METHOD
Spike #1 ID : S39355

Prep Date : 03-JAN-2019 10:45

Analysis : HG
Finished By : SL
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
305807-001		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-002		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-003		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-004		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-005		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-006		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-007		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-008		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-009		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-010		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-011		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-012		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-013		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-014		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-015		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-016		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-017		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-018		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-019		TCLP Leachate	10	50	1	5.0						7470-HG	
QC960111	BLANK	Water	50	50	1	1.0							
QC960112	BS	Water	50	50	1	1.0		1					
QC960113	BSD	Water	50	50	1	1.0		1					
QC960114	MS	TCLP Leachate	10	50	1	5.0		1					
QC960115	MSD	TCLP Leachate	10	50	1	5.0		1					
QC960116	SER	TCLP Leachate	10	50	1	5.0							
QC960117	BLANK	TCLP Leachate	10	50	1	5.0							

Analyst: DLC Date: 01/03/19 Reviewer: PRW Date: 01/03/19

Water Digestion for Mercury

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266616 Digestion Method: ☒ EPA 7470A/ EPA 245.1 BK 4374

Date Digested: 01-03-19 ☐ _____ Page 3

	Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
	BLANK		☒ 50 ☐	☒ 50 ☐	N	QC 960111
	BS		☒ 50 ☐	☒ 50 ☐		2
	BSD		☒ 50 ☐	☒ 50 ☐		3
	MS		☐ 50 ☒ 10	☒ 50 ☐		4
5	MSD		☐ 50 ☒ 10	☒ 50 ☐		5
	305807-001		☐ 50 ☒ 10	☒ 50 ☐		MSS, TCLP Leachate
	-002		☐ 50 ☒ 10	☒ 50 ☐		
	-003		☐ 50 ☒ 10	☒ 50 ☐		
	-004		☐ 50 ☒ 10	☒ 50 ☐		
10	-005		☐ 50 ☒ 10	☒ 50 ☐		
	-006		☐ 50 ☒ 10	☒ 50 ☐		
	-007		☐ 50 ☒ 10	☒ 50 ☐		
	-008		☐ 50 ☒ 10	☒ 50 ☐		
	-009		☐ 50 ☒ 10	☒ 50 ☐		
15	-010		☐ 50 ☒ 10	☒ 50 ☐		
	-011		☐ 50 ☒ 10	☒ 50 ☐		
	-012		☐ 50 ☒ 10	☒ 50 ☐		
	-013		☐ 50 ☒ 10	☒ 50 ☐		
	-014		☐ 50 ☒ 10	☒ 50 ☐		
20	-015		☐ 50 ☒ 10	☒ 50 ☐		
	-016		☐ 50 ☒ 10	☒ 50 ☐		
	-017		☐ 50 ☒ 10	☒ 50 ☐		
	-018		☐ 50 ☒ 10	☒ 50 ☐		
	-019		☐ 50 ☒ 10	☒ 50 ☐		
	TCLPBLK QC959093		☐ 50 ☒ 10	☒ 50 ☐		QC 960114

Standards prepared per SOP: MET 5.1, rev. 20

Reagent ID/ LIMS# / Time	Initials / Date
	SL 01-03-19
☐ pH paper used to verify preservation, lot #	
- Digestion Tube Lot # CPI 112818	
1 mL of spike solution was added to all spikes S39355	
Using pipette # R293600	
☐ **CAL digested with this batch? ICAL Std S#** S39354	
ICV / CCV LIMS S# S39356 / S39357	
Digestion Temperature (°C), Block and Probe Location 94° | 28	
Digestion Block ID: SEQUOIA Thermometer # G412748	
Digestion Started at (time) 1045	
concentrated H_2SO_4 BDH2018012397	
concentrated HNO_3 JTB205793	
5% $KMnO_4$ / Granular KMnO4 Reagent ID 010219A | —	
5% $K_2S_2O_8$ Reagent ID 122618	
NaCl.hydroxylamine hydrochloride Reagent ID 010219A	
Stannous Chloride Reagent ID 010219A	
Digestion Completed at (time) 1245	
☐ filtered thru' 0.45 um syringe filter (lot #)	

Pipettes

Vol.(mL)	ID
.1	J281530
.2-1	R293600
1-5	2924335
5-10	4645196

01-03-19

Prep Chemist / Date

Continued from page Ø

Continued on page _____

Reviewed Online / See LIMS

Version 5.1, Jan.2017

SPLP/TCLP EXTRACTION LOG **Enthalpy Analytical LLC - Berkeley**

LIMS Batch #: 266347 Date/ Time ON: 12-21-18 0513 Page: 2 BK 4368

Extraction Method: ☑ EPA 1311: TCLP Temp (°C) ON: 22

☐ EPA 1312: SPLP Date/ Time OFF: 12-21-18 2320 Thermometer ID: 111755122

Rotator #'s: 5,1,3 Temp (°C) ON: 21-23 Temperature Limits: 21 - 25 C

Sample #	SL	Sample Mass (g)	Free Liq (y/n)*	Sieved? (y/n)*	Sample pH	pH after +1N HCl	Fluid #	Extract Vol (mL)	Final pH	*Comments
BLK 959093		Ø	Ø	Ø	Ø	Ø	1	☑2000 ☐____	4.89	
305807-001	A	100.10	N	N	7.19	1.98		☑2000 ☐____	4.96	(MS-NO DRY)
-002		100.04			5.88	1.97		☑2000 ☐____	4.93	
-003		100.16			6.27	1.94		☑2000 ☐____	4.97	
-004		100.05			7.34	1.93		☑2000 ☐____	4.96	
-005		100.04			7.59	1.93		☑2000 ☐____	4.98	
-006		100.14			7.58	1.95		☑2000 ☐____	4.98	
-007		100.10			7.15	1.95		☑2000 ☐____	4.94	
-008		100.28			7.32	1.94		☑2000 ☐____	4.98	
-009		100.27			7.88	1.91		☑2000 ☐____	4.95	
-010		100.08			7.20	1.95		☑2000 ☐____	4.96	
-011		100.09			7.21	1.95		☑2000 ☐____	4.96	
-012		100.23			7.75	1.94		☑2000 ☐____	5.03	
-013		100.28			7.76	1.97		☑2000 ☐____	5.19	
-014		100.07			7.87	2.02		☑2000 ☐____	5.36	
-015		100.07			8.22	1.98		☑2000 ☐____	5.13	
-016		100.13			8.24	1.99		☑2000 ☐____	5.03	
-017		100.20			7.98	1.96		☑2000 ☐____	5.03	
-018		100.09			8.18	1.95		☑2000 ☐____	5.02	
-019		100.10			7.68	1.96		☑2000 ☐____	5.06	
-020		100.13			5.23	~~1.94~~		☑2000 ☐____	4.96	
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		

Balance ID: B-13 calibration has been checked? ☑ Yes ☐ No

pH Meter ID: D13869 has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS #		Date/ Initials
☑ glass beaker/watch glass, or ☐ disposable tube/watch glass, lot#	12-14-18 ESS		12-21-18 MN
added 3.5 mL of 1 N HCl, Reagent ID/ pipette ID	4118020-092118	LS5696G	
TCLP Fluid #1 pH: 4.88 - 4.98 su — Sodium Hydroxide (NaOH)	1BD275003 BDH		
TCLP Fluid #2 pH: 2.83 - 3.03 su — Acetic acid (HOAc)	20170317O5 BDH		
SPLP Fluid #1 pH: 4.15 - 4.25 su — Fluid #1 pH, Prep Date	4.89/4.89/4.91	12-19-18/12-21-18	
SPLP Fluid #2 pH: 4.95 - 5.05 su — Fluid #2 pH, Prep Date	—	—	
Hot Plate Thermometer (Temperature, Serial #)	50 °C	ID: 4153815	
filtered thru TCLP filter paper, lot#	CPI 171164		
acidified to pH <2 with 1 mL HNO3	1118060 FISHER		
pH paper strips, lot#	HC 547770		

Analyst / Date 12-21-18

Version 6.1 Effective July 2017 **Reviewed Online / See LIMS**

SAMPLE PREPARATION SUMMARY

Batch # : 266617
Started By : SL
Method : METHOD
Spike #1 ID : S39355

Prep Date : 03-JAN-2019 10:45

Analysis : HG
Finished By : SL
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
305807-020		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-021		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-022		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-023		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-024		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-025		TCLP Leachate	10	50	1	5.0						7470-HG	
305807-026		TCLP Leachate	10	50	1	5.0						7470-HG	
306091-001		WET Leachate	10	50	1	5.0						T22/HG	
306103-002		WET Leachate	10	50	1	5.0						7470-HG	
306107-001		Water	50	50	1	1.0						PP13/HG-200	
306107-003		Water	50	50	1	1.0						PP13/HG-200	
306109-001		Water	50	50	1	1.0						T22/HG	
306112-001		Water	50	50	1	1.0						T22/HG	
306147-002		Water	50	50	1	1.0						245.1-HG	
QC960120	BLANK	Water	50	50	1	1.0							
QC960121	BS	Water	50	50	1	1.0		1					
QC960122	BSD	Water	50	50	1	1.0		1					
QC960123	MS	Water	50	50	1	1.0		1					
QC960124	MSD	Water	50	50	1	1.0		1					
QC960125	SER	Water	50	50	1	1.0							
QC960126	BLANK	TCLP Leachate	10	50	1	5.0							
QC960127	BLANK	TCLP Leachate	10	50	1	5.0							
QC960128	BLANK	WET Leachate	10	50	1	5.0							

Analyst: DLC Date: 01/03/19 Reviewer: PRW Date: 01/03/19

Water Digestion for Mercury

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266617

Digestion Method: ☒ EPA 7470A/ EPA 245.1 ☐ _____

BK 4374

Date Digested: 01-03-19

Page 4

	Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
	BLANK		☒ 50 ☐	☒ 50 ☐	Y	QC 960120
	BS		☒ 50 ☐	☒ 50 ☐	↓	1
	BSD		☒ 50 ☐	☒ 50 ☐	↓	2
	MS		☒ 50 ☐	☒ 50 ☐	N	3
5	MSD		☒ 50 ☐	☒ 50 ☐	↓	4
	306107-001	J	☒ 50 ☐	☒ 50 ☐	↓	
	↓ -003	D	☒ 50 ☐	☒ 50 ☐	↓	
	306109-001	E	☒ 50 ☐	☒ 50 ☐	↓	MSs
	306112-001	E	☒ 50 ☐	☒ 50 ☐	Y	
10	306147-002	A	☒ 50 ☐	☒ 50 ☐	N	
	306091-001		☐ 50 ☒ 10	☒ 50 ☐	↓	WET Leachate; added granular KMnO4
	306103-002		☐ 50 ☒ 10	☒ 50 ☐	↓	↓
	305807-020		☐ 50 ☒ 10	☒ 50 ☐	↓	TCLP Leachate
	↓ -021		☐ 50 ☒ 10	☒ 50 ☐	↓	↓
15	-022		☐ 50 ☒ 10	☒ 50 ☐	↓	
	-023		☐ 50 ☒ 10	☒ 50 ☐	↓	
	-024		☐ 50 ☒ 10	☒ 50 ☐	↓	
	-025		☐ 50 ☒ 10	☒ 50 ☐	↓	
	↓ -026		☐ 50 ☒ 10	☒ 50 ☐	↓	↓
20	TCLP BLK 1 QC 959093		☐ 50 ☒ 10	☒ 50 ☐	↓	QC 960126
	TCLP BLK 2 QC 959641		☐ 50 ☒ 10	☒ 50 ☐	↓	7
	WET BLK QC 959640		☐ 50 ☒ 10	☒ 50 ☐	↓	↓ 8, added granular KMnO4
			☐ 50 ☐	☐ 50 ☐	↓	
			☐ 50 ☐	☐ 50 ☐	↓	
			☐ 50 ☐	☐ 50 ☐	↓	

Standards prepared per SOP: MET 5.1, rev. 20

Reagent ID/ LIMS# / Time	Initials / Date
☐ pH paper used to verify preservation, lot #	9C 01-03-19
Digestion Tube Lot #	EP1112818
1 mL of spike solution was added to all spikes	539355
Using pipette #	R293600
☐ CAL digested with this batch? ICAL Std S#	539354
ICV / CCV LIMS S#	539356 / 539357
Digestion Temperature (°C), Block and Probe Location	94° 28
Digestion Block ID: SEG001A Thermometer #	6412748
Digestion Started at (time)	1045
concentrated H_2SO_4	BDH20180123907
concentrated HNO_3	STB 205793
5% $KMnO_4$ / Granular KMnO4 Reagent ID	010219A VWR 253660092
5% $K_2S_2O_8$ Reagent ID 421-3/18	122618
NaCl.hydroxylamine hydrochloride Reagent ID	010219A
Stannous Chloride Reagent ID	010219A
Digestion Completed at (time)	1245
☐ filtered thru' 0.45 um syringe filter (lot #)	SS811GD103

Pipettes

Vol.(mL)	ID
.1	5251530
.2-1	R293600
1-5	20221335
5-10	4645196

Stan

Pipe Vol.(

01-03-19

Prep Chemist / Date

Continued from page Ø

Continued on page _____

Reviewed Online / See LIMS

Version 5.1, Jan.2017

SPLP/TCLP EXTRACTION LOG **Enthalpy Analytical LLC - Berkeley**

LIMS Batch #: 266347 Date/ Time ON: 12-21-18 0513 Page: 2 BK 4368

Extraction Method: ☑ EPA 1311: TCLP Temp (°C) ON: 22

☐ EPA 1312: SPLP Date/ Time OFF: 12-21-18 2320 Thermometer ID: 111755122

Rotator #'s: 5,1,3 Temp (°C) ON: 21-23 Temperature Limits: 21 - 25 C

Sample #	SL	Sample Mass (g)	Free Liq (y/n)*	Sieved? (y/n)*	Sample pH	pH after +1N HCl	Fluid #	Extract Vol (mL)	Final pH	*Comments
BLK 959093		Ø	Ø	Ø	Ø	Ø	1	☑2000 ☐____	4.89	
305807-001	A	100.10	N	N	7.19	1.98	1	☑2000 ☐____	4.96	(MIS-NO DAY)
-002		100.04			5.88	1.97		☑2000 ☐____	4.93	
-003		100.16			6.27	1.94		☑2000 ☐____	4.97	
-004		100.05			7.34	1.93		☑2000 ☐____	4.96	
-005		100.04			7.59	1.93		☑2000 ☐____	4.98	
-006		100.14			7.58	1.95		☑2000 ☐____	4.98	
-007		100.10			7.15	1.95		☑2000 ☐____	4.94	
-008		100.28			7.32	1.94		☑2000 ☐____	4.98	
-009		100.27			7.18	1.91		☑2000 ☐____	4.95	
-010		100.08			7.20	1.95		☑2000 ☐____	4.96	
-011		100.09			7.21	1.95		☑2000 ☐____	4.96	
-012		100.23			7.75	1.94		☑2000 ☐____	5.03	
-013		100.28			7.76	1.97		☑2000 ☐____	5.19	
-014		100.07			7.87	2.02		☑2000 ☐____	5.36	
-015		100.07			8.22	1.98		☑2000 ☐____	5.13	
-016		100.13			8.24	1.99		☑2000 ☐____	5.03	
-017		100.20			7.98	1.96		☑2000 ☐____	5.03	
-018		100.09			8.18	1.95		☑2000 ☐____	5.02	
-019		100.10			7.68	1.96		☑2000 ☐____	5.06	
-020		100.13			5.23	~~1.94~~		☑2000 ☐____	4.96	
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		

Balance ID: B-13 calibration has been checked? ☑ Yes ☐ No

pH Meter ID: 013869 has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS #		Date/ Initials
☑ glass beaker/watch glass, or ☐ disposable tube/watch glass, lot#	12-14-18 ESS		12-21-18 MN
added 3.5 mL of 1 N HCl, Reagent ID/ pipette ID	4118020-092118	LS5696G	
TCLP Fluid #1 pH: 4.88 - 4.98 su — Sodium Hydroxide (NaOH)	18D275003 BDH		
TCLP Fluid #2 pH: 2.83 - 3.03 su — Acetic acid (HOAc)	20170317O5 BDH		
SPLP Fluid #1 pH: 4.15 - 4.25 su — Fluid #1 pH, Prep Date	4.89/4.89/4.91	12-19-18/12-21-18	
SPLP Fluid #2 pH: 4.95 - 5.05 su — Fluid #2 pH, Prep Date	—	—	
Hot Plate Thermometer (Temperature, Serial #)	50 °C	ID: 4153815	
filtered thru TCLP filter paper, lot#	CPI 171164		
acidified to pH <2 with 1 mL HNO3	1118060 FISHER		
pH paper strips, lot#	HC 547770		

12-21-18

Analyst / Date

Version 6.1 Effective July 2017 **Reviewed Online / See LIMS**

SPLP/TCLP EXTRACTION LOG

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266492
Extraction Method: ☑ EPA 1311: TCLP ☐ EPA 1312: SPLP
Rotator #'s: 5

Date/ Time ON: 12-28-18 0505
Temp (°C) ON: 21
Date/ Time OFF: 12-28-18 2300
Temp (°C) ON: 21.23

Page: 5 **BK 4368**
Thermometer ID: 111755122
Temperature Limits: 21 - 25 C

Sample #	SL	Sample Mass (g)	Free Liq (y/n)*	Sieved? (y/n)*	Sample pH	pH after +1N HCl	Fluid #	Extract Vol (mL)	Final pH	*Comments
BLK 959641		Ø	Ø	Ø	Ø	Ø	1	☑2000 ☐____	4.88	
305807-021	A	100.18	N	N	4.75	N/A	1	☑2000 ☐____	4.88	(MIS-DOBY)
-022	1	100.03			4.43			☑2000 ☐____	4.88	
-023		100.07			4.90			☑2000 ☐____	4.88	
-024		100.05			4.43			☑2000 ☐____	4.88	↓
-025		50.16			N/A			☐ 2000 ☑1000	4.92	(LIMITED SAMPLE)
-026		30.13			↓	↓		☐ 2000 ☑600	4.96	↓
306025-001		100.29			8.25	1.88		☑2000 ☐____	5.10	
-002	↓	100.13	↓	↓	8.20	1.89	↓	☑2000 ☐____	5.25	
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
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								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		

Balance ID: B-13 calibration has been checked? ☑ Yes ☐ No
pH Meter ID: 013869 has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS #		Date/ Initials
☑ glass beaker/watch glass, or ☐ disposable tube/watch glass, lot#	12-21-18 ESS		12-28-18 MV
added 3.5 mL of 1 N HCl, Reagent ID/ pipette ID	4118020-092118	L556966	
TCLP Fluid #1 pH: 4.88 - 4.98 su — Sodium Hydroxide (NaOH)	18D275003 BDH		
TCLP Fluid #2 pH: 2.83 - 3.03 su — Acetic acid (HOAc)	20170317O5 BDH		
SPLP Fluid #1 pH: 4.15 - 4.25 su — Fluid #1 pH, Prep Date	4.88	12-28-18	
SPLP Fluid #2 pH: 4.95 - 5.05 su — Fluid #2 pH, Prep Date	—	—	
Hot Plate Thermometer (Temperature, Serial #)	50 °C	ID: 453815	
filtered thru TCLP filter paper, lot#	CPI 171164		
acidified to pH <2 with 1 mL HNO3	1118060 FISHER		
pH paper strips, lot#	HC 547770		↓

12-28-18
Analyst / Date

Version 6.1 Effective July 2017 **Reviewed Online / See LIMS**

W.E.T (STLC) EXTRACTION LOG version 201805 Enthalpy Analytical LLC - Berkely

LIMS Batch #: 266491	Date/ Time ON: 12-28-18 0345	Page: 5
Extraction Method: WET	Temp (C) ON: 22	Benchbook#: BK 4368
Rotator #'s: 3	Date/ Time OFF: 12-30-18 03:40	**Balance Used:**
	Temp (C) OFF: 21°C - 23°C	☑ B-13

calibration checked? ☑ Yes ☐ No

Sample # / Letter	Sample Mass (g)	Sieved? (y/n)*	Extract Vol (mL)	N2 purge	*Comments
BLK 959640	∅	∅	☑500 ☐	YES	
306005-005 A	50.01	N	☑500 ☐		306005-1→4 (12.5g ea.)
-015	50.04		☑500 ☐		-11→14
-020	50.03		☑500 ☐		-16→19
306035-001	50.19		☑500 ☐		
-002	50.01		☑500 ☐		
306037-001 F	50.23		☑500 ☐		
-002	50.23		☑500 ☐		
306039-001 A	50.10		☑500 ☐		
306054-001	50.13		☑500 ☐		
-002	50.12		☑500 ☐		
-003	50.17		☑500 ☐		
-004	50.19		☑500 ☐		
306057-001	50.05		☑500 ☐		
-002	50.19		☑500 ☐		
306058-001 B	50.09		☑500 ☐		305927-001
306091-001 A	50.15	N	☑500 ☐		(ADDED AT 12-29-18)
306103-001 A→D	50.04		☑500 ☐		305932-001 (A→D 12.5g ea.)
-002	50.08		☑500 ☐		-002
-003	50.10		☑500 ☐		-003
306114-001	50.10		☑500 ☐		305841-1 (A→D 50g ea.)
			☐ 500 ☐		Time/date off 12-31-18 @ 02:00
			☐ 500 ☐		
			☐ 500 ☐		

Final vol. V.V. entered for V.V. based off from LIMS entry for final volume -DES 12-31-18

Thermometer ID: 111755122
Temperature Limits: 20 - 40 C
pH Meter ID: 013869
Extraction Fluid pH Limits: 4.9 - 5.1 su

	Mfg & Lot #		Date/ Initials
Used Citric Acid	K50315842 EMD		12-28-18 MV
Used Sodium Hydroxide (NaOH)	18D275003 BDH		
Extraction Fluid pH, Prep Date	4.92/4.93	12-15-18/12-28-18	
Extract filtered through 0.45um cellulose fiber filter paper	280635046-LSS		12-30-18 VV
Metals extracts acidified to 5% HNO_3	1118060 - Fisher		
Leachates Relinquished to coldroom, Shelf #	102		

[signature] 12-28-18

Extraction Chemist Date

Reviewed Online / See LIMS

Standards

S37627

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Mass Spec Solution
Catalog Number:	MSHGN-10PPM
Lot Number:	M2-HG657422
Matrix:	10% (v/v) HNO3
Value / Analyte(s):	10 µg/mL ea: Mercury
Starting Material:	Hg metal
Starting Material Lot#:	05214TX, R307HGA1, 1780
Starting Material Purity:	99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.000 ± 0.056 µg/mL

Certified Density: 1.050 g/mL (measured at 20 ± 1 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	061204
Hg	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

10ppm Hg SRC
IV HG 10PPM in Water
KER 16-JUL-18 10 ug/mL
S37627 | Expires: 08-MAY-21

KER 7/16/18

Characterization of CRM by two independent methods **Characterization of CRM by one method**

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{1/2}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	0.000017	M	Eu	< 0.000203	O	Na	0.000097	M	Se	< 0.013814	O	Zn	0.000001			
O	Al	0.000002	O	Fe	0.000001	M	Nb	< 0.000203	O	Si	0.000004	M	Zr	< 0.001219			
M	As	< 0.002844	M	Ga	< 0.000203	M	Nd	< 0.000203	M	Sm	< 0.000203						
O	Au	< 0.003219	M	Gd	< 0.000203	O	Ni	< 0.001812	M	Sn	< 0.000203						
O	B	< 0.002479	M	Ge	< 0.000609	M	Os	< 0.000202	O	Sr	< 0.000152						
M	Ba	< 0.000203	M	Hf	< 0.000203	O	P	< 0.010730	M	Ta	< 0.000203						
O	Be	< 0.000322	s	Hg	<	M	Pb	< 0.000203	M	Tb	< 0.000203						
M	Bi	< 0.013001	M	Ho	< 0.000203	M	Pd	< 0.000404	M	Te	< 0.001422						
O	Ca	0.000017	M	In	< 0.004063	M	Pr	< 0.000203	M	Th	< 0.000203						
M	Cd	0.000001	M	Ir	< 0.000202	M	Pt	< 0.000203	O	Ti	< 0.000530						
M	Ce	< 0.000203	M	K	0.000004	M	Rb	< 0.001219	O	Tl	< 0.002788						
M	Co	< 0.000406	M	La	< 0.000203	M	Re	< 0.001016	M	Tm	< 0.000203						
O	Cr	0.000002	O	Li	< 0.000180	M	Rh	< 0.000203	M	U	< 0.000813						
M	Cs	< 0.000203	M	Lu	< 0.000203	M	Ru	< 0.000202	M	V	< 0.000406						
M	Cu	< 0.000406	O	Mg	0.000004	O	S	< 0.023508	M	W	< 0.000609						
M	Dy	< 0.000203	M	Mn	< 0.000203	O	Sb	< 0.009657	M	Y	< 0.000203						
M	Er	< 0.000203	O	Mo	< 0.002152	M	Sc	< 0.000406	M	Yb	< 0.000203						

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pippette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+
Chemical Compatibility - Stable in HNO3. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.
Stability - 2-100 ppb levels not stable in 1% HNO3 / LDPE container, stable in 10% HNO3 packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO3 packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO3 / LDPE container.
Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO3); Oxide (Soluble in HNO3); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th ,Rh , Fe, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 08, 2017

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 08, 2021**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Donna Senn
Product Documentation Technician

Donna Senn

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Michael J Booth

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

Paul R Gaines

S38597

CPI INTERNATIONAL

CERTIFICATE OF ANALYSIS

Single-Element Aqueous CRM

Product #: G34-4400-10PPM331-100

Mercury (Hg) – 10 µg/mL

Lot #: 168539-48

Matrix: 2% HNO_3

Element	Certified Concentration & Uncertainty
Hg	10.0 ± 0.1 µg/mL (w/v)
	9.98 ± 0.1 µg/g (w/w)

Intended Use: This solution is intended for use as a certified reference material (CRM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This CRM was manufactured, processed, and certified under a quality management system that is registered/accredited to **ISO 9001, ISO Guide 34**, and **ISO/IEC 17025**. This CRM was prepared to a nominal concentration of 10.0 µg/mL by gravimetric methods using a single-element concentrate dissolved in high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this CRM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentration and uncertainty were determined using the "High Performance ICP-OES" protocol developed by NIST, and both the certified concentration and uncertainty values are traceable to **NIST SRM 3133, lot #061204**. The uncertainty associated with the certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Indicative Values: ICP-MS was used to determine trace metal concentrations for this product (nd = not determined).

Trace Concentrations (µg/L)

Ag	<0.5	Fe	<25	Pb	<0.5
Al	<2	Hg	MAJOR	Sb	<0.5
As	<0.5	K	<50	Se	<2
Ba	<2	Li	<2	Sn	<0.5
Ca	<50	Mg	<10	Sr	<5
Cd	<0.5	Mn	<0.5	Ti	<2
Co	<0.5	Mo	<0.5	Tl	<0.5
Cr	<1	Na	<50	V	<2
Cu	<1	Ni	<1	Zn	<2

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the CRM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original CRM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

October 9, 2018

Certification Date

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

Health and Safety Information: Refer to the Safety Data Sheet (SDS).

Homogeneity: This solution was determined to be homogeneous by procedures consistent with the requirements of ISO Guide 34 and ISO Guide 35. Replicate samples of the finished solution were analyzed to confirm its homogeneity, in accordance with QSP 6-13 Assessment of Homogeneity and Stability. To ensure homogeneity, users should not take a smaller sub-sample than specified in the Instructions for Use, as doing so will invalidate the certified values and uncertainties.

Quality Manual Rev: No. 5, 03/01/2013

Further Information: Please contact CPI International for further information about this CRM.

Quality Certifications: This CRM was prepared under a quality management system that is registered/accredited to the following:

- ISO 9001 – Quality Management Systems – Requirements (TUV NORD Cert. No. 44 100 16560231)
- ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories (A2LA Cert. No. 2848.01)
- ISO Guide 34 – General Requirements for the Competence of Reference Material Producers (A2LA Cert. No. 2848.02)
    - ISO Guide 34 references additional requirements specified in ISO Guide 31 and ISO Guide 35.

KEE 10/16/18

2nd source 10ppm Hg standa SRC
HG 10 REF-2 in Water
KER 16-OCT-18 10 ug/mL
S38597 B | Expires: 16-OCT-19

Project BLC3449 Hg STANDARDS 157

Continued from Page

DATE/ ANALYST	STD Name	SOURCE S#	STD S #	SOURCE VOL	HNO_3 LOT #	HNO_3 VOL.	TOTAL VOL.	HNO_3 / PIPETTE /	SOURCE DISPENSER
12-26-18 DLC	Hg 0.1 STD	S37627	S39291	1mL	FS1118040	5mL	100mL	R293600	2924335
	Hg 0.1 REF	S38597	S39292						
	ICV Hg	S38597	S39293						
	CCV_2 Hg	S37627	S39294						
	ICV Hg (2)	S38597	S39295						
	CCV_2 Hg (2)	S37627	S39296						
12-27-18 DLC	Hg 0.1 STD	S37627	S39299	1mL	FS1118040	5mL	100mL	R293600	2924335
	Hg 0.1 REF	S38597	S39300						
	ICV Hg	S38597	S39301						
	CCV_2 Hg	S37627	S39302						
	ICV Hg (2)	S38597	S39303						
	CCV_2 Hg (2)	S37627	S39304						
12-28-18 DLC	Hg 0.1 STD	S37627	S39316	1mL	FS1118040	5mL	100mL	R293600	2924335
	Hg 0.1 REF	S38597	S39317						
	ICV Hg	S38597	S39318						
	CCV_2 Hg	S38 37627 DDL 12918	S39319						
	ICV Hg (2)	S38597	S39320						
	CCV_2 Hg (2)	S37627	S39321						
12-31-18 DLC	Hg 0.1 STD	S37627	S39338	1mL	FS1118040	5mL	100mL	R293600	2924335
	Hg 0.1 REF	S38597	S39339						
	ICV Hg	S38597	S39340						
	CCV_2 Hg	S37627	S39341						
	ICV Hg (2)	S38597	S39342						
	CCV_2 Hg (2)	S37627	S39343						
1-2-19 DLC	Hg 0.1 STD	S37627	S39346	1mL	JTB 205793	5mL	100mL	R293600	2924335
	Hg 0.1 REF	S38597	S39347						
	ICV Hg	S38597	S39348						
	CCV_2 Hg	S37627	S39349						
	ICV Hg (2)	S38597	S39350						
	CCV_2 Hg (2)	S37627	S39352						
1-3-19 DLC	Hg 0.1 STD	S37627	S39354	1mL	JTB 205793	5mL	100mL	R293600	2924335
	Hg 0.1 REF	S38597	S39355						
	ICV Hg	S38597	S39356						
	CCV_2 Hg	S37627	S39357						
	ICV Hg (2)	S38597	S39358						
	CCV_2 Hg (2)	S37627	S39359						

Continued on Page

Read and Understood By

Signed Date Signed

Enthalpy Analytical

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 305807
ANALYTICAL REPORT
Wet Chemistry

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : 103S582303.02
Location : RFS MFA Pilot
Level : IV

Sample ID	Lab ID	Sample ID	Lab ID
RFS-MFA-EX-G2-5	305807-001	RFS-MFA-EX-G5-4	305807-014
RFS-MFA-EX-G2-6	305807-002	RFS-MFA-EX-E1-4	305807-015
RFS-MFA-EX-G2-7	305807-003	RFS-MFA-EX-E1-5	305807-016
RFS-MFA-EX-G3-1	305807-004	RFS-MFA-EX-D1-4	305807-017
RFS-MFA-EX-G3-2	305807-005	RFS-MFA-EX-D1-5	305807-018
RFS-MFA-EX-G3-3	305807-006	RFS-MFA-EX-F1-5	305807-019
RFS-MFA-EX-G3-4	305807-007	RFS-MFA-EX-F1-6	305807-020
RFS-MFA-EX-G4-1	305807-008	RFS-MFA-EX-F1-7	305807-021
RFS-MFA-EX-G4-2	305807-009	RFS-MFA-EX-F1-8	305807-022
RFS-MFA-EX-G4-3	305807-010	RFS-MFA-EX-F1-9	305807-023
RFS-MFA-EX-G5-1	305807-011	RFS-MFA-EX-F1-10	305807-024
RFS-MFA-EX-G5-2	305807-012	RFS-MFA-EX-G2-ELEM	305807-025
RFS-MFA-EX-G5-3	305807-013	RFS-MFA-EX-G2-ELEM +	305807-026

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 01/08/2019

Will Rice
Project Manager
will.rice@enthalpy.com
(510) 204-2221 Ext 13102

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

CASE NARRATIVE
WET CHEMISTRY (ASTM D2216-98/CLP)

Laboratory number:	**305807**
Client:	**Tetra Tech EMI**
Project:	**103S582303.02**
Location:	**RFS MFA Pilot**
Request Date:	**12/13/18**
Samples Received:	**12/13/18**

This data package contains sample and QC results for twenty six soil samples, requested for the above referenced project on 12/13/18. See attached cooler receipt form for any sample receipt problems or discrepancies.

Moisture (ASTM D2216-98/CLP):
No analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Chain of Custody # _____

C&T LOGIN # 305807

Project No: 103552303.02 Sampler: R. JOHNSON

Project Name: RFS MFA PILOT Report To: JASON BRODERSEN

Project P. O. No: Company: TETRA TECH

EDD Format: Report Level ☐ II ☒ III ☐ IV Telephone: 415 497 9060

Turnaround Time: ☐ RUSH _____ ☒ Standard Email: JASON.BRODERSEN@tetratech.com

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST																	
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	ISM PREP - ONLY SUBSAMPLE	NO DRY/SIEVE NECESSARY		MERCURY 7471		TCLP LOW LEVEL MERCURY ONLY											
1	~~RFS~~ RFS-MFA-EXG2-5	~~12/12~~ 12/12	1135					1						X			X		X											
2	RFS-MFA-EXG2-6	12/12/18	1200					1						X			X		X											
3	RFS-MFA-EXG2-7	12/12/18	1230					1						X			X		X											
4	RFS-MFA-EXG3-1	12/12/18	1356					1						X			X		X											
5	RFS-MFA-EXG3-2	12/12/18	1407					1						X			X		X											
6	RFS-MFA-EXG3-3	12/12/18	1424					1						X			X		X											
7	RFS-MFA-EXG3-4	12/12/18	1445					2						X			X		X											
8	RFS-MFA-EXG4-1	12/13/18	0738					1						X			X		X											
9	RFS-MFA-EXG4-2	12/13/18	0755					1						X			X		X											
10	RFS-MFA-EXG4-3	12/13/18	0815					1						X			X		X											
11	RFS-MFA-EXG5-1	12/13/18	0825					1						X			X		X											
12	RFS-MFA-EXG5-2	12/13/18	0835					1						X			X		X											
13	RFS-MFA-EXG5-3	12/13/18	0845					1						X			X		X											

Notes:
CAUTION ELEVATED MERCURY

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:
DATE: 12/13 TIME: 15/38
DATE: TIME:
DATE: TIME:

RECEIVED BY:
DATE: 12-13-18 TIME: 1535
DATE: TIME:
DATE: TIME:

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Chain of Custody # _____

C&T LOGIN # 305807

Project No: 103558230302

Project Name: RFS MFA PILOT

Project P. O. No:

EDD Format: Report Level ☐ II ☒ III ☐ IV

Turnaround Time: ☐ RUSH _____ ☒ Standard

Sampler:

Report To: JASON BREDERSON

Company: TETRA TECH

Telephone:

Email:

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST																
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	15mL PREP - SUBSTANCE ONLY		MERCURY - TOTAL		TCLP METAL MERCURY ONLY												
14	RFS-MFA-EX G5-4	12/13/18	0900					1						X		X		X												
15	RFS-MFA-EX E1-4	12/13/18	0954					1						X		X		X												
16	RFS-MFA-EX E1-5	12/13/18	1030					1						X		X		X												
17	RFS-MFA-EX D1-4	12/13/18	1055					1						X		X		X												
18	RFS-MFA-EX D1-5	12/13/18	1100					1						X		X		X												
19	RFS-MFA-EX F1-5	12/13/18	1305					1						X		X		X												
20	RFS-MFA-EX F1-6	12/13/18	1315					1						X		X		X												
21	RFS-MFA-EX F1-7	12/17/18	1335					1						X		X		X												
22	RFS-MFA-EX F1-8	12/13/18	1345					1						X		X		X												
23	RFS-MFA-EX F1-9	12/13/18	1355					1						X		X		X												
24	RFS-MFA-EX F1-10	12/13/18	1400					1						X		X		X												
* 25	RFS-MFA-EX G2-ELEM	12/12/18	1200					1						X		X		X												
* 26	RFS-MFA-EX G2-ELEM +	12/12/18	1200					1						X		X		X												

Notes:
CAUTION - THESE SAMPLES CONTAIN ELEVATED MERCURY AND VAPORS

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:
DATE: 12/13 TIME: 1535
DATE: TIME:
DATE: TIME:

RECEIVED BY:
DATE: 12-13-18 TIME: 1535
DATE: TIME:
DATE: TIME:

SAMPLE RECEIPT CHECKLIST

Section 1: Login # 305507 Client: Tetra Tech

Date Received: 12/13/16 Project: _____

ENTHALPY ANALYTICAL

Section 2: Samples received in a cooler? ☒ Yes, how many? 2 ☐ No (skip Section 3 below)

If no cooler Sample Temp (°C): _____ using IR Gun # ☐ A, or ☐ B

☐ Samples received on ice directly from the field. Cooling process had begun

If in cooler: Date Opened 12/13/16 By (print) DO (sign) _____

Shipping info (if applicable) _____

Are custody seals present? ☒ No, or ☐ Yes. If yes, where? ☐ on cooler, ☐ on samples, ☐ on package

☐ Date: _____ How many _____ ☐ Signature, ☐ Initials, ☐ None

Were custody seals intact upon arrival? ☐ Yes ☐ No ☒ N/A

Section 3: ***Important*: Notify PM if temperature exceeds 6°C or arrive frozen.**

Packing in cooler: (if other, describe) _____

☐ Bubble Wrap, ☐ Foam blocks, ☒ Bags, ☐ None, ☐ Cloth material, ☐ Cardboard, ☐ Styrofoam, ☐ Paper towels

☐ Samples received on ice directly from the field. Cooling process had begun

Type of ice used: ☒ Wet, ☐ Blue/Gel, ☐ None Temperature blank(s) included? ☐ Yes, ☐ No

Temperature measured using ☐ Thermometer ID: _____, or IR Gun # ☐ A ☐ B

Cooler Temp (°C): #1: 5.5, #2: 5.6, #3: _____, #4: _____, #5: _____, #6: _____, #7: _____

Section 4:	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	X		
Were Method 5035 sampling containers present?		X	
If YES, what time were they transferred to freezer? _____			
Did all bottles arrive unbroken/unopened?	—		
Are there any missing / extra samples?		—	
Are samples in the appropriate containers for indicated tests?	—		
Are sample labels present, in good condition and complete?	—		
Does the container count match the COC?	—		
Do the sample labels agree with custody papers?	—		
Was sufficient amount of sample sent for tests requested?	—		
Did you change the hold time in LIMS for unpreserved VOAs?			—
Did you change the hold time in LIMS for preserved terracores?			—
Are bubbles > 6mm absent in VOA samples?			—
Was the client contacted concerning this sample delivery?		—	
If YES, who was called? _____ By _____ Date: _____			

Section 5:	YES	NO	N/A
Are the samples appropriately preserved? (If N/A, skip the rest of section 5)			—
Did you check preservatives for all bottles for each sample?			
Did you document your preservative check?			

pH strip lot# _____, pH strip lot# _____, pH strip lot# _____

Preservative added:

☐ H2SO4 lot# _____ added to samples _____ on/at _____

☐ HCL lot# _____ added to samples _____ on/at _____

☐ HNO3 lot# _____ added to samples _____ on/at _____

☐ NaOH lot# _____ added to samples _____ on/at _____

Section 6:

Explanations/Comments: _____

Date Logged in 12/14/16 **By (print)** DO **(sign)** DO

Date Labeled 12/14/16 **By (print)** AC **(sign)** AC

Results & QC Summary

ENTHALPY ANALYTICAL

Moisture

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	ASTM D2216-98/CLP
Analyte:	Moisture, Percent	Diln Fac:	1.000
Matrix:	Soil	Received:	12/13/18
Units:	%	Analyzed:	12/19/18

Field ID	Lab ID	Result	RL	Batch#	Sampled
RFS-MFA-EX-G2-5	305807-001	19	1	266321	12/12/18
RFS-MFA-EX-G2-6	305807-002	18	1	266321	12/12/18
RFS-MFA-EX-G2-7	305807-003	19	1	266321	12/12/18
RFS-MFA-EX-G3-1	305807-004	17	1	266321	12/12/18
RFS-MFA-EX-G3-2	305807-005	15	1	266321	12/12/18
RFS-MFA-EX-G3-3	305807-006	16	1	266321	12/12/18
RFS-MFA-EX-G3-4	305807-007	16	1	266321	12/12/18
RFS-MFA-EX-G4-1	305807-008	18	1	266321	12/13/18
RFS-MFA-EX-G4-2	305807-009	17	1	266321	12/13/18
RFS-MFA-EX-G4-3	305807-010	15	1	266321	12/13/18
RFS-MFA-EX-G5-1	305807-011	17	1	266321	12/13/18
RFS-MFA-EX-G5-2	305807-012	13	1	266321	12/13/18
RFS-MFA-EX-G5-3	305807-013	14	1	266321	12/13/18
RFS-MFA-EX-G5-4	305807-014	16	1	266321	12/13/18
RFS-MFA-EX-E1-4	305807-015	15	1	266321	12/13/18
RFS-MFA-EX-E1-5	305807-016	15	1	266321	12/13/18
RFS-MFA-EX-D1-4	305807-017	16	1	266321	12/13/18
RFS-MFA-EX-D1-5	305807-018	15	1	266296	12/13/18
RFS-MFA-EX-F1-5	305807-019	16	1	266296	12/13/18
RFS-MFA-EX-F1-6	305807-020	16	1	266296	12/13/18
RFS-MFA-EX-F1-7	305807-021	22	1	266296	12/13/18
RFS-MFA-EX-F1-8	305807-022	29	1	266296	12/13/18
RFS-MFA-EX-F1-9	305807-023	25	1	266296	12/13/18
RFS-MFA-EX-F1-10	305807-024	24	1	266296	12/13/18
RFS-MFA-EX-G2-ELEM	305807-025	25	1	266296	12/12/18
RFS-MFA-EX-G2-ELEM +	305807-026	35	1	266296	12/12/18

RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

Moisture

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	ASTM D2216-98/CLP
Analyte:	Moisture, Percent	Units:	%
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	SDUP	Batch#:	266285
MSS Lab ID:	305903-001	Sampled:	12/14/18
Lab ID:	QC958842	Received:	12/18/18
Matrix:	Soil	Analyzed:	12/19/18

MSS Result	Result	RL	RPD	Lim
17.82	18.20	1.000	2	26

RL= Reporting Limit
RPD= Relative Percent Difference

Batch QC Report

Moisture

Lab #:	305807	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	ASTM D2216-98/CLP
Analyte:	Moisture, Percent	Units:	%
Type:	SDUP	Diln Fac:	1.000
Matrix:	Soil	Sampled:	12/14/18

Field ID	MSS Lab ID	Lab ID	MSS Result	Result	RL	RPD	Lim	Batch#	Received	Analyzed
RFS-MFA-EX C-13	305808-004	QC958888	19.58	20.41	1.000	4	26	266296	12/14/18	12/19/18
ZZZZZZZZZZ	305903-001	QC958991	18.93	15.63	1.000	19	26	266321	12/18/18	12/20/18

RL= Reporting Limit
RPD= Relative Percent Difference

Percent Moisture Summary Report

Batch: 266321
Date: 12/20/18
Method: CLP SOW 390
Analyst: ALW

Sample	Tare (g)	Wet (g)	Dry (g)	Percent Solids	Percent Moisture
305807-001	10.88	17.68	16.36	81	19
305807-002	10.91	17.66	16.46	82	18
305807-003	11.12	17.70	16.42	81	19
305807-004	11.32	17.67	16.60	83	17
305807-005	11.03	17.68	16.69	85	15
305807-006	11.28	17.73	16.68	84	16
305807-007	10.81	17.74	16.62	84	16
305807-008	11.31	17.72	16.55	82	18
305807-009	11.24	17.74	16.66	83	17
305807-010	11.18	17.77	16.77	85	15
305807-011	11.32	17.80	16.73	83	17
305807-012	11.26	17.77	16.90	87	13
305807-013	11.29	17.73	16.82	86	14
305807-014	11.34	17.66	16.64	84	16
305807-015	11.24	17.79	16.80	85	15
305807-016	11.62	17.67	16.79	85	15
305807-017	11.04	17.68	16.63	84	16
305903-001	11.33	17.67	16.47	81	19
QC958991	11.32	17.72	16.72	84	16
of 305903-001			RPD:	4.0%	19.1%

LIMS Batch #: 266321
Date: 12·20·18

Balance ID: B-13
calibration has been checked? ☒ Yes ☐ No

Sample # / Letter	Dish #	Dish Weight (g)	Sample + Dish Wt (g)	Final Weight (g)	*Comments
BLK	33	10.89	Ø	10.89	
305807-001A	63	10.88	17.68	16.36	
002	20	10.91	17.66	16.46	
003	79	11.12	17.70	16.42	
004	54	11.32	17.67	16.60	
005	62	11.03	17.68	16.69	
006	84	11.28	17.73	16.68	
007	90	10.81	17.74	16.62	
008	57	11.31	17.72	16.55	
009	58	11.24	17.74	16.66	
010	80	11.18	17.77	16.77	
011	87	11.32	17.80	16.73	
012	52	11.26	17.77	16.90	
013	36	11.29	17.73	16.82	
014	2	11.34	17.66	16.64	
015	44	11.24	17.79	16.80	
016	31	11.62	17.67	16.79	
017	60	11.04	17.68	16.63	
305903-001	82	11.33	17.67	16.47	
↓ SDUP001 ↓	38	11.32	17.72	16.72	

	In	Out	In-2	Out-2
Date:	12·20·18	12·21·18		
Time:	1135	1105		
Min/Max Range (°C)	104°	104°		
Thermometer ID:	P49096	P49096		
Weighed by:	AW	AW		

AW / 12·20·18
Analyst Initials / Date

Reviewed Online / See LIMS

PROJECT (B-13) OHAUS SP602 BALANCE CAL. Notebook No. BK-3384

Continued From Page

DATE	0.2g	SET#	500g	SET#	INITIALS
11-28-18	0.20	40417	499.93	28659	MV
11-29-18	0.20	40417	499.96	28659	ALW
11-30-18	0.20	40417	499.95	28659	MV
12-1-18	0.20	28659	499.91	28659	VV
12-2-18	0.20	28659	499.93	28659	VV
12-3-18	0.20	28659	499.91	28659	VV
~~12-04-18~~	~~0.20~~	~~28659~~	~~499.91~~	ALW 12.04.18	
12-04-18	0.20	40417	499.91	28659	ALW
12-05-18	0.20	40417	499.93	28659	ALW
12-06-18	0.20	40417	499.92	28659	DES
12-08-18	0.20	40417	499.93	28659	MV
12-10-18	0.20	40417	499.94	28659	ALW
12-11-18	0.20	40417	499.94	28659	ALW
12-12-18	0.20	40417	499.93	28659	MV
12-14-18	0.20	40417	499.94	28659	MV
12-15-18	0.20	40417	499.94	28659	MV
12-17-18	0.20	40417	499.96	28659	ALW
12-18-18	0.20	40417	499.94	28659	ALW
12-19-18	0-20	28659	499.93	28659	VV
12-20-18	0.20	40417	499.95	28659	ALW
12-21-18	0.20	40417	499.96	28659	ALW

Continued on Page

Read and Understood By

Signed Date Signed Date

Percent Moisture Summary Report

Batch: 266296
Date: 12/19/18
Method: CLP SOW 390
Analyst: ALW

Sample	Tare (g)	Wet (g)	Dry (g)	Percent Solids	Percent Moisture
305807-018	10.99	17.60	16.63	85	15
305807-019	10.94	17.62	16.55	84	16
305807-020	11.28	17.66	16.61	84	16
305807-021	11.25	17.65	16.26	78	22
305807-022	11.20	17.68	15.79	71	29
305807-023	11.29	17.61	16.02	75	25
305807-024	11.32	17.61	16.13	76	24
305807-025	11.30	17.63	16.02	75	25
305807-026	11.03	17.69	15.33	65	35
305808-001	11.19	17.72	16.54	82	18
305808-002	11.31	17.65	16.58	83	17
305808-003	11.29	17.66	16.53	82	18
305808-004	11.04	17.63	16.34	80	20
QC958888	11.34	17.66	16.37	80	20
of 305808-004			RPD:	1.0%	4.2%

Moisture LOG Enthalpy Analytical LLC - Berkeley rev.3.2, July 2017

LIMS Batch #: 2662296
Date: 12.19.18

Page: **49**
Benchbook#: **BK 4351**

Balance ID: B-13
calibration has been checked? ☒ Yes ☐ No

Sample # / Letter	Dish #	Dish Weight (g)	Sample + Dish Wt (g)	Final Weight (g)	*Comments
BIK	75	11.18	Ø	11.18	
305807-018A	3	10.99	17.60	16.63	
019	53	10.94	17.62	16.55	
020	23	11.28	17.66	16.61	
021	89	11.25	17.65	16.26	
022	18	11.20	17.68	15.79	
023	61	11.29	17.61	16.02	
024	19	11.32	17.61	16.13	
025	17	11.30	17.63	16.02	
026	64	11.03	17.69	15.33	
305808-001	6	11.19	17.72	16.54	
002	88	11.31	17.65	16.58	
003	91	11.29	17.66	16.53	
004	46	11.04	17.63	16.34	
SDUP004	56	11.34	17.66	16.37	

	In	Out	In-2	Out-2
Date:	12.19.18	12.20.18		
Time:	1630	1615		
Min/Max Range (°C)	104.	104.		
Thermometer ID:	P49096	P49096		
Weighed by:	ALW	ALW		

ALW / 12.19.18
Analyst Initials / Date

Reviewed Online / See LIMS

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PROJECT (B-13) OHAUS SP602 BALANCE CAL. Notebook No. BK-3384

Continued From Page

DATE	0.2g	SET #	500g	SET #	INITIALS
11-28-18	0.20	40417	499.93	28659	MV
11-29-18	0.20	40417	499.96	28659	ALW
11-30-18	0.20	40417	499.95	28659	MV
12-1-18	0.20	28659	499.91	28659	VV
12-2-18	0.20	28659	499.93	28659	VV
12-3-18	0.20	28659	499.91	28659	VV
~~12-04-18~~	~~0.20~~	~~40417~~ ~~28659~~	~~499.91~~	ALW 12.04.18	
12-04-18	0.20	40417	499.91	28659	ALW
12-05-18	0.20	40417	499.93	28659	ALW
12-06-18	0.20	40417	499.92	28659	DES
12-08-18	0.20	40417	499.93	28659	MV
12-10-18	0.20	40417	499.94	28659	ALW
12-11-18	0.20	40417	499.94	28659	ALW
12-12-18	0.20	40417	499.93	28659	MV
12-14-18	0.20	40417	499.94	28659	MV
12-15-18	0.20	40417	499.94	28659	MV
12-17-18	0.20	40417	499.96	28659	ALW
12-18-18	0.20	40417	499.94	28659	ALW
12-19-18	0.20	28659	499.93	28659	VV
12-20-18	0.20	40417	499.95	28659	ALW

Continued on Page

Read and Understood By

Signed Date Signed Date

ENTHALPY

ANALYTICAL

Enthalpy Analytical

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 305808
ANALYTICAL REPORT
Metals
Matrix: Soil

Tetra Tech EMI	Project : 103S582303.02
1999 Harrison Street	Location : RFS MFA Pilot
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
RFS-MFA-EX C-7	305808-001
RFS-MFA-EX C-8	305808-002
RFS-MFA-EX C-9	305808-003
RFS-MFA-EX C-13	305808-004

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Will Rice Date: 01/02/2019

Will Rice
Project Manager
will.rice@enthalpy.com
(510) 204-2221 Ext 13102

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

CASE NARRATIVE
METALS (EPA 7471A)
SOIL

Laboratory number:	**305808**
Client:	**Tetra Tech EMI**
Project:	**103S582303.02**
Location:	**RFS MFA Pilot**
Request Date:	**12/14/18**
Samples Received:	**12/14/18**

This data package contains sample and QC results for four soil samples, requested for the above referenced project on 12/14/18. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 7471A) Soil:
No analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Chain of Custody # _____

C&T LOGIN # 305908

Project No: RFS MFA PILOT
Project Name: 1635582303.02
Project P. O. No:
EDD Format: Report Level ☐ II ☒ III ☐ IV
Turnaround Time: ☐ RUSH _____ ☒ Standard

Sampler: R. JOHNSON
Report To: JASON BIEDERSON
Company: TETRA TECH
Telephone: 415 497 9060
Email:

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST																			
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	ISM 1312 NO DRY/SIEVE		MERCURY 7471		TCLP MERCURY ONLY															
	RFS-MFA-EXC-7	12/14/18	0930					1						X		X		X															
	RFS-MFA-EXC-8	12/14/18	0840					1						X		X		X															
	RFS-MFA-EXC-9	12/14/18	0845					1						X		X		X															
	RFS-MFA-EXC-13	12/14/18	0930					2						X		X		X															

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:
_____ DATE: 12/14 TIME: 1052
DATE: TIME:
DATE: TIME:

RECEIVED BY:
_____ 12-14-18 1052
DATE: TIME:
DATE: TIME:
DATE: TIME:

SAMPLE RECEIPT CHECKLIST

Section 1: Login # 305808 Client: Tetra Tech

Date Received: 12/14/18 Project: _____

Section 2: Samples received in a cooler? ☒ Yes, how many? 1 ☐ No (skip Section 3 below)

If no cooler Sample Temp (°C): _____ using IR Gun # ☐ A, or ☐ B

☐ Samples received on ice directly from the field. Cooling process had begun

If in cooler: Date Opened 12/13/18 By (print) D. O (sign) _____

Shipping info (if applicable) _____

Are custody seals present? ☒ No, or ☐ Yes. If yes, where? ☐ on cooler, ☐ on samples, ☐ on package

☐ Date: _____ How many _____ ☐ Signature, ☐ Initials, ☐ None

Were custody seals intact upon arrival? ☐ Yes ☐ No ☒ N/A

Section 3: ***Important*: Notify PM if temperature exceeds 6°C or arrive frozen.**

Packing in cooler: (if other, describe) _____

☐ Bubble Wrap, ☐ Foam blocks, ☐ Bags, ☒ None, ☐ Cloth material, ☐ Cardboard, ☐ Styrofoam, ☐ Paper towels

☐ Samples received on ice directly from the field. Cooling process had begun

Type of ice used: ☒ Wet, ☐ Blue/Gel, ☐ None Temperature blank(s) included? ☐ Yes, ☒ No

Temperature measured using ☐ Thermometer ID: _____, or IR Gun # ☒ A ☐ B

Cooler Temp (°C): #1: 2.4, #2: _____, #3: _____, #4: _____, #5: _____, #6: _____, #7: _____

Section 4:	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	✓		
Were Method 5035 sampling containers present?		✓	
If YES, what time were they transferred to freezer?			
Did all bottles arrive unbroken/unopened?	✓		
Are there any missing / extra samples?		✓	
Are samples in the appropriate containers for indicated tests?	✓		
Are sample labels present, in good condition and complete?	✓		
Does the container count match the COC?	✓		
Do the sample labels agree with custody papers?	✓		
Was sufficient amount of sample sent for tests requested?	✓		
Did you change the hold time in LIMS for unpreserved VOAs?			✓
Did you change the hold time in LIMS for preserved terracores?			✓
Are bubbles > 6mm absent in VOA samples?			✓
Was the client contacted concerning this sample delivery?		✓	
If YES, who was called? _____ By _____ Date: _____			

Section 5:	YES	NO	N/A
Are the samples appropriately preserved? (If N/A, skip the rest of section 5)			✓
Did you check preservatives for all bottles for each sample?			
Did you document your preservative check?			

pH strip lot# _____, pH strip lot# _____, pH strip lot# _____

Preservative added:

☐ H2SO4 lot# _____ added to samples _____ on/at _____

☐ HCL lot# _____ added to samples _____ on/at _____

☐ HNO3 lot# _____ added to samples _____ on/at _____

☐ NaOH lot# _____ added to samples _____ on/at _____

Section 6:

Explanations/Comments: _____

Date Logged in 12/14/18 **By (print)** VO **(sign)** VO

Date Labeled 12/15/18 **By (print)** AC **(sign)** AC

Results & QC Summary

ENTHALPY ANALYTICAL

Mercury by Cold Vapor AA

Lab #:	305808	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7471A
Analyte:	Mercury	Sampled:	12/14/18
Matrix:	Soil	Received:	12/14/18
Units:	mg/Kg	Prepared:	12/28/18
Basis:	dry	Analyzed:	12/28/18
Batch#:	266511		

Field ID	Type	Lab ID	Result	RL	MDL	Moisture	Diln Fac
RFS-MFA-EX C-7	SAMPLE	305808-001	75	2.0	0.36	18%	100.0
RFS-MFA-EX C-8	SAMPLE	305808-002	73	2.0	0.35	17%	100.0
RFS-MFA-EX C-9	SAMPLE	305808-003	8.9	0.21	0.038	18%	10.00
RFS-MFA-EX C-13	SAMPLE	305808-004	0.45	0.021	0.0037	20%	1.000
	BLANK	QC959696	ND	0.018	0.0031		1.000

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305808	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	266511
MSS Lab ID:	305985-003	Sampled:	12/19/18
Matrix:	Soil	Received:	12/20/18
Units:	mg/Kg	Prepared:	12/28/18
Basis:	dry	Analyzed:	12/28/18

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Moisture	RPD	Lim
BS	QC959697		0.1786	0.1747	98	80-120			
BSD	QC959698		0.1695	0.1663	98	80-120		0	20
MS	QC959699	0.07349	0.1863	0.2557	98	80-120	9%		
MSD	QC959700		0.1832	0.2779	112	80-120	9%	10	20

RPD= Relative Percent Difference

REPORTING SUMMARY FOR 305808 METALS Soil
Enthalpy Analytical - Berkeley

Lab ID	Inst ID	Analyzed	IDF	HG	
305808-001	MET45	12/28/18 16:31	1.0		
305808-001	MET45	12/28/18 16:59	100.0		
305808-001	MET45	12/28/18 17:23	100.0	+	
305808-002	MET45	12/28/18 16:32	1.0		
305808-002	MET45	12/28/18 17:00	100.0		
305808-002	MET45	12/28/18 17:24	100.0	+	
305808-003	MET45	12/28/18 16:34	1.0		
305808-003	MET45	12/28/18 17:02	10.0		
305808-003	MET45	12/28/18 17:25	10.0	+	
305808-004	MET45	12/28/18 16:35	1.0	+	
305808-004	MET45	12/28/18 17:08	1.0		
305808-004	MET45	12/28/18 17:31	1.0		
QC959696	MET45	12/28/18 16:21	1.0	+	
QC959697	MET45	12/28/18 16:22	1.0	+	
QC959698	MET45	12/28/18 16:23	1.0	+	
QC959699	MET45	12/28/18 16:28	1.0	+	
QC959700	MET45	12/28/18 16:29	1.0	+	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 388522212

Instrument : MET45 Begun : 12/28/18 15:32
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				12/28/18 15:32	1.0		
002	met45	ICAL	ICAL1			12/28/18 15:33	1.0	1	
003	met45	ICAL	ICAL2			12/28/18 15:35	1.0	1	
004	met45	ICAL	ICAL3			12/28/18 15:36	1.0	1	
005	met45	ICAL	ICAL4			12/28/18 15:37	1.0	1	
006	met45	ICAL	ICAL5			12/28/18 15:38	1.0	1	
007	met45	ICV				12/28/18 15:39	1.0	2	
008	met45	ICB				12/28/18 15:41	1.0		
009	met45	BLANK	QC959688	Soil	266509	12/28/18 15:42	1.0		
010	met45	BS	QC959689	Soil	266509	12/28/18 15:43	1.0		
011	met45	BSD	QC959690	Soil	266509	12/28/18 15:44	1.0		
012	met45	MSS	305973-001	Soil	266509	12/28/18 15:46	1.0		
013	met45	MS	QC959691	Soil	266509	12/28/18 15:47	1.0		
014	met45	MSD	QC959692	Soil	266509	12/28/18 15:48	1.0		
015	met45	SAMPLE	305973-002	Soil	266509	12/28/18 15:49	1.0		
016	met45	SAMPLE	305973-003	Soil	266509	12/28/18 15:51	1.0		
017	met45	SAMPLE	305973-004	Soil	266509	12/28/18 15:52	1.0		
018	met45	SAMPLE	305973-005	Soil	266509	12/28/18 15:53	1.0		1:HG=13
019	met45	CCV				12/28/18 15:55	1.0	3	
020	met45	CCB				12/28/18 15:56	1.0		
021	met45	SAMPLE	305973-006	Soil	266509	12/28/18 15:57	1.0		
022	met45	SAMPLE	305973-007	Soil	266509	12/28/18 15:58	1.0		
023	met45	SAMPLE	305973-008	Soil	266509	12/28/18 16:00	1.0		
024	met45	SAMPLE	305973-009	Soil	266509	12/28/18 16:01	1.0		1:HG=18
025	met45	SAMPLE	305973-010	Soil	266509	12/28/18 16:02	1.0		
026	met45	SAMPLE	305973-011	Soil	266509	12/28/18 16:04	1.0		1:HG=77
027	met45	SAMPLE	305973-012	Soil	266509	12/28/18 16:05	1.0		1:HG=41
028	met45	SAMPLE	305973-013	Soil	266509	12/28/18 16:07	1.0		
029	met45	SAMPLE	305973-014	Soil	266509	12/28/18 16:08	1.0		
030	met45	SAMPLE	305973-015	Soil	266509	12/28/18 16:09	1.0		
031	met45	CCV				12/28/18 16:11	1.0	3	
032	met45	CCB				12/28/18 16:12	1.0		
033	met45	SAMPLE	305973-016	Soil	266509	12/28/18 16:13	1.0		1:HG=150
034	met45	SAMPLE	305973-017	Soil	266509	12/28/18 16:15	1.0		
035	met45	SAMPLE	305973-018	Soil	266509	12/28/18 16:16	1.0		
036	met45	SAMPLE	305973-019	Soil	266509	12/28/18 16:17	1.0		
037	met45	SAMPLE	305973-020	Soil	266509	12/28/18 16:18	1.0		
038	met45	X	RINSE			12/28/18 16:20	1.0		
039	met45	BLANK	QC959696	Soil	266511	12/28/18 16:21	1.0		
040	met45	BS	QC959697	Soil	266511	12/28/18 16:22	1.0		
041	met45	BSD	QC959698	Soil	266511	12/28/18 16:23	1.0		
042	met45	MSS	305985-003	Soil	266511	12/28/18 16:24	1.0		
043	met45	CCV				12/28/18 16:26	1.0	3	
044	met45	CCB				12/28/18 16:27	1.0		
045	met45	MS	QC959699	Soil	266511	12/28/18 16:28	1.0		
046	met45	MSD	QC959700	Soil	266511	12/28/18 16:29	1.0		
047	met45	SAMPLE	305808-001	Soil	266511	12/28/18 16:31	1.0		1:HG=210
048	met45	SAMPLE	305808-002	Soil	266511	12/28/18 16:32	1.0		1:HG=210
049	met45	SAMPLE	305808-003	Soil	266511	12/28/18 16:34	1.0		1:HG=61
050	met45	SAMPLE	305808-004	Soil	266511	12/28/18 16:35	1.0		
051	met45	SAMPLE	306012-001	Miscell.	266511	12/28/18 16:37	1.0		
052	met45	SAMPLE	306018-001	Miscell.	266511	12/28/18 16:38	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 388522212

Instrument : MET45 Begun : 12/28/18 15:32
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	305992-001	Soil	266511	12/28/18 16:39	1.0		
054	met45	SAMPLE	305992-002	Soil	266511	12/28/18 16:40	1.0		
055	met45	CCV				12/28/18 16:42	1.0	3	
056	met45	CCB				12/28/18 16:43	1.0		
057	met45	SAMPLE	305992-003	Soil	266511	12/28/18 16:44	1.0		
058	met45	SAMPLE	306071-001	Soil	266511	12/28/18 16:45	1.0		
059	met45	SAMPLE	306003-001	Soil	266511	12/28/18 16:47	1.0		
060	met45	X	RINSE			12/28/18 16:48	1.0		
061	met45	SAMPLE	305973-005	Soil	266509	12/28/18 16:49	10.0		
062	met45	SAMPLE	305973-009	Soil	266509	12/28/18 16:50	10.0		
063	met45	SAMPLE	305973-011	Soil	266509	12/28/18 16:51	10.0		1:HG=12
064	met45	SAMPLE	305973-012	Soil	266509	12/28/18 16:53	10.0		
065	met45	X	RINSE			12/28/18 16:54	1.0		
066	met45	SAMPLE	305973-016	Soil	266509	12/28/18 16:55	100.0		
067	met45	CCV				12/28/18 16:57	1.0	3	
068	met45	CCB				12/28/18 16:58	1.0		
069	met45	SAMPLE	305808-001	Soil	266511	12/28/18 16:59	100.0		
070	met45	SAMPLE	305808-002	Soil	266511	12/28/18 17:00	100.0		
071	met45	SAMPLE	305808-003	Soil	266511	12/28/18 17:02	10.0		
072	met45	X	RINSE			12/28/18 17:03	1.0		
073	met45	SAMPLE	305973-010	Soil	266509	12/28/18 17:04	1.0		
074	met45	SAMPLE	305973-013	Soil	266509	12/28/18 17:05	1.0		
075	met45	SAMPLE	305973-017	Soil	266509	12/28/18 17:06	1.0		
076	met45	SAMPLE	305808-004	Soil	266511	12/28/18 17:08	1.0		
077	met45	X	RINSE			12/28/18 17:09	1.0		
078	met45	SAMPLE	305973-011	Soil	266509	12/28/18 17:10	100.0		
079	met45	CCV				12/28/18 17:11	1.0	3	
080	met45	CCB				12/28/18 17:13	1.0		
081	met45	CCB				12/28/18 17:16	1.0		
082	met45	CCV				12/28/18 17:20	1.0	3	
083	met45	CCB				12/28/18 17:21	1.0		
084	met45	SAMPLE	305808-001	Soil	266511	12/28/18 17:23	100.0		
085	met45	SAMPLE	305808-002	Soil	266511	12/28/18 17:24	100.0		
086	met45	SAMPLE	305808-003	Soil	266511	12/28/18 17:25	10.0		
087	met45	X	RINSE			12/28/18 17:26	1.0		
088	met45	SAMPLE	305973-010	Soil	266509	12/28/18 17:28	1.0		
089	met45	SAMPLE	305973-013	Soil	266509	12/28/18 17:29	1.0		
090	met45	SAMPLE	305973-017	Soil	266509	12/28/18 17:30	1.0		
091	met45	SAMPLE	305808-004	Soil	266511	12/28/18 17:31	1.0		
092	met45	X	RINSE			12/28/18 17:32	1.0		
093	met45	SAMPLE	305973-011	Soil	266509	12/28/18 17:34	100.0		
094	met45	CCV				12/28/18 17:35	1.0	3	
095	met45	CCB				12/28/18 17:36	1.0		
096	met45	X	RINSE			12/28/18 17:43	1.0		
097	met45	SAMPLE	305973-012	Soil	266509	12/28/18 17:44	10.0		
098	met45	CCV				12/28/18 17:46	1.0	3	
099	met45	CCB				12/28/18 17:47	1.0		

DLC 12/28/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 058.

Standards used: 1=S39316 2=S39318 3=S39319

ENTHALPY INITIAL CALIBRATION FOR 305808 METALS Soil: EPA 7470A

Inst : MET45
Calnum : 388522212001
Units : ug/L

Date : 28-DEC-2018 15:32
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	388522212002	ICAL1	28-DEC-2018 15:33	S39316 (500X)
L2	met45	388522212003	ICAL2	28-DEC-2018 15:35	S39316 (200X)
L3	met45	388522212004	ICAL3	28-DEC-2018 15:36	S39316 (50X)
L4	met45	388522212005	ICAL4	28-DEC-2018 15:37	S39316 (20X)
L5	met45	388522212006	ICAL5	28-DEC-2018 15:38	S39316 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0365	0.0356	0.0327	0.0335	0.0328	LIN0	-0.0256	30.4515		0.0342	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	-2	0.5000	3	2.0000	-2	5.0000	2	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

388522212001

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305808 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 388522212001 Cal Date : 28-DEC-2018

ICV 388522212007 (28-DEC-2018) stds: S39318

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.115	ug/L	2	10	

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212008.2 File : met45 Time : 28-DEC-2018 15:41
Cal : 388522212001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212031.2 File : met45 Time : 28-DEC-2018 16:11
Cal : 388522212001 Caldate : 28-DEC-2018
Standards: S39319

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0342	0.0320	5.000	4.850	ug/L	-3	20	

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212032.2 File : met45 Time : 28-DEC-2018 16:12
Cal : 388522212001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212043.2 File : met45 Time : 28-DEC-2018 16:26
Cal : 388522212001 Caldate : 28-DEC-2018
Standards: S39319

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0342	0.0331	5.000	5.014	ug/L	0	20	

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212044.2 File : met45 Time : 28-DEC-2018 16:27
Cal : 388522212001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212055.2 File : met45 Time : 28-DEC-2018 16:42
Cal : 388522212001 Caldate : 28-DEC-2018
Standards: S39319

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0342	0.0322	5.000	4.877	ug/L	-2	20	

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212056.2 File : met45 Time : 28-DEC-2018 16:43
Cal : 388522212001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212082 File : met45 Time : 28-DEC-2018 17:20
Cal : 388522212001 Caldate : 28-DEC-2018
Standards: S39319

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0342	0.0336	5.000	5.090	ug/L	2	20	

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212083 File : met45 Time : 28-DEC-2018 17:21
Cal : 388522212001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212094 File : met45 Time : 28-DEC-2018 17:35
Cal : 388522212001 Caldate : 28-DEC-2018
Standards: S39319

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0342	0.0345	5.000	5.221	ug/L	4	20	

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212095 File : met45 Time : 28-DEC-2018 17:36
Cal : 388522212001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 266511
Started By : DLC
Method : METHOD
Spike #1 ID : S39317

Prep Date : 28-DEC-2018 12:00

Analysis : HG
Finished By : DLC
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
305808-001		Soil	.6	50	1	83.33						7471-HG	
305808-002		Soil	.6	50	1	83.33						7471-HG	
305808-003		Soil	.57	50	1	87.72						7471-HG	
305808-004		Soil	.59	50	1	84.75						7471-HG	
305985-003		Soil	.55	50	1	90.91						T22/HG	
305992-001		Soil	.55	50	1	90.91						T22/HG	
305992-002		Soil	.6	50	1	83.33						T22/HG	
305992-003		Soil	.61	50	1	81.97						T22/HG	
306003-001		Soil	.63	50	1	79.37						T22/HG	
306012-001		Miscell.	.58	50	1	86.21						T22/HG	
306018-001		Miscell.	.58	50	1	86.21						T22/HG	
306071-001		Soil	.57	50	1	87.72						T22/HG	
QC959696	BLANK	Soil	.56	50	1	89.29							
QC959697	BS	Soil	.56	50	1	89.29		1					
QC959698	BSD	Soil	.59	50	1	84.75		1					
QC959699	MS	Soil	.59	50	1	84.75		1					
QC959700	MSD	Soil	.6	50	1	83.33		1					

Analyst: DLC Date: 12/28/18 Reviewer: PRW Date: 12/28/18

Soil Digestion for Mercury

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266511

Digestion Method: ☑ EPA 7471A/ 7471B ☐ _____

BK 4333

Date Digested: 12-28-18

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	Sample #	container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
	Blank QC959696		0.56	☑ 50 ☐ ____		
	BS QC959697		0.56	☑ 50 ☐ ____		
	BSD QC959698		0.59	☑ 50 ☐ ____		
	MS QC959699		0.59	☑ 50 ☐ ____		
5	MSD QC959700		0.60	☑ 50 ☐ ____		
	305985-003	A	0.55	☑ 50 ☐ ____		MSS
	305858-001	A	0.60	☑ 50 ☐ ____		
	-002	↓	0.68	☑ 50 ☐ ____		
	-003	↓	0.57	☑ 50 ☐ ____		
10	-004	↓	0.59	☑ 50 ☐ ____		
	306012-001	B	0.58	☑ 50 ☐ ____		
	306018-001	A	0.58	☑ 50 ☐ ____		
	305992-001	A	0.55	☑ 50 ☐ ____		
	-002	↓	0.60	☑ 50 ☐ ____		
15	-003	↓	0.61	☑ 50 ☐ ____		
	306071-001	A	0.57	☑ 50 ☐ ____		
	306003-001	A	0.63	☑ 50 ☐ ____		
				☐ 50 ☐ ____		
				☐ 50 ☐ ____		
20				☐ 50 ☐ ____		
				☐ 50 ☐ ____		
				☐ 50 ☐ ____		
				☐ 50 ☐ ____		
				☐ 50 ☐ ____		
				☐ 50 ☐ ____		

Balance ID: B-9 calibration has been checked? ☑ Yes ☐ No

Standards prepared per SOP: MET 5.2, rev. 20

1 mL of spike standard was added to all spikes

☑ **CAL digested with this batch? ICAL Std S#**

Pipettes

Vol.(mL)	ID
.1	J28153D
.2-1	R29360D
1-5	2924335
5-10	4645196

Reagent ID/ LIMS# / Time	Initials / Date.
Digestion Tubes, Lot # CPI 112818	DC 12-28-18
Blank/LCS 'matrix' ID Chemware2377906	
S39317	
S39316	
ICV / CCV LIMS S# S39318/S39319	
Digestion Temperature (°C), and Probe Location 95° 22	
Digestion block ID Sequoia	
Thermometer # 6412748	
Digestion Started at (time) 12:00	
Aqua Regia (HNO3+ HCl) Reagent ID 122818	
5% $KMnO_4$ / Granular KMnO4 reagent ID 122618	
NaCl.hydroxylamine hydrochloride Reagent ID 122618	
Stannous Chloride Reagent ID 122618	
Digestion Completd at (time) 12:30	
☑ filtered thru' 0.45 um syringe filter (lot #) SS 81160103	

12-28-18

Prep Chemist / Date

Continued from page _____

Continued on page _____

Reviewed Online / See LIMS

Version 7.2, July.2017

Mercury Raw Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 388522212

Instrument : MET45 Begun : 12/28/18 15:32
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met45	ICALBLK				12/28/18 15:32	1.0		
002	met45	ICAL	ICAL1			12/28/18 15:33	1.0	1	
003	met45	ICAL	ICAL2			12/28/18 15:35	1.0	1	
004	met45	ICAL	ICAL3			12/28/18 15:36	1.0	1	
005	met45	ICAL	ICAL4			12/28/18 15:37	1.0	1	
006	met45	ICAL	ICAL5			12/28/18 15:38	1.0	1	
007	met45	ICV				12/28/18 15:39	1.0	2	
008	met45	ICB				12/28/18 15:41	1.0		
009	met45	BLANK	QC959688	Soil	266509	12/28/18 15:42	1.0		
010	met45	BS	QC959689	Soil	266509	12/28/18 15:43	1.0		
011	met45	BSD	QC959690	Soil	266509	12/28/18 15:44	1.0		
012	met45	MSS	305973-001	Soil	266509	12/28/18 15:46	1.0		
013	met45	MS	QC959691	Soil	266509	12/28/18 15:47	1.0		
014	met45	MSD	QC959692	Soil	266509	12/28/18 15:48	1.0		
015	met45	SAMPLE	305973-002	Soil	266509	12/28/18 15:49	1.0		
016	met45	SAMPLE	305973-003	Soil	266509	12/28/18 15:51	1.0		
017	met45	SAMPLE	305973-004	Soil	266509	12/28/18 15:52	1.0		
018	met45	SAMPLE	305973-005	Soil	266509	12/28/18 15:53	1.0		1:HG=13
019	met45	CCV				12/28/18 15:55	1.0	3	
020	met45	CCB				12/28/18 15:56	1.0		
021	met45	SAMPLE	305973-006	Soil	266509	12/28/18 15:57	1.0		
022	met45	SAMPLE	305973-007	Soil	266509	12/28/18 15:58	1.0		
023	met45	SAMPLE	305973-008	Soil	266509	12/28/18 16:00	1.0		
024	met45	SAMPLE	305973-009	Soil	266509	12/28/18 16:01	1.0		1:HG=18
025	met45	SAMPLE	305973-010	Soil	266509	12/28/18 16:02	1.0		
026	met45	SAMPLE	305973-011	Soil	266509	12/28/18 16:04	1.0		1:HG=77
027	met45	SAMPLE	305973-012	Soil	266509	12/28/18 16:05	1.0		1:HG=41
028	met45	SAMPLE	305973-013	Soil	266509	12/28/18 16:07	1.0		
029	met45	SAMPLE	305973-014	Soil	266509	12/28/18 16:08	1.0		
030	met45	SAMPLE	305973-015	Soil	266509	12/28/18 16:09	1.0		
031	met45	CCV				12/28/18 16:11	1.0	3	
032	met45	CCB				12/28/18 16:12	1.0		
033	met45	SAMPLE	305973-016	Soil	266509	12/28/18 16:13	1.0		1:HG=150
034	met45	SAMPLE	305973-017	Soil	266509	12/28/18 16:15	1.0		
035	met45	SAMPLE	305973-018	Soil	266509	12/28/18 16:16	1.0		
036	met45	SAMPLE	305973-019	Soil	266509	12/28/18 16:17	1.0		
037	met45	SAMPLE	305973-020	Soil	266509	12/28/18 16:18	1.0		
038	met45	X	RINSE			12/28/18 16:20	1.0		
039	met45	BLANK	QC959696	Soil	266511	12/28/18 16:21	1.0		
040	met45	BS	QC959697	Soil	266511	12/28/18 16:22	1.0		
041	met45	BSD	QC959698	Soil	266511	12/28/18 16:23	1.0		
042	met45	MSS	305985-003	Soil	266511	12/28/18 16:24	1.0		
043	met45	CCV				12/28/18 16:26	1.0	3	
044	met45	CCB				12/28/18 16:27	1.0		
045	met45	MS	QC959699	Soil	266511	12/28/18 16:28	1.0		
046	met45	MSD	QC959700	Soil	266511	12/28/18 16:29	1.0		
047	met45	SAMPLE	305808-001	Soil	266511	12/28/18 16:31	1.0		1:HG=210
048	met45	SAMPLE	305808-002	Soil	266511	12/28/18 16:32	1.0		1:HG=210
049	met45	SAMPLE	305808-003	Soil	266511	12/28/18 16:34	1.0		1:HG=61
050	met45	SAMPLE	305808-004	Soil	266511	12/28/18 16:35	1.0		
051	met45	SAMPLE	306012-001	Miscell.	266511	12/28/18 16:37	1.0		
052	met45	SAMPLE	306018-001	Miscell.	266511	12/28/18 16:38	1.0		

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 388522212

Instrument : MET45 Begun : 12/28/18 15:32
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
053	met45	SAMPLE	305992-001	Soil	266511	12/28/18 16:39	1.0		
054	met45	SAMPLE	305992-002	Soil	266511	12/28/18 16:40	1.0		
055	met45	CCV				12/28/18 16:42	1.0	3	
056	met45	CCB				12/28/18 16:43	1.0		
057	met45	SAMPLE	305992-003	Soil	266511	12/28/18 16:44	1.0		
058	met45	SAMPLE	306071-001	Soil	266511	12/28/18 16:45	1.0		
059	met45	SAMPLE	306003-001	Soil	266511	12/28/18 16:47	1.0		
060	met45	X	RINSE			12/28/18 16:48	1.0		
061	met45	SAMPLE	305973-005	Soil	266509	12/28/18 16:49	10.0		
062	met45	SAMPLE	305973-009	Soil	266509	12/28/18 16:50	10.0		
063	met45	SAMPLE	305973-011	Soil	266509	12/28/18 16:51	10.0		1:HG=12
064	met45	SAMPLE	305973-012	Soil	266509	12/28/18 16:53	10.0		
065	met45	X	RINSE			12/28/18 16:54	1.0		
066	met45	SAMPLE	305973-016	Soil	266509	12/28/18 16:55	100.0		
067	met45	CCV				12/28/18 16:57	1.0	3	
068	met45	CCB				12/28/18 16:58	1.0		
069	met45	SAMPLE	305808-001	Soil	266511	12/28/18 16:59	100.0		
070	met45	SAMPLE	305808-002	Soil	266511	12/28/18 17:00	100.0		
071	met45	SAMPLE	305808-003	Soil	266511	12/28/18 17:02	10.0		
072	met45	X	RINSE			12/28/18 17:03	1.0		
073	met45	SAMPLE	305973-010	Soil	266509	12/28/18 17:04	1.0		
074	met45	SAMPLE	305973-013	Soil	266509	12/28/18 17:05	1.0		
075	met45	SAMPLE	305973-017	Soil	266509	12/28/18 17:06	1.0		
076	met45	SAMPLE	305808-004	Soil	266511	12/28/18 17:08	1.0		
077	met45	X	RINSE			12/28/18 17:09	1.0		
078	met45	SAMPLE	305973-011	Soil	266509	12/28/18 17:10	100.0		
079	met45	CCV				12/28/18 17:11	1.0	3	
080	met45	CCB				12/28/18 17:13	1.0		
081	met45	CCB				12/28/18 17:16	1.0		
082	met45	CCV				12/28/18 17:20	1.0	3	
083	met45	CCB				12/28/18 17:21	1.0		
084	met45	SAMPLE	305808-001	Soil	266511	12/28/18 17:23	100.0		
085	met45	SAMPLE	305808-002	Soil	266511	12/28/18 17:24	100.0		
086	met45	SAMPLE	305808-003	Soil	266511	12/28/18 17:25	10.0		
087	met45	X	RINSE			12/28/18 17:26	1.0		
088	met45	SAMPLE	305973-010	Soil	266509	12/28/18 17:28	1.0		
089	met45	SAMPLE	305973-013	Soil	266509	12/28/18 17:29	1.0		
090	met45	SAMPLE	305973-017	Soil	266509	12/28/18 17:30	1.0		
091	met45	SAMPLE	305808-004	Soil	266511	12/28/18 17:31	1.0		
092	met45	X	RINSE			12/28/18 17:32	1.0		
093	met45	SAMPLE	305973-011	Soil	266509	12/28/18 17:34	100.0		
094	met45	CCV				12/28/18 17:35	1.0	3	
095	met45	CCB				12/28/18 17:36	1.0		
096	met45	X	RINSE			12/28/18 17:43	1.0		
097	met45	SAMPLE	305973-012	Soil	266509	12/28/18 17:44	10.0		
098	met45	CCV				12/28/18 17:46	1.0	3	
099	met45	CCB				12/28/18 17:47	1.0		

DLC 12/28/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 058.

Standards used: 1=S39316 2=S39318 3=S39319

Mercury by Cold Vapor AA

Lab #:	305808	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7471A
Analyte:	Mercury	Sampled:	12/14/18
Matrix:	Soil	Received:	12/14/18
Units:	mg/Kg	Prepared:	12/28/18
Basis:	dry	Analyzed:	12/28/18
Batch#:	266511		

Field ID	Type	Lab ID	Result	RL	MDL	Moisture	Diln Fac
RFS-MFA-EX C-7	SAMPLE	305808-001	75	2.0	0.36	18%	100.0
RFS-MFA-EX C-8	SAMPLE	305808-002	73	2.0	0.35	17%	100.0
RFS-MFA-EX C-9	SAMPLE	305808-003	8.9	0.21	0.038	18%	10.00
RFS-MFA-EX C-13	SAMPLE	305808-004	0.45	0.021	0.0037	20%	1.000
	BLANK	QC959696	ND	0.018	0.0031		1.000

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305808-001	Client ID	: RFS-MFA-EX C-7
Seqnum	: 388522212084	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266511	Time	: 28-DEC-2018 17:23
Cal	: 388522212001	Caldate	: 28-DEC-2018		
IDF	: 100.0			Units	: mg/Kg

0.60 g --> 50.0 ml = 83.33 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	62	1.7		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 21 **Autosampler Location: 88**
Sample ID: 3005808-001,266511,100 **Date Collected: 12/28/2018 5:23:11 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 3005808-001,266511,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	7.412	7.412	0.2442	0.2452	0.0665	5:24:07 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305808-002	Client ID	: RFS-MFA-EX C-8
Seqnum	: 388522212085	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266511	Time	: 28-DEC-2018 17:24
Cal	: 388522212001	Caldate	: 28-DEC-2018		
IDF	: 100.0			Units	: mg/Kg

0.60 g --> 50.0 ml = 83.33 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	61	1.7		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 22 **Autosampler Location: 89**
Sample ID: 3005808-002,266511,100 **Date Collected: 12/28/2018 5:24:25 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 3005808-002,266511,100 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	7.273	7.273	0.2397	0.2407	0.0658	5:25:21 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305808-003	Client ID	: RFS-MFA-EX C-9
Seqnum	: 388522212086	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266511	Time	: 28-DEC-2018 17:25
Cal	: 388522212001	Caldate	: 28-DEC-2018		
IDF	: 10.0			Units	: mg/Kg

0.57 g --> 50.0 ml = 87.72 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	7.3	0.18		u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 23 **Autosampler Location: 90**
Sample ID: 3005808-003,266511,10 **Date Collected: 12/28/2018 5:25:38 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 3005808-003,266511,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	8.310	8.310	0.2737	0.2747	0.0745	5:26:35 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305808-004	Client ID	: RFS-MFA-EX C-13
Seqnum	: 388522212050	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266511	Time	: 28-DEC-2018 16:35
Cal	: 388522212001	Caldate	: 28-DEC-2018		
IDF	: 1.0			Units	: mg/Kg

0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.36	0.017		CO? u

CO?=check for carryover u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 50 **Autosampler Location: 80**
Sample ID: 3005808-004,266511,1 **Date Collected: 12/28/2018 4:35:55 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 3005808-004,266511,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.255	4.255	0.1406	0.1416	0.0415	4:36:52 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET45	Lab ID	: 305808-004	Client ID	: RFS-MFA-EX C-13
Seqnum	: 388522212091	Matrix	: Soil	Acct	: TTEMI (MJD)
File	: met45	Batch	: 266511	Time	: 28-DEC-2018 17:31
Cal	: 388522212001	Caldate	: 28-DEC-2018		
IDF	: 1.0			Units	: mg/Kg

0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.31	0.017		

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 28 **Autosampler Location: 80**
Sample ID: 3005808-004,266511,1 **Date Collected: 12/28/2018 5:31:44 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 3005808-004,266511,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.647	3.647	0.1206	0.1216	0.0299	5:32:40 PM	Yes

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305808	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	266511
MSS Lab ID:	305985-003	Sampled:	12/19/18
Matrix:	Soil	Received:	12/20/18
Units:	mg/Kg	Prepared:	12/28/18
Basis:	dry	Analyzed:	12/28/18

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Moisture	RPD	Lim
BS	QC959697		0.1786	0.1747	98	80-120			
BSD	QC959698		0.1695	0.1663	98	80-120		0	20
MS	QC959699	0.07349	0.1863	0.2557	98	80-120	9%		
MSD	QC959700		0.1832	0.2779	112	80-120	9%	10	20

RPD= Relative Percent Difference

ENTHALPY SPIKE USER REPORT FOR 305808 METALS Soil
EPA 7470A

Type	: MSS	Type	: MS	Type	: MSD
Inst	: MET45	Inst	: MET45	Inst	: MET45
Seqnum	: 388522212042.1	Seqnum	: 388522212045.13	Seqnum	: 388522212046.13
File	: met45	File	: met45	File	: met45
IDF	: 1.0	IDF	: 1.0	IDF	: 1.0
Lab ID	: 305985-003	Lab ID	: QC959699	Lab ID	: QC959700
Matrix	: Soil	Matrix	: Soil	Matrix	: Soil
Batch	: 266511	Batch	: 266511	Batch	: 266511
Time	: 28-DEC-2018 16:24	Time	: 28-DEC-2018 16:28	Time	: 28-DEC-2018 16:29
Cal	: 388522212001	Cal	: 388522212001	Cal	: 388522212001
Units	: mg/Kg				

MSS: 0.55 g --> 50.0 ml = 90.91 ml/g PDF
 MS: 0.59 g --> 50.0 ml = 84.75 ml/g PDF
MSD: 0.60 g --> 50.0 ml = 83.33 ml/g PDF

Analyte	MSS	Spiked	MS	%Rec	Spiked	MSD	%Rec	Limits	RPD	Lim	Flags
Mercury	0.06688	0.1695	0.2327	98	0.1667	0.2529	112	80-120	10	20	u

u=use

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

Sequence No.: 45 **Autosampler Location: 75**
Sample ID: qc959699,266511,1 **Date Collected: 12/28/2018 4:28:43 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc959699,266511,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.745	2.745	0.0910	0.0920	0.0282	4:29:39 PM	Yes

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 46 **Autosampler Location: 76**
Sample ID: qc959700,266511,1 **Date Collected: 12/28/2018 4:29:56 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc959700,266511,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	3.035	3.035	0.1005	0.1015	0.0312	4:30:52 PM	Yes

ENTHALPY SPIKE USER REPORT FOR 305808 METALS Soil
EPA 7470A

Type : BS
Inst : MET45
Seqnum : 388522212040.13
File : met45
IDF : 1.0
Lab ID : QC959697
Matrix : Soil
Batch : 266511
Time : 28-DEC-2018 16:22
Cal : 388522212001
Units : mg/Kg

Type : BSD
Inst : MET45
Seqnum : 388522212041.13
File : met45
IDF : 1.0
Lab ID : QC959698
Matrix : Soil
Batch : 266511
Time : 28-DEC-2018 16:23
Cal : 388522212001

BS: 0.56 g --> 50.0 ml = 89.29 ml/g PDF
BSD: 0.59 g --> 50.0 ml = 84.75 ml/g PDF

Analyte	Spiked	BS	%Rec	Spiked	BSD	%Rec	Limits	RPD	Lim	Flags
Mercury	0.1786	0.1747	98	0.1695	0.1663	98	80-120	0	20	u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 40 **Autosampler Location: 72**
Sample ID: qc959697,266511,1 **Date Collected: 12/28/2018 4:22:30 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc959697,266511,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.956	1.956	0.0651	0.0661	0.0198	4:23:26 PM	Yes

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 41 **Autosampler Location: 73**
Sample ID: qc959698,266511,1 **Date Collected: 12/28/2018 4:23:43 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc959698,266511,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.964	1.964	0.0653	0.0663	0.0197	4:24:39 PM	Yes

ENTHALPY BLANK USER REPORT FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 Lab ID : QC959696
Seqnum : 388522212039.13 Matrix : Soil
File : met45 Batch : 266511 Time : 28-DEC-2018 16:21
Cal : 388522212001 Caldate : 28-DEC-2018
IDF : 1.0 Units : mg/Kg

0.56 g --> 50.0 ml = 89.29 ml/g PDF

Analyte	Result	RL	Flags
Mercury	ND	0.018	u

u=use

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 39 **Autosampler Location: 71**
Sample ID: qc959696,266511,1 **Date Collected: 12/28/2018 4:21:17 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc959696,266511,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.039	-0.039	-0.0004	0.0006	0.0004	4:22:13 PM	Yes

ENTHALPY INITIAL CALIBRATION FOR 305808 METALS Soil: EPA 7470A

Inst : MET45
Calnum : 388522212001
Units : ug/L

Date : 28-DEC-2018 15:32
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met45	388522212002	ICAL1	28-DEC-2018 15:33	S39316 (500X)
L2	met45	388522212003	ICAL2	28-DEC-2018 15:35	S39316 (200X)
L3	met45	388522212004	ICAL3	28-DEC-2018 15:36	S39316 (50X)
L4	met45	388522212005	ICAL4	28-DEC-2018 15:37	S39316 (20X)
L5	met45	388522212006	ICAL5	28-DEC-2018 15:38	S39316 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0365	0.0356	0.0327	0.0335	0.0328	LIN0	-0.0256	30.4515		0.0342	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	-2	0.5000	3	2.0000	-2	5.0000	2	10.000	0

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

388522212001

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305808 METALS Soil
EPA 7470A

Inst : MET45
Calnum : 388522212001 Cal Date : 28-DEC-2018

ICV 388522212007 (28-DEC-2018) stds: S39318

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	5.115	ug/L	2	10	

==========

Analysis Begun

Logged In Analyst: mercury **Technique: AA FIMS-MHS**
Spectrometer: FIMS-100, S/N B050-9550 **Autosampler: Cetac**

Sample Information File: C:\Users\Public\PerkinElmer\AA\Data\Sample Information\122818s.sif
Batch ID:
Results Data Set: 122818soil
Results Library: C:\Users\Public\PerkinElmer\AA\Data\Results\Results.mdb

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: ICALBLK **Date Collected: 12/28/2018 3:32:37 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICALBLK **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.00]	0.0010	0.0010	0.0005	3:33:32 PM	Yes

Auto-zero performed.

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: ICAL, ICAL1,S39316,500 **Date Collected: 12/28/2018 3:33:49 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL1,S39316,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.2]	0.0073	0.0083	0.0022	3:34:44 PM	Yes

Standard number 1 applied. [0.2]
Correlation Coef.: 1.000000 Slope: 0.03670 Intercept: 0.00000

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: ICAL, ICAL2,S39316,200 **Date Collected: 12/28/2018 3:35:02 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL2,S39316,200 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.5]	0.0178	0.0188	0.0051	3:35:58 PM	Yes

Standard number 2 applied. [0.5]
Correlation Coef.: 0.999886 Slope: 0.03547 Intercept: 0.00009

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: ICAL, ICAL3,S39316,50 **Date Collected: 12/28/2018 3:36:15 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL3,S39316,50 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[2.0]	0.0654	0.0664	0.0189	3:37:12 PM	Yes

Standard number 3 applied. [2.0]
Correlation Coef.: 0.999756 Slope: 0.03243 Intercept: 0.00073

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: ICAL, ICAL4,S39316,20 **Date Collected: 12/28/2018 3:37:29 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL4,S39316,20 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[5.0]	0.1677	0.1687	0.0478	3:38:26 PM	Yes

Standard number 4 applied. [5.0]
Correlation Coef.: 0.999900 Slope: 0.03339 Intercept: 0.00022

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

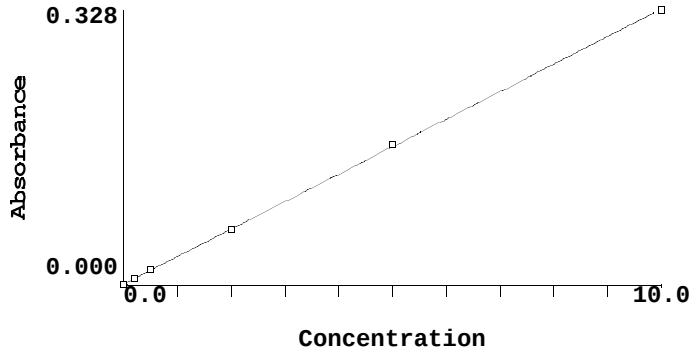
==========

Sequence No.: 6 **Autosampler Location: 6**
Sample ID: ICAL, ICAL5,S39316,10 **Date Collected: 12/28/2018 3:38:44 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL5,S39316,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[10.0]	0.3281	0.3291	0.0924	3:39:41 PM	Yes

Standard number 5 applied. [10.0]
Correlation Coef.: 0.999935 Slope: 0.03284 Intercept: 0.00084



Calibration data for Hg 253.7 **Equation: Linear, Calculated Intercept**

ID	Mean Signal (Abs)	Entered Conc. ug/L	Calculated Conc. ug/L	Standard Deviation	%RSD
ICALBLK	0.0000	0	-0.026	----	----
ICAL, ICAL1,S39316,500	0.0073	0.2	0.198	----	----
ICAL, ICAL2,S39316,200	0.0178	0.5	0.515	----	----
ICAL, ICAL3,S39316,50	0.0654	2.0	1.965	----	----
ICAL, ICAL4,S39316,20	0.1677	5.0	5.082	----	----
ICAL, ICAL5,S39316,10	0.3281	10.0	9.965	----	----

Correlation Coef.: 0.999935 Slope: 0.03284 Intercept: 0.00084

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 7 **Autosampler Location: 8**
Sample ID: ICV,S39318,1 **Date Collected: 12/28/2018 3:39:59 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV,S39318,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.114	5.114	0.1688	0.1698	0.0481	3:40:57 PM	Yes

QC value within limits for Hg 253.7 Recovery = 102.28%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212008.2 File : met45 Time : 28-DEC-2018 15:41
Cal : 388522212001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 8 **Autosampler Location: 9**
Sample ID: ICB **Date Collected: 12/28/2018 3:41:16 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.013	0.013	0.0013	0.0023	0.0006	3:42:13 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212031.2 File : met45 Time : 28-DEC-2018 16:11
Cal : 388522212001 Caldate : 28-DEC-2018
Standards: S39319

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0342	0.0320	5.000	4.850	ug/L	-3	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 31 **Autosampler Location: 7**
Sample ID: CCV,S39319,1 **Date Collected: 12/28/2018 4:11:01 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39319,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.851	4.851	0.1601	0.1612	0.0486	4:11:59 PM	Yes

QC value within limits for Hg 253.7 Recovery = 97.03%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212032.2 File : met45 Time : 28-DEC-2018 16:12
Cal : 388522212001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 32 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 12/28/2018 4:12:17 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.067	-0.067	-0.0013	-0.0003	0.0006	4:13:15 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212043.2 File : met45 Time : 28-DEC-2018 16:26
Cal : 388522212001 Caldate : 28-DEC-2018
Standards: S39319

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0342	0.0331	5.000	5.014	ug/L	0	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 43 **Autosampler Location: 7**
Sample ID: CCV,S39319,1 **Date Collected: 12/28/2018 4:26:10 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39319,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.016	5.016	0.1655	0.1665	0.0482	4:27:07 PM	Yes

QC value within limits for Hg 253.7 Recovery = 100.31%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212044.2 File : met45 Time : 28-DEC-2018 16:27
Cal : 388522212001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 44 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 12/28/2018 4:27:26 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.080	-0.080	-0.0018	-0.0008	0.0006	4:28:24 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212055.2 File : met45 Time : 28-DEC-2018 16:42
Cal : 388522212001 Caldate : 28-DEC-2018
Standards: S39319

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0342	0.0322	5.000	4.877	ug/L	-2	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 55 **Autosampler Location: 7**
Sample ID: CCV,S39319,1 **Date Collected: 12/28/2018 4:42:06 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39319,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.877	4.877	0.1610	0.1620	0.0469	4:43:04 PM	Yes

QC value within limits for Hg 253.7 Recovery = 97.53%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212056.2 File : met45 Time : 28-DEC-2018 16:43
Cal : 388522212001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 56 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 12/28/2018 4:43:22 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.002	-0.002	0.0008	0.0018	0.0007	4:44:20 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212082 File : met45 Time : 28-DEC-2018 17:20
Cal : 388522212001 Caldate : 28-DEC-2018
Standards: S39319

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0342	0.0336	5.000	5.090	ug/L	2	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 19 **Autosampler Location: 7**
Sample ID: CCV,S39319,1 **Date Collected: 12/28/2018 5:20:38 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39319,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.090	5.090	0.1680	0.1690	0.0471	5:21:35 PM	Yes

QC value within limits for Hg 253.7 Recovery = 101.81%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212083 File : met45 Time : 28-DEC-2018 17:21
Cal : 388522212001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 20 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 12/28/2018 5:21:54 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.036	0.036	0.0020	0.0030	0.0006	5:22:52 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212094 File : met45 Time : 28-DEC-2018 17:35
Cal : 388522212001 Caldate : 28-DEC-2018
Standards: S39319

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0342	0.0345	5.000	5.221	ug/L	4	20	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 31 **Autosampler Location: 7**
Sample ID: CCV,S39319,1 **Date Collected: 12/28/2018 5:35:22 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,S39319,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	5.221	5.221	0.1723	0.1733	0.0510	5:36:20 PM	Yes

QC value within limits for Hg 253.7 Recovery = 104.42%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS Soil
EPA 7470A

Inst : MET45 IDF : 1.0
Seqnum : 388522212095 File : met45 Time : 28-DEC-2018 17:36
Cal : 388522212001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET45 **Method Last Saved: 12/28/2018 2:18:25 PM**
Method Description: MET 45

==========

Sequence No.: 32 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 12/28/2018 5:36:38 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.100	-0.100	-0.0024	-0.0014	0.0004	5:37:36 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

SAMPLE PREPARATION SUMMARY

Batch # : 266511
Started By : DLC
Method : METHOD
Spike #1 ID : S39317

Prep Date : 28-DEC-2018 12:00

Analysis : HG
Finished By : DLC
Units : g

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
305808-001		Soil	.6	50	1	83.33						7471-HG	
305808-002		Soil	.6	50	1	83.33						7471-HG	
305808-003		Soil	.57	50	1	87.72						7471-HG	
305808-004		Soil	.59	50	1	84.75						7471-HG	
305985-003		Soil	.55	50	1	90.91						T22/HG	
305992-001		Soil	.55	50	1	90.91						T22/HG	
305992-002		Soil	.6	50	1	83.33						T22/HG	
305992-003		Soil	.61	50	1	81.97						T22/HG	
306003-001		Soil	.63	50	1	79.37						T22/HG	
306012-001		Miscell.	.58	50	1	86.21						T22/HG	
306018-001		Miscell.	.58	50	1	86.21						T22/HG	
306071-001		Soil	.57	50	1	87.72						T22/HG	
QC959696	BLANK	Soil	.56	50	1	89.29							
QC959697	BS	Soil	.56	50	1	89.29		1					
QC959698	BSD	Soil	.59	50	1	84.75		1					
QC959699	MS	Soil	.59	50	1	84.75		1					
QC959700	MSD	Soil	.6	50	1	83.33		1					

Analyst: DLC Date: 12/28/18 Reviewer: PRW Date: 12/28/18

Soil Digestion for Mercury

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266511

Digestion Method: ☑ EPA 7471A/ 7471B ☐ _____

BK 4333

Date Digested: 12-28-18

	Sample #	container ID	Sample Weight (g)	Final Volume (mL)	Filtered? (y/n)	Comments
	Blank QC959696		0.56	☑ 50 ☐		
	BS QC959697		0.56	☑ 50 ☐		
	BSD QC959698		0.59	☑ 50 ☐		
	MS QC959699		0.59	☑ 50 ☐		
5	MSD QC959700		0.60	☑ 50 ☐		
	305985-003	A	0.55	☑ 50 ☐		MSS
	305858-001	A	0.60	☑ 50 ☐		
	-002	↓	0.68	☑ 50 ☐		
	-003	↓	0.57	☑ 50 ☐		
10	-004	↓	0.59	☑ 50 ☐		
	306012-001	B	0.58	☑ 50 ☐		
	306018-001	A	0.58	☑ 50 ☐		
	305992-001	A	0.55	☑ 50 ☐		
	-002	↓	0.60	☑ 50 ☐		
15	-003	↓	0.61	☑ 50 ☐		
	306071-001	A	0.57	☑ 50 ☐		
	306003-001	A	0.63	☑ 50 ☐		
				☐ 50 ☐		
				☐ 50 ☐		
20				☐ 50 ☐		
				☐ 50 ☐		
				☐ 50 ☐		
				☐ 50 ☐		
				☐ 50 ☐		
				☐ 50 ☐		

Balance ID: B-9 calibration has been checked? ☑ Yes ☐ No

Standards prepared per SOP: MET 5.2, rev. 20

1 mL of spike standard was added to all spikes

☑ **CAL digested with this batch? ICAL Std S#**

Pipettes

Vol.(mL)	ID
.1	J28153D
.2-1	R29360D
1-5	2924335
5-10	4645196

Reagent ID/ LIMS# / Time	Initials / Date.
Digestion Tubes, Lot # CPI 112818	DC 12-28-18
Blank/LCS 'matrix' ID Chemware2377906	
S39317	
S39316	
ICV / CCV LIMS S# S39318/S39319	
Digestion Temperature (°C), and Probe Location 95° 22	
Digestion block ID Sequoia	
Thermometer # 6412748	
Digestion Started at (time) 12:00	
Aqua Regia (HNO3+ HCl) Reagent ID 122818	
5% $KMnO_4$ / Granular KMnO4 reagent ID 122618	
NaCl.hydroxylamine hydrochloride Reagent ID 122618	
Stannous Chloride Reagent ID 122618	
Digestion Completd at (time) 12:30	
☑ filtered thru' 0.45 um syringe filter (lot #) SS 81160103	

12-28-18

Prep Chemist / Date

Continued from page _____

Continued on page _____

Reviewed Online / See LIMS

Version 7.2, July.2017

Standards

S37627

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Mass Spec Solution
Catalog Number:	MSHGN-10PPM
Lot Number:	M2-HG657422
Matrix:	10% (v/v) HNO3
Value / Analyte(s):	10 µg/mL ea: Mercury
Starting Material:	Hg metal
Starting Material Lot#:	05214TX, R307HGA1, 1780
Starting Material Purity:	99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.000 ± 0.056 µg/mL

Certified Density: 1.050 g/mL (measured at 20 ± 1 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	061204
Hg	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

10ppm Hg SRC in Water
IV HG 10PPM 10 ug/mL
KER 16-JUL-18
S37627 | Expires: 08-MAY-21

KER 7/16/18

Characterization of CRM by two independent methods Characterization of CRM by one method

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{1/2}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	0.000017	M	Eu	< 0.000203	O	Na	0.000097	M	Se	< 0.013814	O	Zn	0.000001			
O	Al	0.000002	O	Fe	0.000001	M	Nb	< 0.000203	O	Si	0.000004	M	Zr	< 0.001219			
M	As	< 0.002844	M	Ga	< 0.000203	M	Nd	< 0.000203	M	Sm	< 0.000203						
O	Au	< 0.003219	M	Gd	< 0.000203	O	Ni	< 0.001812	M	Sn	< 0.000203						
O	B	< 0.002479	M	Ge	< 0.000609	M	Os	< 0.000202	O	Sr	< 0.000152						
M	Ba	< 0.000203	M	Hf	< 0.000203	O	P	< 0.010730	M	Ta	< 0.000203						
O	Be	< 0.000322	s	Hg	<	M	Pb	< 0.000203	M	Tb	< 0.000203						
M	Bi	< 0.013001	M	Ho	< 0.000203	M	Pd	< 0.000404	M	Te	< 0.001422						
O	Ca	0.000017	M	In	< 0.004063	M	Pr	< 0.000203	M	Th	< 0.000203						
M	Cd	0.000001	M	Ir	< 0.000202	M	Pt	< 0.000203	O	Ti	< 0.000530						
M	Ce	< 0.000203	M	K	0.000004	M	Rb	< 0.001219	O	Tl	< 0.002788						
M	Co	< 0.000406	M	La	< 0.000203	M	Re	< 0.001016	M	Tm	< 0.000203						
O	Cr	0.000002	O	Li	< 0.000180	M	Rh	< 0.000203	M	U	< 0.000813						
M	Cs	< 0.000203	M	Lu	< 0.000203	M	Ru	< 0.000202	M	V	< 0.000406						
M	Cu	< 0.000406	O	Mg	0.000004	O	S	< 0.023508	M	W	< 0.000609						
M	Dy	< 0.000203	M	Mn	< 0.000203	O	Sb	< 0.009657	M	Y	< 0.000203						
M	Er	< 0.000203	O	Mo	< 0.002152	M	Sc	< 0.000406	M	Yb	< 0.000203						

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pippette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+
Chemical Compatibility - Stable in HNO3. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.
Stability - 2-100 ppb levels not stable in 1% HNO3 / LDPE container, stable in 10% HNO3 packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO3 packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO3 / LDPE container.
Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO3); Oxide (Soluble in HNO3); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th ,Rh , Fe, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 08, 2017

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 08, 2021**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Donna Senn
Product Documentation Technician

Donna Senn

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Michael J Booth

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

Paul R Gaines

S38597

CPI INTERNATIONAL

CERTIFICATE OF ANALYSIS

Single-Element Aqueous CRM

Product #: G34-4400-10PPM331-100

Mercury (Hg) – 10 µg/mL

Lot #: 168539-48

Matrix: 2% HNO_3

Element	Certified Concentration & Uncertainty
Hg	10.0 ± 0.1 µg/mL (w/v)
	9.98 ± 0.1 µg/g (w/w)

Intended Use: This solution is intended for use as a certified reference material (CRM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This CRM was manufactured, processed, and certified under a quality management system that is registered/accredited to **ISO 9001, ISO Guide 34**, and **ISO/IEC 17025**. This CRM was prepared to a nominal concentration of 10.0 µg/mL by gravimetric methods using a single-element concentrate dissolved in high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this CRM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentration and uncertainty were determined using the "High Performance ICP-OES" protocol developed by NIST, and both the certified concentration and uncertainty values are traceable to **NIST SRM 3133, lot #061204**. The uncertainty associated with the certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Indicative Values: ICP-MS was used to determine trace metal concentrations for this product (nd = not determined).

Trace Concentrations (µg/L)

Ag	<0.5	Fe	<25	Pb	<0.5
Al	<2	Hg	MAJOR	Sb	<0.5
As	<0.5	K	<50	Se	<2
Ba	<2	Li	<2	Sn	<0.5
Ca	<50	Mg	<10	Sr	<5
Cd	<0.5	Mn	<0.5	Ti	<2
Co	<0.5	Mo	<0.5	Tl	<0.5
Cr	<1	Na	<50	V	<2
Cu	<1	Ni	<1	Zn	<2

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the CRM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original CRM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

October 9, 2018

Certification Date

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

Health and Safety Information: Refer to the Safety Data Sheet (SDS).

Homogeneity: This solution was determined to be homogeneous by procedures consistent with the requirements of ISO Guide 34 and ISO Guide 35. Replicate samples of the finished solution were analyzed to confirm its homogeneity, in accordance with QSP 6-13 Assessment of Homogeneity and Stability. To ensure homogeneity, users should not take a smaller sub-sample than specified in the Instructions for Use, as doing so will invalidate the certified values and uncertainties.

Quality Manual Rev: No. 5, 03/01/2013

Further Information: Please contact CPI International for further information about this CRM.

Quality Certifications: This CRM was prepared under a quality management system that is registered/accredited to the following:

- ISO 9001 – Quality Management Systems – Requirements (TUV NORD Cert. No. 44 100 16560231)
- ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories (A2LA Cert. No. 2848.01)
- ISO Guide 34 – General Requirements for the Competence of Reference Material Producers (A2LA Cert. No. 2848.02)
    - ISO Guide 34 references additional requirements specified in ISO Guide 31 and ISO Guide 35.

KEE 10/16/18

2nd source 10ppm Hg standa SRC
HG 10 REF-2 in Water
KER 16-OCT-18 10 ug/mL
S38597 B | Expires: 16-OCT-19

Project BLC3449 Hg STANDARDS

Continued from Page

DATE/ ANALYST	STD Name	SOURCE S#	STD S #	SOURCE VOL	HNO_3 LOT #	HNO_3 VOL.	TOTAL VOL.	HNO_3 PIPETTE / SOURCE DISPENSER
12-26-18 DC	Hg 0.1 STD	S37627	S39291	1mL	FS111 8040	5mL	100mL	R293600 / 2924335
	Hg 0.1 REF	S38597	S39292					
	ICV Hg	S38597	S39293					
	CCV Hg	S37627	S39294					
	ICV Hg (2)	S38597	S39295					
	CCV Hg (2)	S37627	S39296	↓	↓			
12-27-18 DC	Hg 0.1 STD	S37627	S39299	1mL	FS111 8040	5mL	100mL	R293600 / 2924335
	Hg 0.1 ref	S38597	S39300					
	ICV Hg	S38597	S39301					
	CCV Hg	S37627	S39302					
	ICV Hg (2)	S38597	S39303					
	CCV Hg (2)	S37627	S39304	↓	↓	↓	↓	↓
12-28-18 DC	Hg 0.1 STD	S37627	S39316	1mL	FS111 8040	5mL	100mL	R293600 / 2924335
	Hg 0.1 Ref	S38597	S39317					
	ICV Hg	S38597	S39318					
	CCV Hg	S38 ~~S37627~~ DDC 12/28/18	S39319					
	ICV Hg (2)	S38597	S39320					
	CCV Hg (2)	S37627	S39321	↓	↓	↓	↓	↓

Continued on Page

Read and Understood By

Signed _____ Date _____ Signed _____ Date _____

Enthalpy Analytical

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 305808
ANALYTICAL REPORT
Metals
Matrix: TCLP Leachate

Tetra Tech EMI	Project : 103S582303.02
1999 Harrison Street	Location : RFS MFA Pilot
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
RFS-MFA-EX C-7	305808-001
RFS-MFA-EX C-8	305808-002
RFS-MFA-EX C-9	305808-003
RFS-MFA-EX C-13	305808-004

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: Will Rice Date: 01/02/2019

Will Rice
Project Manager
will.rice@enthalpy.com
(510) 204-2221 Ext 13102

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

CASE NARRATIVE
METALS (EPA 7470A)
TCLP LEACHATE

Laboratory number:	**305808**
Client:	**Tetra Tech EMI**
Project:	**103S582303.02**
Location:	**RFS MFA Pilot**
Request Date:	**12/14/18**
Samples Received:	**12/14/18**

This data package contains sample and QC results for four soil samples, requested for the above referenced project on 12/14/18. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 7470A) TCLP Leachate:
No analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Chain of Custody # _____

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

C&T LOGIN # 305508

Project No: RFS MFA PILOT
Project Name: 1035582303.02
Project P. O. No:
EDD Format: Report Level ☐ II ☒ III ☐ IV
Turnaround Time: ☐ RUSH _____ ☒ Standard

Sampler: R. JOHNSON
Report To: JASON BIEDERSON
Company: TETRA TECH
Telephone: 415 497 9060
Email:

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST																			
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	ISM 1312 NO DRY/SIEVE		MERCURY 7471		TCLP MERCURY ONLY															
	RFS-MFA-EXC-7	12/14/18	0930					1						X		X		X															
	RFS-MFA-EXC-8	12/14/18	0840					1						X		X		X															
	RFS-MFA-EXC-9	12/14/18	0845					1						X		X		X															
	RFS-MFA-EXC-13	12/14/18	0930					2						X		X		X															

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:
_____ DATE: 12/14 TIME: 1052
DATE: TIME:
DATE: TIME:

RECEIVED BY:
_____ 12-14-18 1052
DATE: TIME:
DATE: TIME:
DATE: TIME:

SAMPLE RECEIPT CHECKLIST

Section 1: Login # 305808 Client: Tetra Tech

Date Received: 12/14/18 Project: _____

Section 2: Samples received in a cooler? ☒ Yes, how many? 1 ☐ No (skip Section 3 below)

If no cooler Sample Temp (°C): _____ using IR Gun # ☐ A, or ☐ B

☐ Samples received on ice directly from the field. Cooling process had begun

If in cooler: Date Opened 12/13/18 By (print) D. O (sign) _____

Shipping info (if applicable) _____

Are custody seals present? ☒ No, or ☐ Yes. If yes, where? ☐ on cooler, ☐ on samples, ☐ on package

☐ Date: _____ How many _____ ☐ Signature, ☐ Initials, ☐ None

Were custody seals intact upon arrival? ☐ Yes ☐ No ☒ N/A

Section 3: ***Important*: Notify PM if temperature exceeds 6°C or arrive frozen.**

Packing in cooler: (if other, describe) _____

☐ Bubble Wrap, ☐ Foam blocks, ☐ Bags, ☒ None, ☐ Cloth material, ☐ Cardboard, ☐ Styrofoam, ☐ Paper towels

☐ Samples received on ice directly from the field. Cooling process had begun

Type of ice used: ☒ Wet, ☐ Blue/Gel, ☐ None Temperature blank(s) included? ☐ Yes, ☒ No

Temperature measured using ☐ Thermometer ID: _____, or IR Gun # ☒ A ☐ B

Cooler Temp (°C): #1: 2.4, #2: _____, #3: _____, #4: _____, #5: _____, #6: _____, #7: _____

Section 4:	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	—		
Were Method 5035 sampling containers present?		—	
If YES, what time were they transferred to freezer?			
Did all bottles arrive unbroken/unopened?	—		
Are there any missing / extra samples?		—	
Are samples in the appropriate containers for indicated tests?	—		
Are sample labels present, in good condition and complete?	—		
Does the container count match the COC?	—		
Do the sample labels agree with custody papers?	—		
Was sufficient amount of sample sent for tests requested?	—		
Did you change the hold time in LIMS for unpreserved VOAs?			—
Did you change the hold time in LIMS for preserved terracores?			—
Are bubbles > 6mm absent in VOA samples?			—
Was the client contacted concerning this sample delivery?		—	
If YES, who was called? _____ By _____ Date: _____			

Section 5:	YES	NO	N/A
Are the samples appropriately preserved? (If N/A, skip the rest of section 5)			—
Did you check preservatives for all bottles for each sample?			
Did you document your preservative check?			

pH strip lot# _____, pH strip lot# _____, pH strip lot# _____

Preservative added:

☐ H2SO4 lot# _____ added to samples _____ on/at _____

☐ HCL lot# _____ added to samples _____ on/at _____

☐ HNO3 lot# _____ added to samples _____ on/at _____

☐ NaOH lot# _____ added to samples _____ on/at _____

Section 6:

Explanations/Comments: _____

Date Logged in 12/14/18 **By (print)** VO **(sign)** VO

Date Labeled 12/15/18 **By (print)** AC **(sign)** AC

Results & QC Summary

ENTHALPY ANALYTICAL

Mercury by Cold Vapor AA

Lab #:	305808	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7470A
Analyte:	Mercury	Sampled:	12/14/18
Matrix:	TCLP Leachate	Received:	12/14/18
Units:	mg/L	Prepared:	12/28/18
Diln Fac:	1.000	Analyzed:	12/28/18
Batch#:	266512		

Field ID	Type	Lab ID		Result	RL	MDL
RFS-MFA-EX C-7	SAMPLE	305808-001		0.00050 J	0.0010	0.00020
RFS-MFA-EX C-8	SAMPLE	305808-002		0.0013	0.0010	0.00020
RFS-MFA-EX C-9	SAMPLE	305808-003		0.00061 J	0.0010	0.00020
RFS-MFA-EX C-13	SAMPLE	305808-004	ND		0.0010	0.00020
	BLANK	QC959706	ND		0.0010	0.00020
	BLANK	QC959707	ND		0.0010	0.00020

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY ANALYTICAL

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305808	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	266512
Field ID:	ZZZZZZZZZZ	Sampled:	12/05/18
MSS Lab ID:	305978-001	Received:	12/05/18
Matrix:	Water	Prepared:	12/28/18
Units:	mg/L	Analyzed:	12/28/18
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC959702		0.002000	0.001962	98	80-120		
BSD	QC959703		0.002000	0.002124	106	80-120	8	24
MS	QC959704	0.0001538	0.002000	0.002120	98	64-120		
MSD	QC959705		0.002000	0.002123	98	64-120	0	30

RPD= Relative Percent Difference

REPORTING SUMMARY FOR 305808 METALS TCLP Leachate
Enthalpy Analytical - Berkeley

Lab ID	Inst ID	Analyzed	IDF	HG	
305808-001	MET44	12/28/18 16:52	1.0	+	
305808-002	MET44	12/28/18 16:54	1.0	+	
305808-003	MET44	12/28/18 16:55	1.0	+	
305808-004	MET44	12/28/18 16:57	1.0	+	
QC959701	MET44	12/28/18 16:44	1.0	+	
QC959702	MET44	12/28/18 16:46	1.0	+	
QC959703	MET44	12/28/18 16:47	1.0	+	
QC959704	MET44	12/28/18 16:50	1.0	+	
QC959705	MET44	12/28/18 16:51	1.0	+	
QC959706	MET44	12/28/18 17:06	1.0	+	
QC959707	MET44	12/28/18 17:08	1.0	+	
QC959708	MET44	12/28/18 17:09	1.0	+	

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1068522273

Instrument : MET44 Begun : 12/28/18 16:33
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used
001	met44	ICALBLK				12/28/18 16:33	1.0	
002	met44	ICAL	ICAL1			12/28/18 16:34	1.0	1
003	met44	ICAL	ICAL2			12/28/18 16:36	1.0	1
004	met44	ICAL	ICAL3			12/28/18 16:37	1.0	1
005	met44	ICAL	ICAL4			12/28/18 16:39	1.0	1
006	met44	ICAL	ICAL5			12/28/18 16:40	1.0	1
007	met44	ICV				12/28/18 16:41	1.0	2
008	met44	ICB				12/28/18 16:43	1.0	
009	met44	BLANK	QC959701	Water	266512	12/28/18 16:44	1.0	
010	met44	BS	QC959702	Water	266512	12/28/18 16:46	1.0	
011	met44	BSD	QC959703	Water	266512	12/28/18 16:47	1.0	
012	met44	MSS	305978-001	Water	266512	12/28/18 16:48	1.0	
013	met44	MS	QC959704	Water	266512	12/28/18 16:50	1.0	
014	met44	MSD	QC959705	Water	266512	12/28/18 16:51	1.0	
015	met44	SAMPLE	305808-001	TCLP Leachate	266512	12/28/18 16:52	1.0	
016	met44	SAMPLE	305808-002	TCLP Leachate	266512	12/28/18 16:54	1.0	
017	met44	SAMPLE	305808-003	TCLP Leachate	266512	12/28/18 16:55	1.0	
018	met44	SAMPLE	305808-004	TCLP Leachate	266512	12/28/18 16:57	1.0	
019	met44	CCV				12/28/18 16:58	1.0	3
020	met44	CCB				12/28/18 16:59	1.0	
021	met44	SAMPLE	305978-001	Filtrate	266512	12/28/18 17:01	1.0	
022	met44	SAMPLE	305993-001	Water	266512	12/28/18 17:02	1.0	
023	met44	SAMPLE	306045-007	TCLP Leachate	266512	12/28/18 17:04	1.0	
024	met44	X	RINSE			12/28/18 17:05	1.0	
025	met44	BLANK	QC959706	TCLP Leachate	266512	12/28/18 17:06	1.0	
026	met44	BLANK	QC959707	TCLP Leachate	266512	12/28/18 17:08	1.0	
027	met44	BLANK	QC959708	Filtrate	266512	12/28/18 17:09	1.0	
028	met44	CCV				12/28/18 17:10	1.0	3
029	met44	CCB				12/28/18 17:12	1.0	

DLC 12/28/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 029.

Standards used: 1=S39316 2=S39319 3=S39318

ENTHALPY INITIAL CALIBRATION FOR 305808 METALS TCLP Leachate: EPA 7470A

Inst : MET44
Calnum : 1068522273001
Units : ug/L

Date : 28-DEC-2018 16:33
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met44	1068522273002	ICAL1	28-DEC-2018 16:34	S39316 (500X)
L2	met44	1068522273003	ICAL2	28-DEC-2018 16:36	S39316 (200X)
L3	met44	1068522273004	ICAL3	28-DEC-2018 16:37	S39316 (50X)
L4	met44	1068522273005	ICAL4	28-DEC-2018 16:39	S39316 (20X)
L5	met44	1068522273006	ICAL5	28-DEC-2018 16:40	S39316 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0630	0.0714	0.0702	0.0696	0.0677	LIN0	-0.0304	14.7361		0.0684	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	**-22**	0.5000	-1	2.0000	2	5.0000	2	10.000	-1

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305808 METALS TCLP Leachate
EPA 7470A

Inst : MET44
Calnum : 1068522273001 Cal Date : 28-DEC-2018

ICV 1068522273007 (28-DEC-2018) stds: S39319

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.987	ug/L	0	10	

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS TCLP Leachate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1068522273008 File : met44 Time : 28-DEC-2018 16:43
Cal : 1068522273001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305808 METALS TCLP Leachate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1068522273019 File : met44 Time : 28-DEC-2018 16:58
Cal : 1068522273001 Caldate : 28-DEC-2018
Standards: S39318

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0684	0.0668	5.000	4.889	ug/L	-2	20	

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS TCLP Leachate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1068522273020 File : met44 Time : 28-DEC-2018 16:59
Cal : 1068522273001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

ENTHALPY CONTINUING CALIBRATION FOR 305808 METALS TCLP Leachate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1068522273028 File : met44 Time : 28-DEC-2018 17:10
Cal : 1068522273001 Caldate : 28-DEC-2018
Standards: S39318

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0684	0.0649	5.000	4.754	ug/L	-5	20	

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS TCLP Leachate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1068522273029 File : met44 Time : 28-DEC-2018 17:12
Cal : 1068522273001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

SAMPLE PREPARATION SUMMARY

Batch # : 266512
Started By : DLC
Method : METHOD
Spike #1 ID : S39317

Prep Date : 28-DEC-2018 12:34

Analysis : HG
Finished By : DLC
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
305808-001		TCLP Leachate	10	50	1	5.0						7470-HG	
305808-002		TCLP Leachate	10	50	1	5.0						7470-HG	
305808-003		TCLP Leachate	10	50	1	5.0						7470-HG	
305808-004		TCLP Leachate	10	50	1	5.0						7470-HG	
305978-001		Filtrate	50	50	1	1.0						T22/HG	
305978-001		Water	50	50	1	1.0						T22/HG	
305993-001		Water	50	50	1	1.0						T22/HG-200	
306045-007		TCLP Leachate	10	50	1	5.0						TCLP/HG	
QC959701	BLANK	Water	50	50	1	1.0							
QC959702	BS	Water	50	50	1	1.0		1					
QC959703	BSD	Water	50	50	1	1.0		1					
QC959704	MS	Water	50	50	1	1.0		1					
QC959705	MSD	Water	50	50	1	1.0		1					
QC959706	BLANK	TCLP Leachate	10	50	1	5.0							
QC959707	BLANK	TCLP Leachate	10	50	1	5.0							
QC959708	BLANK	Filtrate	50	50	1	1.0							

Analyst: DLC Date: 12/28/18 Reviewer: PRW Date: 12/28/18

Water Digestion for Mercury

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: ~~8~~ 266512 (12-28-18 DC)

Digestion Method: ☑ EPA 7470A/ EPA 245.1 ☐ _____

BK 4307

Date Digested: 12-28-18

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	Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
	Blank QC959701		☑ 50 ☐	☑ 50 ☐		
	BS QC959702		☑ 50 ☐	☑ 50 ☐		
	BSD QC959703		☑ 50 ☐	☑ 50 ☐		
	MS QC959704		☑ 50 ☐	☑ 50 ☐		
5	MSD QC959705		☑ 50 ☐	☑ 50 ☐		
	305808-001		☐ 50 ☒ 10	☑ 50 ☐		TCLP
	-002		☐ 50 ☒ 10	☑ 50 ☐		
	-003		☐ 50 ☒ 10	☐ 50 ☐		
	-004		☐ 50 ☒ 10	☑ 50 ☐		↓
10	305978-001	F	☑ 50 ☐	☑ 50 ☐		alias → 305614-001, MSS
	305978-001		☑ 50 ☐	☑ 50 ☐		Filtrate, alias → 305614-001
	305993-001	G	☑ 50 ☐	☑ 50 ☐		
	306045-007		☐ 50 ☒ 10	☑ 50 ☐		TCLP
	TCLP Blank 1		~~☐ 50~~ ☒ 10	☑ 50 ☐		QC959706
15	TCLP Blank 2		~~☑ 50~~ (DC 12-28-18) ☒ 10	☑ 50 ☐		QC959707
	Filtrate Blank		☑ 50 ☐	☑ 50 ☐		QC959708
			☐ 50 ☐	☐ 50 ☐		
			☐ 50 ☐	☐ 50 ☐		
			☐ 50 ☐	☐ 50 ☐		
20			☐ 50 ☐	☐ 50 ☐		
			☐ 50 ☐	☐ 50 ☐		
			☐ 50 ☐	☐ 50 ☐		
			☐ 50 ☐	☐ 50 ☐		
			☐ 50 ☐	☐ 50 ☐		

Standards prepared per SOP: MET 5.1, rev. 20

	Reagent ID/ LIMS# / Time	Initials / Date
~~pH~~ pH paper used to verify preservation, lot #	80BDH1881	DC 12-28-18
Digestion Tube Lot #	CP1112818	
~~1~~ mL of spike solution was added to all spikes	~~S39317~~ (DC 12-28-18) S39317	
Using pipette #	R29360D	
☐ CAL digested with this batch? ICAL Std S#	S39316	
ICV / CCV LIMS S#	S39318/S39319	
Digestion Temperature (°C), Block and Probe Location	96° | 22	
Digestion Block ID: Arches Thermometer #	A42121	
Digestion Started at (time)	12:35	
concentrated H_2SO_4	BDH20180123 97	
concentrated HNO_3	FS1118040	
5% $KMnO_4$ / Granular KMnO4 Reagent ID	122618	
5% $K_2S_2O_8$ Reagent ID	122618	
NaCl.hydroxylamine hydrochloride Reagent ID	122618	
Stannous Chloride Reagent ID	122618	
Digestion Completed at (time)	14:35	
☐ filtered thru' 0.45 um syringe filter (lot #)	S581160103	↓

Pipettes

Vol.(mL)	ID
.1	3281530
.2-1	R29360D
1-5	2924335
5-10	4645196

12-28-18

Prep Chemist / Date

Continued from page _____

Continued on page _____

Reviewed Online / See LIMS

Version 5.1, Jan.2017

SPLP/TCLP EXTRACTION LOG

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266451
Extraction Method: ☑ EPA 1311: TCLP ☐ EPA 1312: SPLP
Rotator #'s: 5, 1, 3

Date/ Time ON: 12-27-18 0515 Page: 4 BK 4368
Temp (°C) ON: 21
Date/ Time OFF: 12-27-18 2300 Thermometer ID: 111755122
Temp (°C) ON: 21-23 Temperature Limits: 21 - 25 C

Sample #	SL	Sample Mass (g)	Free Liq (y/n)*	Sieved? (y/n)*	Sample pH	pH after +1N HCl	Fluid #	Extract Vol (mL)	Final pH	*Comments
BLK 959496		Ø	Ø	Ø	Ø	Ø	1	☑2000 ☐____	4.88	
305787-001	A>B	100.28	N	N	7.14	2.03		☑2000 ☐____	4.98	(MIS-NODRY)
-002	A>B	100.03			7.20	2.01		☑2000 ☐____	4.99	
-003	A	100.20			8.62	2.06		☑2000 ☐____	5.07	
-004	A>B	100.06			8.87	2.11		☑2000 ☐____	5.33	
-005	↓	100.38			7.21	2.01		☑2000 ☐____	5.00	
-006	A	100.07			7.87	2.03		☑2000 ☐____	5.05	
-007		100.03			7.77	2.02		☑2000 ☐____	5.08	
-008		100.09			7.70	1.97		☑2000 ☐____	5.04	
-009		100.08			7.35	2.00		☑2000 ☐____	4.99	
-010		100.29			7.52	1.99		☑2000 ☐____	5.06	
-011		100.09			7.14	1.97		☑2000 ☐____	4.96	
-012		100.18			6.82	1.96		☑2000 ☐____	4.99	
306028-001		100.16			8.88	2.70		☑2000 ☐____	5.89	305829-001
306035-001		100.31			7.37	2.46		☑2000 ☐____	5.21	
-002		100.12			9.46	2.17		☑2000 ☐____	5.77	
306045-007	↓	25.11			7.68	2.09		☐2000 ☑500	6.36	(LIMITED SAMPLE)
306052-001	C	50.22			8.89	2.04		☐2000 ☑1000	5.50	305628-003
-002		40.05			8.96	2.10		☐2000 ☑800	6.40	-005
-003	↓	45.18			8.97	2.07		☐2000 ☑900	5.67	-006
306058-001	B	100.33	↓	↓	8.89	2.01	↓	☑2000 ☐____	5.47	
								☐2000 ☐____		
								☐2000 ☐____		
								☐2000 ☐____		

Balance ID: B-13 calibration has been checked? ☑ Yes ☐ No
pH Meter ID: 013869 has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS #	Date/ Initials
☐ glass beaker/watch glass, or ☐ disposable tube/watch glass, lot#	12-21-18 ESS	12-27-18 MV
added 3.5 mL of 1 N HCl, Reagent ID/ pipette ID	411B020-092118 L55696G	
TCLP Fluid #1 pH: 4.88 - 4.98 su — Sodium Hydroxide (NaOH)	180275003 BDH	
TCLP Fluid #2 pH: 2.83 - 3.03 su — Acetic acid (HOAc)	201703 1705 BDH	
SPLP Fluid #1 pH: 4.15 - 4.25 su — Fluid #1 pH, Prep Date	4.95/4.90/4.88 12-22-18/12-27-18	
SPLP Fluid #2 pH: 4.95 - 5.05 su — Fluid #2 pH, Prep Date	— —	
Hot Plate Thermometer (Temperature, Serial #)	50 °C ID: 4153815	
filtered thru TCLP filter paper, lot#	CPI 171164	
acidified to pH <2 with 1 mL HNO3	1118060 FISHER	
pH paper strips, lot#	HC547770	

12-27-18
Analyst / Date

Version 6.1 Effective July 2017 **Reviewed Online / See LIMS**

SPLP/TCLP EXTRACTION LOG **Enthalpy Analytical LLC - Berkeley**

LIMS Batch #: 266389 Date/ Time ON: 12-22-18 0617 Page: 3 **BK 4368**

Extraction Method: ☑ EPA 1311: TCLP Temp (°C) ON: 22

☐ EPA 1312: SPLP Date/ Time OFF: 12-23-18 00:20 Thermometer ID: 11755122

Rotator #'s: 5, 1 Temp (°C) ON: 21°C - 23°C Temperature Limits: 21 - 25 C

Sample #	SL	Sample Mass (g)	Free Liq (y/n)*	Sieved? (y/n)*	Sample pH	pH after +1N HCl	Fluid #	Extract Vol (mL)	Final pH	*Comments
BLK 959250		Ø	Ø	Ø	Ø	Ø	1	☑ 2000 ☐	4.95	
305808-001	A	100.25	N	N	7.78	1.93	↓	☑ 2000 ☐	5.08	(MIS - NO DRY)
-002	↓	100.26	↓	↓	8.19	1.84	↓	☑ 2000 ☐	5.13	↓
-003	↓	100.31	↓	↓	7.77	1.87	↓	☑ 2000 ☐	5.10	↓
↓ -004	↓	100.39	↓	↓	9.09	1.94	↓	☑ 2000 ☐	5.40	↓
305952-001	↓	100.11	↓	↓	6.07	1.80	↓	☑ 2000 ☐	5.04	
305969-005	↓	100.24	↓	↓	8.62	1.97	↓	☑ 2000 ☐ VV 12-23-18	~~5.05~~ 5.62	305969-1→4 (250 mL)
↓ -010	↓	100.04	↓	VV 12-22-18	~~6.85~~ 8.84	~~1.79~~ 1.92	↓	☑ 2000 ☐	5.46	↓ -6→9 ↓
305977-002	↓	100.13	↓	↓	8.64	1.94	↓	☑ 2000 ☐	5.98	305754-013
↓ -003	↓	100.29	↓	↓	8.07	1.85	↓	☑ 2000 ☐	5.32	↓ -014
306007-001	↓	100.19	↓	↓	6.85	1.79	↓	☑ 2000 ☐	5.10	
306009-001	↓	100.19	↓	↓	8.84	1.92	↓	☑ 2000 ☐	5.82	
-002	↓	100.08	↓	↓	8.79	1.95	↓	☑ 2000 ☐	5.71	
↓ -003	↓	100.33	↓	↓	8.86	1.94	↓	☑ 2000 ☐	5.82	
								☐ 2000 ☐		
								☐ 2000 ☐		
								☐ 2000 ☐		
								☐ 2000 ☐		
								☐ 2000 ☐		
								☐ 2000 ☐		
								☐ 2000 ☐		
								☐ 2000 ☐		
								☐ 2000 ☐		
								☐ 2000 ☐		

Balance ID: B-13 calibration has been checked? ☑ Yes ☐ No

pH Meter ID: 013869 has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS #		Date/ Initials
☑ glass beaker/watch glass, or ☐ disposable tube/watch glass, lot#	12-14-18 ESS		12-22-18 MV
added 3.5 mL of 1 N HCl, Reagent ID/ pipette ID	4118020-092118	L556966	↓
Sodium Hydroxide (NaOH)	18D275003 BDH		↓
Acetic acid (HOAc)	2017031705 BDH		↓
Fluid #1 pH, Prep Date	4.89 / 4.90	12-21-18 / 12-22-18	↓
Fluid #2 pH, Prep Date			↓
Hot Plate Thermometer (Temperature, Serial #)	50 °C	ID: 4153815	↓
filtered thru TCLP filter paper, lot#	CPI-171164		12-23-18 VV
acidified to pH <2 with 1 mL HNO3	1118060 - Fisher		
pH paper strips, lot#	HC547770		↓

TCLP Fluid #1 pH: 4.88 - 4.98 su

TCLP Fluid #2 pH: 2.83 - 3.03 su

SPLP Fluid #1 pH: 4.15 - 4.25 su

SPLP Fluid #2 pH: 4.95 - 5.05 su

[signature] 12-22-18

Analyst / Date

Version 6.1 Effective July 2017 **Reviewed Online / See LIMS**

Mercury Raw Data

CURTIS & TOMPKINS SEQUENCE SUMMARY FOR 1068522273

Instrument : MET44 Begun : 12/28/18 16:33
Method : EPA 7470A SOP Version : hg_water_rv19

#	File	Type	Sample ID	Matrix	Batch	Analyzed	IDF	Stds Used	
001	met44	ICALBLK				12/28/18 16:33	1.0		
002	met44	ICAL	ICAL1			12/28/18 16:34	1.0	1	
003	met44	ICAL	ICAL2			12/28/18 16:36	1.0	1	
004	met44	ICAL	ICAL3			12/28/18 16:37	1.0	1	
005	met44	ICAL	ICAL4			12/28/18 16:39	1.0	1	
006	met44	ICAL	ICAL5			12/28/18 16:40	1.0	1	
007	met44	ICV				12/28/18 16:41	1.0	2	
008	met44	ICB				12/28/18 16:43	1.0		
009	met44	BLANK	QC959701	Water	266512	12/28/18 16:44	1.0		
010	met44	BS	QC959702	Water	266512	12/28/18 16:46	1.0		
011	met44	BSD	QC959703	Water	266512	12/28/18 16:47	1.0		
012	met44	MSS	305978-001	Water	266512	12/28/18 16:48	1.0		
013	met44	MS	QC959704	Water	266512	12/28/18 16:50	1.0		
014	met44	MSD	QC959705	Water	266512	12/28/18 16:51	1.0		
015	met44	SAMPLE	305808-001	TCLP Leachate	266512	12/28/18 16:52	1.0		
016	met44	SAMPLE	305808-002	TCLP Leachate	266512	12/28/18 16:54	1.0		
017	met44	SAMPLE	305808-003	TCLP Leachate	266512	12/28/18 16:55	1.0		
018	met44	SAMPLE	305808-004	TCLP Leachate	266512	12/28/18 16:57	1.0		
019	met44	CCV				12/28/18 16:58	1.0	3	
020	met44	CCB				12/28/18 16:59	1.0		
021	met44	SAMPLE	305978-001	Filtrate	266512	12/28/18 17:01	1.0		
022	met44	SAMPLE	305993-001	Water	266512	12/28/18 17:02	1.0		
023	met44	SAMPLE	306045-007	TCLP Leachate	266512	12/28/18 17:04	1.0		
024	met44	X	RINSE			12/28/18 17:05	1.0		
025	met44	BLANK	QC959706	TCLP Leachate	266512	12/28/18 17:06	1.0		
026	met44	BLANK	QC959707	TCLP Leachate	266512	12/28/18 17:08	1.0		
027	met44	BLANK	QC959708	Filtrate	266512	12/28/18 17:09	1.0		
028	met44	CCV				12/28/18 17:10	1.0	3	
029	met44	CCB				12/28/18 17:12	1.0		

DLC 12/28/18 : I verified that the vials loaded on the instrument matched the sequence data entry, for runs 001 through 029.

Standards used: 1=S39316 2=S39319 3=S39318

Mercury by Cold Vapor AA

Lab #:	305808	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7470A
Analyte:	Mercury	Sampled:	12/14/18
Matrix:	TCLP Leachate	Received:	12/14/18
Units:	mg/L	Prepared:	12/28/18
Diln Fac:	1.000	Analyzed:	12/28/18
Batch#:	266512		

Field ID	Type	Lab ID		Result	RL	MDL
RFS-MFA-EX C-7	SAMPLE	305808-001		0.00050 J	0.0010	0.00020
RFS-MFA-EX C-8	SAMPLE	305808-002		0.0013	0.0010	0.00020
RFS-MFA-EX C-9	SAMPLE	305808-003		0.00061 J	0.0010	0.00020
RFS-MFA-EX C-13	SAMPLE	305808-004	ND		0.0010	0.00020
	BLANK	QC959706	ND		0.0010	0.00020
	BLANK	QC959707	ND		0.0010	0.00020

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET44	Lab ID	: 305808-001	Client ID	: RFS-MFA-EX C-7
Seqnum	: 1068522273015	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met44	Batch	: 266512	Time	: 28-DEC-2018 16:52
Cal	: 1068522273001	Caldate	: 28-DEC-2018		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.00050 J	0.0010		u

u=use

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 15 **Autosampler Location: 17**
Sample ID: 305808-001,266512,1 **Date Collected: 12/28/2018 4:52:53 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305808-001,266512,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.100	0.100	0.0089	0.0115	0.0024	4:53:59 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET44	Lab ID	: 305808-002	Client ID	: RFS-MFA-EX C-8
Seqnum	: 1068522273016	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met44	Batch	: 266512	Time	: 28-DEC-2018 16:54
Cal	: 1068522273001	Caldate	: 28-DEC-2018		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.0013	0.0010		u

u=use

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 16 **Autosampler Location: 18**
Sample ID: 305808-002,266512,1 **Date Collected: 12/28/2018 4:54:16 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305808-002,266512,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.264	0.264	0.0200	0.0226	0.0048	4:55:23 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET44	Lab ID	: 305808-003	Client ID	: RFS-MFA-EX C-9
Seqnum	: 1068522273017	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met44	Batch	: 266512	Time	: 28-DEC-2018 16:55
Cal	: 1068522273001	Caldate	: 28-DEC-2018		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	0.00061 J	0.0010		u

u=use

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 17 **Autosampler Location: 19**
Sample ID: 305808-003,266512,1 **Date Collected: 12/28/2018 4:55:39 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305808-003,266512,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.123	0.123	0.0104	0.0131	0.0029	4:56:46 PM	Yes

ENTHALPY SAMPLE USER REPORT FOR EPA 7470A

Inst	: MET44	Lab ID	: 305808-004	Client ID	: RFS-MFA-EX C-13
Seqnum	: 1068522273018	Matrix	: TCLP Leachate	Acct	: TTEMI (MJD)
File	: met44	Batch	: 266512	Time	: 28-DEC-2018 16:57
Cal	: 1068522273001	Caldate	: 28-DEC-2018		
IDF	: 1.0			Units	: mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Blank	Flags
Mercury	ND	0.0010		u

u=use

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 18 **Autosampler Location: 20**
Sample ID: 305808-004,266512,1 **Date Collected: 12/28/2018 4:57:02 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: 305808-004,266512,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.044	-0.044	-0.0010	0.0017	0.0006	4:58:10 PM	Yes

Batch QC Report

Mercury by Cold Vapor AA

Lab #:	305808	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	EPA 7470A
Analyte:	Mercury	Batch#:	266512
Field ID:	ZZZZZZZZZZ	Sampled:	12/05/18
MSS Lab ID:	305978-001	Received:	12/05/18
Matrix:	Water	Prepared:	12/28/18
Units:	mg/L	Analyzed:	12/28/18
Diln Fac:	1.000		

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC959702		0.002000	0.001962	98	80-120		
BSD	QC959703		0.002000	0.002124	106	80-120	8	24
MS	QC959704	0.0001538	0.002000	0.002120	98	64-120		
MSD	QC959705		0.002000	0.002123	98	64-120	0	30

RPD= Relative Percent Difference

ENTHALPY SPIKE USER REPORT FOR 305808 METALS TCLP Leachate
EPA 7470A

Type : MSS	Type : MS	Type : MSD
Inst : MET44	Inst : MET44	Inst : MET44
Seqnum : 1068522273012	Seqnum : 1068522273013.1	Seqnum : 1068522273014.1
File : met44	File : met44	File : met44
IDF : 1.0	IDF : 1.0	IDF : 1.0
Lab ID : 305978-001	Lab ID : QC959704	Lab ID : QC959705
Matrix : Water	Matrix : Water	Matrix : Water
Batch : 266512	Batch : 266512	Batch : 266512
Time : 28-DEC-2018 16:48	Time : 28-DEC-2018 16:50	Time : 28-DEC-2018 16:51
Cal : 1068522273001	Cal : 1068522273001	Cal : 1068522273001
Units : mg/L		

MSS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
 MS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
MSD: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	MSS	Spiked	MS	%Rec	MSD	%Rec	Limits	RPD	Lim	Flags
Mercury	0.0001538	0.002000	0.002120	98	0.002123	98	64-120	0	30	u

u=use

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 13 **Autosampler Location: 15**
Sample ID: qc959704,266512,1 **Date Collected: 12/28/2018 4:50:08 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc959704,266512,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.120	2.120	0.1459	0.1486	0.0301	4:51:14 PM	Yes

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 14 **Autosampler Location: 16**
Sample ID: qc959705,266512,1 **Date Collected: 12/28/2018 4:51:30 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc959705,266512,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.123	2.123	0.1461	0.1488	0.0303	4:52:37 PM	Yes

ENTHALPY SPIKE USER REPORT FOR 305808 METALS TCLP Leachate
EPA 7470A

Type : BS
Inst : MET44
Seqnum : 1068522273010.1
File : met44
IDF : 1.0
Lab ID : QC959702
Matrix : Water
Batch : 266512
Time : 28-DEC-2018 16:46
Cal : 1068522273001
Units : mg/L

Type : BSD
Inst : MET44
Seqnum : 1068522273011.1
File : met44
IDF : 1.0
Lab ID : QC959703
Matrix : Water
Batch : 266512
Time : 28-DEC-2018 16:47
Cal : 1068522273001

BS: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF
BSD: 50.00 mL --> 50.0 ml = 1.0 ml/ml PDF

Analyte	Spiked	BS	%Rec	BSD	%Rec	Limits	RPD	Lim	Flags
Mercury	0.002000	0.001962	98	0.002124	106	80-120	8	24	u

u=use

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 10 **Autosampler Location: 12**
Sample ID: qc959702,266512,1 **Date Collected: 12/28/2018 4:46:03 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc959702,266512,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	1.962	1.962	0.1352	0.1379	0.0271	4:47:08 PM	Yes

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 11 **Autosampler Location: 13**
Sample ID: qc959703,266512,1 **Date Collected: 12/28/2018 4:47:24 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc959703,266512,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	2.124	2.124	0.1462	0.1488	0.0299	4:48:30 PM	Yes

ENTHALPY BLANK USER REPORT FOR 305808 METALS TCLP Leachate
EPA 7470A

Inst : MET44 Lab ID : QC959706
Seqnum : 1068522273025.1 Matrix : TCLP Leachate
File : met44 Batch : 266512 Time : 28-DEC-2018 17:06
Cal : 1068522273001 Caldate : 28-DEC-2018
IDF : 1.0 Units : mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Flags
Mercury	ND	0.0010	u

u=use

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

Sequence No.: 25 **Autosampler Location: 24**
Sample ID: qc959706,266512,1 **Date Collected: 12/28/2018 5:06:48 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc959706,266512,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	0.020	0.020	0.0034	0.0061	0.0015	5:07:54 PM	Yes

ENTHALPY BLANK USER REPORT FOR 305808 METALS TCLP Leachate
EPA 7470A

Inst : MET44 Lab ID : QC959707
Seqnum : 1068522273026.1 Matrix : TCLP Leachate
File : met44 Batch : 266512 Time : 28-DEC-2018 17:08
Cal : 1068522273001 Caldate : 28-DEC-2018
IDF : 1.0 Units : mg/L

10.00 mL --> 50.0 ml = 5.0 ml/ml PDF

Analyte	Result	RL	Flags
Mercury	ND	0.0010	u

u=use

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 26 **Autosampler Location: 25**
Sample ID: qc959707,266512,1 **Date Collected: 12/28/2018 5:08:10 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: qc959707,266512,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.028	-0.028	0.0001	0.0028	0.0009	5:09:15 PM	Yes

ENTHALPY INITIAL CALIBRATION FOR 305808 METALS TCLP Leachate: EPA 7470A

Inst : MET44
Calnum : 1068522273001
Units : ug/L

Date : 28-DEC-2018 16:33
X Axis : R

Level	File	Seqnum	Sample ID	Analyzed	Stds
L1	met44	1068522273002	ICAL1	28-DEC-2018 16:34	S39316 (500X)
L2	met44	1068522273003	ICAL2	28-DEC-2018 16:36	S39316 (200X)
L3	met44	1068522273004	ICAL3	28-DEC-2018 16:37	S39316 (50X)
L4	met44	1068522273005	ICAL4	28-DEC-2018 16:39	S39316 (20X)
L5	met44	1068522273006	ICAL5	28-DEC-2018 16:40	S39316 (10X)

Analyte	L1	L2	L3	L4	L5	Type	a0	a1	a2	Avg	r^2 %RSD	MnR^2	Flg
Mercury	0.0630	0.0714	0.0702	0.0696	0.0677	LIN0	-0.0304	14.7361		0.0684	1.000	.99	

Spiked Amounts / Drifts	L1	%D	L2	%D	L3	%D	L4	%D	L5	%D
Mercury	0.2000	**-22**	0.5000	-1	2.0000	2	5.0000	2	10.000	-1

Instrument amount = a0 + response * a1 + response^2 * a2; LIN0=Linear regression including 0,0 point

1068522273001

ENTHALPY 2ND SOURCE CALIBRATION SUMMARY FOR 305808 METALS TCLP Leachate
EPA 7470A

Inst : MET44
Calnum : 1068522273001 Cal Date : 28-DEC-2018

ICV 1068522273007 (28-DEC-2018) stds: S39319

Analyte	Spiked	Quant	Units	%D	Max	Flags
Mercury	5.000	4.987	ug/L	0	10	

==========

Analysis Begun

Logged In Analyst: mercury **Technique: AA FIMS-MHS**
Spectrometer: FIMS-100, S/N B050-9550 **Autosampler: Cetac**

Sample Information File: C:\Users\Public\PerkinElmer\AA\Data\Sample Information\122818w.sif
Batch ID: 122718w
Results Data Set: 122818water
Results Library: C:\Users\Public\PerkinElmer\AA\Data\Results\Results.mdb

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 1 **Autosampler Location: 1**
Sample ID: ICALBLK **Date Collected: 12/28/2018 4:33:35 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICALBLK **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.00]	0.0027	0.0027	0.0006	4:34:41 PM	Yes

Auto-zero performed.

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 2 **Autosampler Location: 2**
Sample ID: ICAL, ICAL1,S39316,500 **Date Collected: 12/28/2018 4:34:57 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL1,S39316,500 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.2]	0.0126	0.0152	0.0033	4:36:03 PM	Yes

Standard number 1 applied. [0.2]
Correlation Coef.: 1.000000 Slope: 0.06288 Intercept: 0.00000

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 3 **Autosampler Location: 3**
Sample ID: ICAL, ICAL2,S39316,200 **Date Collected: 12/28/2018 4:36:18 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL2,S39316,200 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[0.5]	0.0357	0.0384	0.0077	4:37:25 PM	Yes

Standard number 2 applied. [0.5]
Correlation Coef.: 0.998544 Slope: 0.07184 Intercept: -0.00067

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 4 **Autosampler Location: 4**
Sample ID: ICAL, ICAL3,S39316,50 **Date Collected: 12/28/2018 4:37:40 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL3,S39316,50 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[2.0]	0.1404	0.1431	0.0290	4:38:47 PM	Yes

Standard number 3 applied. [2.0]
Correlation Coef.: 0.999912 Slope: 0.07045 Intercept: -0.00038

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 5 **Autosampler Location: 5**
Sample ID: ICAL, ICAL4,S39316,20 **Date Collected: 12/28/2018 4:39:03 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL4,S39316,20 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[5.0]	0.3478	0.3504	0.0707	4:40:11 PM	Yes

Standard number 4 applied. [5.0]
Correlation Coef.: 0.999976 Slope: 0.06964 Intercept: 0.00005

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

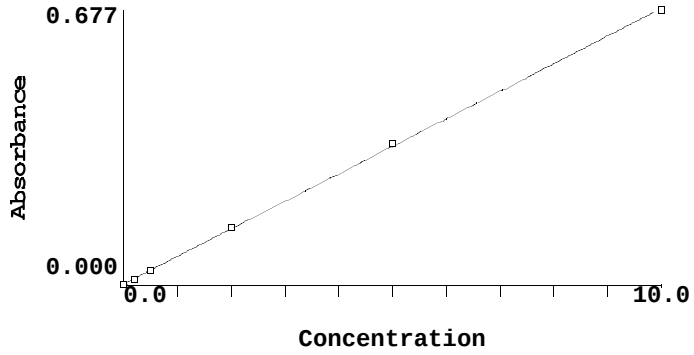
==========

Sequence No.: 6 **Autosampler Location: 6**
Sample ID: ICAL, ICAL5,S39316,10 **Date Collected: 12/28/2018 4:40:27 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICAL, ICAL5,S39316,10 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1		[10.0]	0.6770	0.6796	0.1365	4:41:35 PM	Yes

Standard number 5 applied. [10.0]
Correlation Coef.: 0.999894 Slope: 0.06786 Intercept: 0.00206



Calibration data for Hg 253.7 **Equation: Linear, Calculated Intercept**

ID	Mean Signal (Abs)	Entered Conc. ug/L	Calculated Conc. ug/L	Standard Deviation	%RSD
ICALBLK	0.0000	0	-0.030	----	----
ICAL, ICAL1,S39316,500	0.0126	0.2	0.155	----	----
ICAL, ICAL2,S39316,200	0.0357	0.5	0.496	----	----
ICAL, ICAL3,S39316,50	0.1404	2.0	2.039	----	----
ICAL, ICAL4,S39316,20	0.3478	5.0	5.095	----	----
ICAL, ICAL5,S39316,10	0.6770	10.0	9.946	----	----

Correlation Coef.: 0.999894 Slope: 0.06786 Intercept: 0.00206

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 7 **Autosampler Location: 8**
Sample ID: ICV,s39319,1 **Date Collected: 12/28/2018 4:41:51 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICV,s39319,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.988	4.988	0.3405	0.3432	0.0724	4:42:59 PM	Yes

QC value within limits for Hg 253.7 Recovery = 99.75%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS TCLP Leachate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1068522273008 File : met44 Time : 28-DEC-2018 16:43
Cal : 1068522273001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 8 **Autosampler Location: 9**
Sample ID: ICB **Date Collected: 12/28/2018 4:43:16 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: ICB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.047	-0.047	-0.0011	0.0016	0.0005	4:44:24 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305808 METALS TCLP Leachate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1068522273019 File : met44 Time : 28-DEC-2018 16:58
Cal : 1068522273001 Caldate : 28-DEC-2018
Standards: S39318

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0684	0.0668	5.000	4.889	ug/L	-2	20	

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 19 **Autosampler Location: 7**
Sample ID: CCV,s39318,1 **Date Collected: 12/28/2018 4:58:27 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,s39318,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.889	4.889	0.3338	0.3365	0.0703	4:59:35 PM	Yes

QC value within limits for Hg 253.7 Recovery = 97.78%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS TCLP Leachate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1068522273020 File : met44 Time : 28-DEC-2018 16:59
Cal : 1068522273001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 20 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 12/28/2018 4:59:52 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.020	-0.020	0.0007	0.0033	0.0006	5:01:00 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

ENTHALPY CONTINUING CALIBRATION FOR 305808 METALS TCLP Leachate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1068522273028 File : met44 Time : 28-DEC-2018 17:10
Cal : 1068522273001 Caldate : 28-DEC-2018
Standards: S39318

Analyte	Avg RF/CF	RF/CF	Spiked	Quant	Units	%D	Max %D	Flags
Mercury	0.0684	0.0649	5.000	4.754	ug/L	-5	20	

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 28 **Autosampler Location: 7**
Sample ID: CCV,s39318,1 **Date Collected: 12/28/2018 5:10:53 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCV,s39318,1 **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	4.755	4.755	0.3247	0.3274	0.0659	5:12:01 PM	Yes

QC value within limits for Hg 253.7 Recovery = 95.10%
All analyte(s) passed QC.

ENTHALPY INSTRUMENT BLANK FOR 305808 METALS TCLP Leachate
EPA 7470A

Inst : MET44 IDF : 1.0
Seqnum : 1068522273029 File : met44 Time : 28-DEC-2018 17:12
Cal : 1068522273001 Caldate : 28-DEC-2018

Analyte	Quant	IQL	LOD	Units	Flags
Mercury	ND	0.2000	0.1000	ug/L	

==========

Method Loaded
Method Name: MET44 **Method Last Saved: 12/28/2018 4:32:03 PM**
Method Description: MET 44

==========

Sequence No.: 29 **Autosampler Location: 10**
Sample ID: CCB **Date Collected: 12/28/2018 5:12:18 PM**
Analyst: **Data Type: Original**
Initial Sample Wt: **Initial Sample Vol:**
Dilution: **Sample Prep Vol:**

Replicate Data: CCB **Analyte: Hg 253.7**

Repl #	SampleConc ug/L	StndConc ug/L	BlnkCorr Signal	Peak Area	Peak Height	Time	Peak Stored
1	-0.057	-0.057	-0.0018	0.0008	0.0005	5:13:26 PM	Yes

QC value within limits for Hg 253.7 Recovery = Not calculated
All analyte(s) passed QC.

SAMPLE PREPARATION SUMMARY

Batch # : 266512
Started By : DLC
Method : METHOD
Spike #1 ID : S39317

Prep Date : 28-DEC-2018 12:34

Analysis : HG
Finished By : DLC
Units : mL

Sample	Stype	Matrix	Initial	Final	Clean DF	Prep DF	pH	Sp 1 Vol	Sp 2 Vol	Sp 3 Vol	Clean Method	Analysis	Comments
305808-001		TCLP Leachate	10	50	1	5.0						7470-HG	
305808-002		TCLP Leachate	10	50	1	5.0						7470-HG	
305808-003		TCLP Leachate	10	50	1	5.0						7470-HG	
305808-004		TCLP Leachate	10	50	1	5.0						7470-HG	
305978-001		Filtrate	50	50	1	1.0						T22/HG	
305978-001		Water	50	50	1	1.0						T22/HG	
305993-001		Water	50	50	1	1.0						T22/HG-200	
306045-007		TCLP Leachate	10	50	1	5.0						TCLP/HG	
QC959701	BLANK	Water	50	50	1	1.0							
QC959702	BS	Water	50	50	1	1.0		1					
QC959703	BSD	Water	50	50	1	1.0		1					
QC959704	MS	Water	50	50	1	1.0		1					
QC959705	MSD	Water	50	50	1	1.0		1					
QC959706	BLANK	TCLP Leachate	10	50	1	5.0							
QC959707	BLANK	TCLP Leachate	10	50	1	5.0							
QC959708	BLANK	Filtrate	50	50	1	1.0							

Analyst: DLC Date: 12/28/18 Reviewer: PRW Date: 12/28/18

Water Digestion for Mercury

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266512 Digestion Method: ☑ EPA 7470A/ EPA 245.1 BK 4307

Date Digested: 12-28-18 ☐ _____ Page 98

	Sample #	container ID	Volume Sample (mL)	Final Volume (mL)	Filtered? (y/n)	Comments
	Blank QC959701		☑ 50 ☐	☑ 50 ☐		
	BS QC959702		☑ 50 ☐	☑ 50 ☐		
	BSD QC959703		☑ 50 ☐	☑ 50 ☐		
	MS QC959704		☑ 50 ☐	☑ 50 ☐		
5	MSD QC959705		☑ 50 ☐	☑ 50 ☐		
	305808-001		☐ 50 ☒ 10	☑ 50 ☐		TCLP
	-002		☐ 50 ☒ 10	☑ 50 ☐		
	-003		☐ 50 ☒ 10	☐ 50 ☐		
	-004		☐ 50 ☒ 10	☑ 50 ☐		↓
10	305978-001	F	☑ 50 ☐	☑ 50 ☐		alias → 305614-001, MSS
	305978-001		☑ 50 ☐	☑ 50 ☐		Filtrate, alias → 305614-001
	305993-001	G	☑ 50 ☐	☑ 50 ☐		
	306045-007		☐ 50 ☒ 10	☑ 50 ☐		TCLP
	TCLP Blank 1		~~☐ 50~~ ☒ 10	☑ 50 ☐		QC959706
15	TCLP Blank 2		~~☑ 50~~ ☒ 10	☑ 50 ☐		QC959707
	Filtrate Blank		☑ 50 ☐	☑ 50 ☐		QC959708
			☐ 50 ☐	☐ 50 ☐		
			☐ 50 ☐	☐ 50 ☐		
			☐ 50 ☐	☐ 50 ☐		
20			☐ 50 ☐	☐ 50 ☐		
			☐ 50 ☐	☐ 50 ☐		
			☐ 50 ☐	☐ 50 ☐		
			☐ 50 ☐	☐ 50 ☐		
			☐ 50 ☐	☐ 50 ☐		

Standards prepared per SOP: MET 5.1, rev. 20

	Reagent ID/ LIMS# / Time	Initials / Date
~~pH~~ pH paper used to verify preservation, lot #	80BDH1881	DC 12-28-18
Digestion Tube Lot #	CP1112818	
___1___ mL of spike solution was added to all spikes	~~S39317~~ DC 12-28-18 S39317	
Using pipette #	R29360D	
☐ **CAL digested with this batch? ICAL Std S#**	S39316	
ICV / CCV LIMS S#	S39318 / S39319	
Digestion Temperature (°C), Block and Probe Location	96° | 22	
Digestion Block ID: Arches Thermometer #	A42121	
Digestion Started at (time)	12:35	
concentrated H_2SO_4	BDH20180123 97	
concentrated HNO_3	FS1118040	
5% $KMnO_4$ / Granular KMnO4 Reagent ID	122618	
5% $K_2S_2O_8$ Reagent ID	122618	
NaCl.hydroxylamine hydrochloride Reagent ID	122618	
Stannous Chloride Reagent ID	122618	
Digestion Completed at (time)	14:35	
☐ filtered thru' 0.45 um syringe filter (lot #)	S581160103	↓

Pipettes

Vol.(mL)	ID
.1	3281530
.2-1	R29360D
1-5	2924335
5-10	4645196

12-28-18

Prep Chemist / Date

Continued from page _____

Continued on page _____

Reviewed Online / See LIMS

Version 5.1, Jan.2017

SPLP/TCLP EXTRACTION LOG

Enthalpy Analytical LLC - Berkeley

LIMS Batch #: 266451
Extraction Method: ☑ EPA 1311: TCLP ☐ EPA 1312: SPLP
Rotator #'s: 5, 1, 3

Date/ Time ON: 12-27-18 0515 Page: 4 BK 4368
Temp (°C) ON: 21
Date/ Time OFF: 12-27-18 2300 Thermometer ID: 111755122
Temp (°C) ON: 21-23 Temperature Limits: 21 - 25 C

Sample #	SL	Sample Mass (g)	Free Liq (y/n)*	Sieved? (y/n)*	Sample pH	pH after +1N HCl	Fluid #	Extract Vol (mL)	Final pH	*Comments
BLK 959496		Ø	Ø	Ø	Ø	Ø	1	☑2000 ☐____	4.88	
305787-001	A>B	100.28	N	N	7.14	2.03		☑2000 ☐____	4.98	(MIS-NODRY)
-002	A>B	100.03			7.20	2.01		☑2000 ☐____	4.99	
-003	A	100.20			8.62	2.06		☑2000 ☐____	5.07	
-004	A>B	100.06			8.87	2.11		☑2000 ☐____	5.33	
-005	↓	100.38			7.21	2.01		☑2000 ☐____	5.00	
-006	A	100.07			7.87	2.03		☑2000 ☐____	5.05	
-007		100.03			7.77	2.02		☑2000 ☐____	5.08	
-008		100.09			7.70	1.97		☑2000 ☐____	5.04	
-009		100.08			7.35	2.00		☑2000 ☐____	4.99	
-010		100.29			7.52	1.99		☑2000 ☐____	5.06	
-011		100.09			7.14	1.97		☑2000 ☐____	4.96	
-012		100.18			6.82	1.96		☑2000 ☐____	4.99	
306028-001		100.16			8.88	2.70		☑2000 ☐____	5.89	305829-001
306035-001		100.31			7.37	2.46		☑2000 ☐____	5.21	
-002		100.12			9.46	2.17		☑2000 ☐____	5.77	
306045-007	↓	25.11			7.68	2.09		☐2000 ☑500	6.36	(LIMITED SAMPLE)
306052-001	C	50.22			8.89	2.04		☐2000 ☑1000	5.50	305628-003
-002		40.05			8.96	2.10		☐2000 ☑800	6.40	-005
-003	↓	45.18			8.97	2.07		☐2000 ☑900	5.67	-006
306058-001	B	100.33	↓	↓	8.89	2.01	↓	☑2000 ☐____	5.47	
								☐2000 ☐____		
								☐2000 ☐____		
								☐2000 ☐____		

Balance ID: B-13 calibration has been checked? ☑ Yes ☐ No
pH Meter ID: 013869 has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS #	Date/ Initials
☐ glass beaker/watch glass, or ☐ disposable tube/watch glass, lot#	12-21-18 ESS	12-27-18 MV
added 3.5 mL of 1 N HCl, Reagent ID/ pipette ID	411B020-092118 L55696G	
TCLP Fluid #1 pH: 4.88 - 4.98 su — Sodium Hydroxide (NaOH)	180275003 BDH	
TCLP Fluid #2 pH: 2.83 - 3.03 su — Acetic acid (HOAc)	201703 1705 BDH	
SPLP Fluid #1 pH: 4.15 - 4.25 su — Fluid #1 pH, Prep Date	4.95/4.90/4.88 12-22-18/12-27-18	
SPLP Fluid #2 pH: 4.95 - 5.05 su — Fluid #2 pH, Prep Date	— —	
Hot Plate Thermometer (Temperature, Serial #)	50 °C ID: 4153815	
filtered thru TCLP filter paper, lot#	CPI 171164	
acidified to pH <2 with 1 mL HNO3	1118060 FISHER	
pH paper strips, lot#	HC547770	

12-27-18
Analyst / Date

Version 6.1 Effective July 2017 **Reviewed Online / See LIMS**

SPLP/TCLP EXTRACTION LOG | **Enthalpy Analytical LLC - Berkeley**

LIMS Batch #: 266389
Extraction Method: ☑ EPA 1311: TCLP ☐ EPA 1312: SPLP
Rotator #'s: 5, 1

Date/ Time ON: 12-22-18 0617
Temp (°C) ON: 22
Date/ Time OFF: 12-23-18 00:20
Temp (°C) ON: 21°C - 23°C

Page: 3 **BK 4368**
Thermometer ID: 11755122
Temperature Limits: 21 - 25 C

Sample #	SL	Sample Mass (g)	Free Liq (y/n)*	Sieved? (y/n)*	Sample pH	pH after +1N HCl	Fluid #	Extract Vol (mL)	Final pH	*Comments
BLK 959250		Ø	Ø	Ø	Ø	Ø	1	☑2000 ☐____	4.95	
305808-001	A	100.25	N	N	7.78	1.93	↓	☑2000 ☐____	5.08	(MIS-NO DRY)
↓ -002	↓	100.26	↓	↓	8.19	1.84	↓	☑2000 ☐____	5.13	↓
-003	↓	100.31	↓	↓	7.77	1.87	↓	☑2000 ☐____	5.10	↓
↓ -004	↓	100.39	↓	↓	9.09	1.94	↓	☑2000 ☐____	5.40	↓
305952-001	↓	100.11	↓	↓	6.07	1.80	↓	☑2000 ☐____	5.04	
305969-005	↓	100.24	↓	↓	8.62	1.97	↓	☑2000 ☐ VV 12-23-18	~~5.05~~ 5.62	305969-1→4 (25sec.)
↓ -010	↓	100.04	↓	↓ VV 12-22-18	~~6.85~~ 8.84	~~1.79~~ 1.92	↓	☑2000 ☐____	5.46	↓ -6→9 ↓
305977-002	↓	100.13	↓	↓	8.64	1.94	↓	☑2000 ☐____	5.98	305754-013
↓ -003	↓	100.29	↓	↓	8.07	1.85	↓	☑2000 ☐____	5.32	↓ -014
306007-001	↓	100.19	↓	↓	6.85	1.79	↓	☑2000 ☐____	5.10	
306009-001	↓	100.19	↓	↓	8.84	1.92	↓	☑2000 ☐____	5.82	
-002	↓	100.08	↓	↓	8.79	1.95	↓	☑2000 ☐____	5.71	
↓ -003	↓	100.33	↓	↓	8.86	1.94	↓	☑2000 ☐____	5.82	
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		
								☐ 2000 ☐____		

Balance ID: B-13 calibration has been checked? ☑ Yes ☐ No
pH Meter ID: 013869 has been calibrated? ☑ Yes ☐ No

	Mfg & Lot # / LIMS #		Date/ Initials
☑ glass beaker/watch glass, or ☐ disposable tube/watch glass, lot#	12-14-18 ESS		12-22-18 MK
added 3.5 mL of 1 N HCl, Reagent ID/ pipette ID	4118020-092118	L556966	↓
Sodium Hydroxide (NaOH)	18D275003 BDH		↓
Acetic acid (HOAc)	2017031705 BDH		↓
Fluid #1 pH, Prep Date	4.89 / 4.90	12-21-18 / 12-22-18	↓
Fluid #2 pH, Prep Date			↓
Hot Plate Thermometer (Temperature, Serial #)	50 °C	ID: 4153815	↓
filtered thru TCLP filter paper, lot#	CPI-171164		12-23-18 VV
acidified to pH <2 with 1 mL HNO3	1118060 - Fisher		
pH paper strips, lot#	HC547770		↓

TCLP Fluid #1 pH: 4.88 - 4.98 su
TCLP Fluid #2 pH: 2.83 - 3.03 su
SPLP Fluid #1 pH: 4.15 - 4.25 su
SPLP Fluid #2 pH: 4.95 - 5.05 su

12-22-18
Analyst / Date

Version 6.1 Effective July 2017 **Reviewed Online / See LIMS**

Standards

S37627

INORGANIC VENTURES
300 Technology Drive
Christiansburg, VA 24073 · USA
inorganicventures.com

CERTIFICATE OF ANALYSIS

tel: 800.669.6799 · 540.585.3030
fax: 540.585.3012
info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO Guide 34, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).

ACCREDITED Testing Laboratory Certificate 883.01
ACCREDITED Reference Material Producer Certificate 883.02

2.0 PRODUCT DESCRIPTION

Product Code:	Single Analyte Mass Spec Solution
Catalog Number:	MSHGN-10PPM
Lot Number:	M2-HG657422
Matrix:	10% (v/v) HNO3
Value / Analyte(s):	10 µg/mL ea: Mercury
Starting Material:	Hg metal
Starting Material Lot#:	05214TX, R307HGA1, 1780
Starting Material Purity:	99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.000 ± 0.056 µg/mL

Certified Density: 1.050 g/mL (measured at 20 ± 1 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	061204
Hg	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

10ppm Hg SRC
IV HG 10PPM in Water
KER 16-JUL-18 10 ug/mL
S37627 | Expires: 08-MAY-21

KER 7/16/18

Characterization of CRM by two independent methods **Characterization of CRM by one method**

Characterization of CRM/RM by Two Methods

Certified Value, $X_{CRM/RM}$, where two methods of characterization are used is the weighted mean of the two results:

$X_{CRM/RM} = [(w_a)(X_a) + (w_b)(X_b)]$

X_a = mean of Assay Method A with standard uncertainty $u_{char\ a}$

X_b = mean of Assay Method B with standard uncertainty $u_{char\ b}$

w_a and w_b = the weighting factors for each method calculated using the inverse square of the variance:

$w_a = (1/u_{char\ a})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

$w_b = (1/u_{char\ b})^2 / ((1/u_{char\ a})^2 + (1/u_{char\ b})^2))$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a\&b} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a\&b} = [(w_a)^2 (u_{char\ a})^2 + (w_b)^2 (u_{char\ b})^2]^{1/2}$ where $u_{char\ a}$ and $u_{char\ b}$ are the square root of the sum of the squares of errors from characterization which include instrument measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$X_{CRM/RM}$ = mean of Assay Method A with standard uncertainty $u_{char\ a}$

CRM/RM Expanded Uncertainty (±) = $U_{CRM/RM} = k\,(u^2_{char\ a} + u^2_{bb} + u^2_{lts} + u^2_{ts})^{1/2}$

k = coverage factor = 2 in all cases at Inorganic Ventures

$u_{char\ a}$ = square root of the sum of the squares of the errors from characterization which include instrumental measurement, density, NIST SRM uncertainty, weighing, and volume

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

M	Ag	0.000017	M	Eu	< 0.000203	O	Na	0.000097	M	Se	< 0.013814	O	Zn	0.000001			
O	Al	0.000002	O	Fe	0.000001	M	Nb	< 0.000203	O	Si	0.000004	M	Zr	< 0.001219			
M	As	< 0.002844	M	Ga	< 0.000203	M	Nd	< 0.000203	M	Sm	< 0.000203						
O	Au	< 0.003219	M	Gd	< 0.000203	O	Ni	< 0.001812	M	Sn	< 0.000203						
O	B	< 0.002479	M	Ge	< 0.000609	M	Os	< 0.000202	O	Sr	< 0.000152						
M	Ba	< 0.000203	M	Hf	< 0.000203	O	P	< 0.010730	M	Ta	< 0.000203						
O	Be	< 0.000322	s	Hg	<	M	Pb	< 0.000203	M	Tb	< 0.000203						
M	Bi	< 0.013001	M	Ho	< 0.000203	M	Pd	< 0.000404	M	Te	< 0.001422						
O	Ca	0.000017	M	In	< 0.004063	M	Pr	< 0.000203	M	Th	< 0.000203						
M	Cd	0.000001	M	Ir	< 0.000202	M	Pt	< 0.000203	O	Ti	< 0.000530						
M	Ce	< 0.000203	M	K	0.000004	M	Rb	< 0.001219	O	Tl	< 0.002788						
M	Co	< 0.000406	M	La	< 0.000203	M	Re	< 0.001016	M	Tm	< 0.000203						
O	Cr	0.000002	O	Li	< 0.000180	M	Rh	< 0.000203	M	U	< 0.000813						
M	Cs	< 0.000203	M	Lu	< 0.000203	M	Ru	< 0.000202	M	V	< 0.000406						
M	Cu	< 0.000406	O	Mg	0.000004	O	S	< 0.023508	M	W	< 0.000609						
M	Dy	< 0.000203	M	Mn	< 0.000203	O	Sb	< 0.009657	M	Y	< 0.000203						
M	Er	< 0.000203	O	Mo	< 0.002152	M	Sc	< 0.000406	M	Yb	< 0.000203						

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag keep cap tightly sealed when not in use. Store and use at 20° ± 4° C. Do not pippette from the container. Do not return removed aliquots to container.

- For more information, visit **www.inorganicventures.com/TCT**

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+
Chemical Compatibility - Stable in HNO3. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.
Stability - 2-100 ppb levels not stable in 1% HNO3 / LDPE container, stable in 10% HNO3 packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO3 packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO3 / LDPE container.
Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO3); Oxide (Soluble in HNO3); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).
Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	**Estimated D.L.**	**Order**	**Interferences** (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th ,Rh , Fe, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 10CFR50 Appendix B - Nuclear Regulatory Commission

- Domestic Licensing of Production and Utilization Facilities

10.2 10CFR21 - Nuclear Regulatory Commission

- Reporting defects and Non-Compliance

10.3 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.4 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.5 ISO Guide 34 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

May 08, 2017

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **May 08, 2021**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year from the date of removal from the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being handled and stored in accordance with the instructions given in Sec 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Donna Senn
Product Documentation Technician

Donna Senn

Certificate Approved By:

Michael Booth
Supervisor, Quality Control

Michael J Booth

Certifying Officer:

Paul Gaines
CEO, Senior Technical Director

Paul R Gaines

S38597

CPI INTERNATIONAL

CERTIFICATE OF ANALYSIS

Single-Element Aqueous CRM

Product #: G34-4400-10PPM331-100

Mercury (Hg) – 10 µg/mL

Lot #: 168539-48

Matrix: 2% HNO_3

Element	Certified Concentration & Uncertainty
Hg	10.0 ± 0.1 µg/mL (w/v)
	9.98 ± 0.1 µg/g (w/w)

Intended Use: This solution is intended for use as a certified reference material (CRM) or calibration standard for inductively coupled plasma optical emission spectroscopy (ICP-OES), inductively coupled plasma mass spectrometry (ICP-MS), flame or furnace atomic absorption spectroscopy (AA or GFAA), and other techniques for elemental analysis.

Certification & Traceability: This CRM was manufactured, processed, and certified under a quality management system that is registered/accredited to **ISO 9001, ISO Guide 34**, and **ISO/IEC 17025**. This CRM was prepared to a nominal concentration of 10.0 µg/mL by gravimetric methods using a single-element concentrate dissolved in high purity nitric acid (HNO_3) and diluted with filtered (0.22 µm), 18 M-ohm deionized water. The balances used in the preparation of this CRM are calibrated regularly with traceability to NIST, using a calibration provider that is accredited to ISO/IEC 17025 by a mutually recognized accreditation body. All volumetric dilutions are performed in Class A calibrated glassware. The certified concentration and uncertainty were determined using the "High Performance ICP-OES" protocol developed by NIST, and both the certified concentration and uncertainty values are traceable to **NIST SRM 3133, lot #061204**. The uncertainty associated with the certified concentration represents the expanded uncertainty at the 95% confidence level using a coverage factor of k=2.

Indicative Values: ICP-MS was used to determine trace metal concentrations for this product (nd = not determined).

Trace Concentrations (µg/L)

Ag	<0.5	Fe	<25	Pb	<0.5
Al	<2	Hg	MAJOR	Sb	<0.5
As	<0.5	K	<50	Se	<2
Ba	<2	Li	<2	Sn	<0.5
Ca	<50	Mg	<10	Sr	<5
Cd	<0.5	Mn	<0.5	Ti	<2
Co	<0.5	Mo	<0.5	Tl	<0.5
Cr	<1	Na	<50	V	<2
Cu	<1	Ni	<1	Zn	<2

Instructions for Use: We recommend that the solution be thoroughly mixed by repeated shaking or swirling of the bottle immediately prior to use. To achieve the highest accuracy, the analyst should: (1) use only pre-cleaned containers and transferware, (2) not pipette directly from the CRM's original container, (3) never pour used product back into the original container, (4) make dilutions using calibrated balances or certified class A volumetric flasks and pipettes, (5) use a minimum sub-sample size of 500 µL, and (6) dilute with the same matrix as the original CRM or other chemically suitable matrix. The solution should be kept tightly capped and stored under normal laboratory conditions. Do not freeze, heat, or immerse the bottle or its contents, and avoid exposure to direct sunlight or moisture.

Period of Validity: CPI International ensures the accuracy of this solution for **18 months** from the certification date shown below, provided the instructions for use are followed. During the period of validity, the purchaser will be notified if this product is recalled due to any significant changes in the stability of the solution.

Chuck Goudreau

Chuck Goudreau, Certifying Officer

October 9, 2018

Certification Date

USA
5580 Skylane Boulevard P: 707.525.5788
Santa Rosa, CA 95403 P: 800.878.7654
F: 707.545.7901

Europe
Nieuwe Hemweg 7P P: +31 20 638 05 97
1013BG Amsterdam F: +31 20 420 28 36
The Netherlands

www.cpiinternational.com

Health and Safety Information: Refer to the Safety Data Sheet (SDS).

Homogeneity: This solution was determined to be homogeneous by procedures consistent with the requirements of ISO Guide 34 and ISO Guide 35. Replicate samples of the finished solution were analyzed to confirm its homogeneity, in accordance with QSP 6-13 Assessment of Homogeneity and Stability. To ensure homogeneity, users should not take a smaller sub-sample than specified in the Instructions for Use, as doing so will invalidate the certified values and uncertainties.

Quality Manual Rev: No. 5, 03/01/2013

Further Information: Please contact CPI International for further information about this CRM.

Quality Certifications: This CRM was prepared under a quality management system that is registered/accredited to the following:

- ISO 9001 – Quality Management Systems – Requirements (TUV NORD Cert. No. 44 100 16560231)
- ISO/IEC 17025 – General Requirements for the Competence of Testing and Calibration Laboratories (A2LA Cert. No. 2848.01)
- ISO Guide 34 – General Requirements for the Competence of Reference Material Producers (A2LA Cert. No. 2848.02)
    - ISO Guide 34 references additional requirements specified in ISO Guide 31 and ISO Guide 35.

KEE 10/16/18

2nd source 10ppm Hg standa SRC
HG 10 REF-2 in Water
KER 16-OCT-18 10 ug/mL
S38597 B | Expires: 16-OCT-19

Project BLC3449 Hg STANDARDS

Continued from Page

DATE/ ANALYST	STD Name	SOURCE S#	STD S #	SOURCE VOL	HNO_3 LOT #	HNO_3 VOL.	TOTAL VOL.	HNO_3 PIPETTE / SOURCE DISPENSER
12-26-18 DC	Hg 0.1 STD	S37627	S39291	1mL	FS111 8040	5mL	100mL	R293600 / 2924335
	Hg 0.1 REF	S38597	S39292					
	ICV Hg	S38597	S39293					
	CCV Hg	S37627	S39294					
	ICV Hg (2)	S38597	S39295					
	CCV Hg (2)	S37627	S39296	↓	↓			
12-27-18 DC KSB	Hg 0.1 STD	S37627	S39299	1mL	FS111 8040	5mL	100mL	R293600 / 2924335
	Hg 0.1 ref	S38597	S39300					
	ICV Hg	S38597	S39301					
	CCV Hg	S37627	S39302					
	ICV Hg (2)	S38597	S39303					
	CCV Hg (2)	S37627	S39304	↓	↓	↓	↓	↓
12-28-18 DC	Hg 0.1 STD	S37627	S39316	1mL	FS111 8040	5mL	100mL	R293600 / 2924335
	Hg 0.1 Ref	S38597	S39317					
	ICV Hg	S38597	S39318					
	CCV Hg	S38 ~~S37627~~ DDC 12/28/18	S39319					
	ICV Hg (2)	S38597	S39320					
	CCV Hg (2)	S37627	S39321	↓	↓	↓	↓	↓

Continued on Page

Read and Understood By

Signed _____ Date _____ Signed _____ Date _____

Enthalpy Analytical

2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 305808
ANALYTICAL REPORT
Wet Chemistry

Tetra Tech EMI	Project : 103S582303.02
1999 Harrison Street	Location : RFS MFA Pilot
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
RFS-MFA-EX C-7	305808-001
RFS-MFA-EX C-8	305808-002
RFS-MFA-EX C-9	305808-003
RFS-MFA-EX C-13	305808-004

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature which applies to this PDF file as well as any associated electronic data deliverable files. The results contained in this report meet all requirements of NELAP and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 01/02/2019

Will Rice
Project Manager
will.rice@enthalpy.com
(510) 204-2221 Ext 13102

CA ELAP# 2896, NELAP# 4044-001

ENTHALPY ANALYTICAL

CASE NARRATIVE
WET CHEMISTRY (ASTM D2216-98/CLP)

Laboratory number:	**305808**
Client:	**Tetra Tech EMI**
Project:	**103S582303.02**
Location:	**RFS MFA Pilot**
Request Date:	**12/14/18**
Samples Received:	**12/14/18**

This data package contains sample and QC results for four soil samples, requested for the above referenced project on 12/14/18. See attached cooler receipt form for any sample receipt problems or discrepancies.

Moisture (ASTM D2216-98/CLP):
No analytical problems were encountered.

Chain of Custody

CHAIN OF CUSTODY

Curtis & Tompkins Laboratories
ENVIRONMENTAL ANALYTICAL TESTING LABORATORY
In Business Since 1878

2323 Fifth Street
Berkeley, CA 94710

Phone (510) 486-0900
Fax (510) 486-0532

Chain of Custody # _____

C&T LOGIN # 305508

Project No: RFS MFA PILOT
Project Name: 1635582303.02
Project P. O. No:
EDD Format: Report Level ☐ II ☒ III ☐ IV
Turnaround Time: ☐ RUSH _____ ☒ Standard

Sampler: R. JOHNSON
Report To: JASON BIEDERSON
Company: TETRA TECH
Telephone: 415 497 9060
Email:

Lab No.	Sample ID.	SAMPLING		MATRIX				# of Containers	CHEMICAL PRESERVATIVE					ANALYTICAL REQUEST																	
		Date Collected	Time Collected	Water	Solid				HCl	H2SO4	HNO3	NaOH	None	ISM 1312 NO DRY/SIEVE		MERCURY 7471		TCLP MERCURY ONLY													
	RFS-MFA-EXC-7	12/14/18	0930					1						X		X		X													
	RFS-MFA-EXC-8	12/14/18	0840					1						X		X		X													
	RFS-MFA-EXC-9	12/14/18	0845					1						X		X		X													
	RFS-MFA-EXC-13	12/14/18	0930					2						X		X		X													

Notes:

SAMPLE RECEIPT
☐ Intact
☐ Cold
☒ On Ice
☐ Ambient

RELINQUISHED BY:
_____ DATE: 12/14 TIME: 10:52
_____ DATE: TIME:
_____ DATE: TIME:

RECEIVED BY:
_____ DATE: 12-14-18 TIME: 1052
_____ DATE: TIME:
_____ DATE: TIME:

SAMPLE RECEIPT CHECKLIST

Section 1: Login # 305808 Client: Tetra Tech

Date Received: 12/14/18 Project: _____

ENTHALPY ANALYTICAL

Section 2: Samples received in a cooler? ☑ Yes, how many? 1 ☐ No (skip Section 3 below)

If no cooler Sample Temp (°C): _____ using IR Gun # ☐ A, or ☐ B

☐ Samples received on ice directly from the field. Cooling process had begun

If in cooler: Date Opened 12/13/18 By (print) D. O (sign) _____

Shipping info (if applicable) _____

Are custody seals present? ☒ No, or ☐ Yes. If yes, where? ☐ on cooler, ☐ on samples, ☐ on package

☐ Date: _____ How many _____ ☐ Signature, ☐ Initials, ☐ None

Were custody seals intact upon arrival? ☐ Yes ☐ No ☒ N/A

Section 3: ***Important*: Notify PM if temperature exceeds 6°C or arrive frozen.**

Packing in cooler: (if other, describe) _____

☐ Bubble Wrap, ☐ Foam blocks, ☐ Bags, ☒ None, ☐ Cloth material, ☐ Cardboard, ☐ Styrofoam, ☐ Paper towels

☐ Samples received on ice directly from the field. Cooling process had begun

Type of ice used: ☑ Wet, ☐ Blue/Gel, ☐ None Temperature blank(s) included? ☐ Yes, ☑ No

Temperature measured using ☐ Thermometer ID: _____, or IR Gun # ☒ A ☐ B

Cooler Temp (°C): #1: 2.4, #2: _____, #3: _____, #4: _____, #5: _____, #6: _____, #7: _____

Section 4:	YES	NO	N/A
Were custody papers dry, filled out properly, and the project identifiable	—		
Were Method 5035 sampling containers present?		—	
If YES, what time were they transferred to freezer?			
Did all bottles arrive unbroken/unopened?	—		
Are there any missing / extra samples?		—	
Are samples in the appropriate containers for indicated tests?	—		
Are sample labels present, in good condition and complete?	—		
Does the container count match the COC?	—		
Do the sample labels agree with custody papers?	—		
Was sufficient amount of sample sent for tests requested?	—		
Did you change the hold time in LIMS for unpreserved VOAs?			—
Did you change the hold time in LIMS for preserved terracores?			—
Are bubbles > 6mm absent in VOA samples?			—
Was the client contacted concerning this sample delivery?		—	
If YES, who was called? _____ By _____ Date: _____			

Section 5:	YES	NO	N/A
Are the samples appropriately preserved? (If N/A, skip the rest of section 5)			—
Did you check preservatives for all bottles for each sample?			
Did you document your preservative check?			

pH strip lot# _____, pH strip lot# _____, pH strip lot# _____

Preservative added:

☐ H2SO4 lot# _____ added to samples _____ on/at _____

☐ HCL lot# _____ added to samples _____ on/at _____

☐ HNO3 lot# _____ added to samples _____ on/at _____

☐ NaOH lot# _____ added to samples _____ on/at _____

Section 6:

Explanations/Comments: _____

Date Logged in 12/14/18 **By (print)** VO **(sign)** VO

Date Labeled 12/15/18 **By (print)** AC **(sign)** AC

Results & QC Summary

ENTHALPY ANALYTICAL

Moisture

Lab #:	305808	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	ASTM D2216-98/CLP
Analyte:	Moisture, Percent	Batch#:	266296
Matrix:	Soil	Sampled:	12/14/18
Units:	%	Received:	12/14/18
Diln Fac:	1.000	Analyzed:	12/19/18

Field ID	Lab ID	Result	RL
RFS-MFA-EX C-7	305808-001	18	1
RFS-MFA-EX C-8	305808-002	17	1
RFS-MFA-EX C-9	305808-003	18	1
RFS-MFA-EX C-13	305808-004	20	1

RL= Reporting Limit

ENTHALPY ANALYTICAL

Batch QC Report

Moisture

Lab #:	305808	Location:	RFS MFA Pilot
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	103S582303.02	Analysis:	ASTM D2216-98/CLP
Analyte:	Moisture, Percent	Units:	%
Field ID:	RFS-MFA-EX C-13	Diln Fac:	1.000
Type:	SDUP	Batch#:	266296
MSS Lab ID:	305808-004	Sampled:	12/14/18
Lab ID:	QC958888	Received:	12/14/18
Matrix:	Soil	Analyzed:	12/19/18

MSS Result	Result	RL	RPD	Lim
19.58	20.41	1.000	4	26

RL= Reporting Limit
RPD= Relative Percent Difference

Percent Moisture Summary Report

Batch: 266296
Date: 12/19/18
Method: CLP SOW 390
Analyst: ALW

Sample	Tare (g)	Wet (g)	Dry (g)	Percent Solids	Percent Moisture
305807-018	10.99	17.60	16.63	85	15
305807-019	10.94	17.62	16.55	84	16
305807-020	11.28	17.66	16.61	84	16
305807-021	11.25	17.65	16.26	78	22
305807-022	11.20	17.68	15.79	71	29
305807-023	11.29	17.61	16.02	75	25
305807-024	11.32	17.61	16.13	76	24
305807-025	11.30	17.63	16.02	75	25
305807-026	11.03	17.69	15.33	65	35
305808-001	11.19	17.72	16.54	82	18
305808-002	11.31	17.65	16.58	83	17
305808-003	11.29	17.66	16.53	82	18
305808-004	11.04	17.63	16.34	80	20
QC958888	11.34	17.66	16.37	80	20
of 305808-004			RPD:	1.0%	4.2%

Moisture LOG Enthalpy Analytical LLC - Berkeley rev.3.2, July 2017

LIMS Batch #: 2662296
Date: 12.19.18

Page: **49**
Benchbook#: **BK 4351**

Balance ID: B-13
calibration has been checked? ☒ Yes ☐ No

	Sample # / Letter	Dish #	Dish Weight (g)	Sample + Dish Wt (g)	Final Weight (g)	*Comments
	BIK	75	11.18	Ø	11.18	
	305807-018 A	3	10.99	17.60	16.63	
	019	53	10.94	17.62	16.55	
	020	23	11.28	17.66	16.61	
5	021	89	11.25	17.65	16.26	
	022	18	11.20	17.68	15.79	
	023	61	11.29	17.61	16.02	
	024	19	11.32	17.61	16.13	
	025	17	11.30	17.63	16.02	
10	026	64	11.03	17.69	15.33	
	305808-001	6	11.19	17.72	16.54	
	002	88	11.31	17.65	16.58	
	003	91	11.29	17.66	16.53	
	004	46	11.04	17.63	16.34	
15	SDUP004	56	11.34	17.66	16.37	
20						

	In	Out	In-2	Out-2
Date:	12.19.18	12.20.18		
Time:	1630	1615		
Min/Max Range (°C)	104.	104.		
Thermometer ID:	P49096	P49096		
Weighed by:	ALW	ALW		

ALW / 12.19.18
Analyst Initials / Date

Reviewed Online / See LIMS

16
PROJECT (B-13) OHAUS SP602 BALANCE CAL. Notebook No. BK-3384

Continued From Page

DATE	0.2g	SET #	500g	SET #	INITIALS
11-28-18	0.20	40417	499.93	28659	MV
11-29-18	0.20	40417	499.96	28659	ALW
11-30-18	0.20	40417	499.95	28659	MV
12-1-18	0.20	28659	499.91	28659	VV
12-2-18	0.20	28659	499.93	28659	VV
12-3-18	0.20	28659	499.91	28659	VV
~~12-04-18~~	~~0.20~~	~~40417 28659~~	~~499.91~~	ALW 12.04.18	
12-04-18	0.20	40417	499.91	28659	ALW
12-05-18	0.20	40417	499.93	28659	ALW
12-06-18	0.20	40417	499.92	28659	DES
12-08-18	0.20	40417	499.93	28659	MV
12-10-18	0.20	40417	499.94	28659	ALW
12-11-18	0.20	40417	499.94	28659	ALW
12-12-18	0.20	40417	499.93	28659	MV
12-14-18	0.20	40417	499.94	28659	MV
12-15-18	0.20	40417	499.94	28659	MV
12-17-18	0.20	40417	499.96	28659	ALW
12-18-18	0.20	40417	499.94	28659	ALW
12-19-18	0.20	28659	499.93	28659	VV
12-20-18	0.20	40417	499.95	28659	ALW

Continued on Page

Read and Understood By

Signed Date Signed Date

Appendix E

Waste Manifests and Weight Tickets

0757

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) 4B1900878301-002 SC PPW 1/9/2019 Form Approved. OMB No. 2050-003

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	CAD983669268	1	(800) 483-3718	011849169 FLE

GENERATOR

5. Generator's Name and Mailing Address
University of California
University of California - Berkeley - EHandS University Hall
Berkeley, CA 94720
Generator's Phone: (510) 643-9574

Generator's Site Address (if different than mailing address)
1301 South 46th Street
Richmond, CA 94804

6. Transporter 1 Company Name: Tri-State Motor transit CO.
Clean Harbors Environmental Services, Inc
U.S. EPA ID Number: MOD095038998 MAD039222250

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Clean Harbors Buttonwillow LLC
2500 West Lokern Road
Buttonwillow, CA 93206
Facility's Phone: (661) 762-6200
U.S. EPA ID Number: CAD980675276

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt/Vol.	13. Waste Codes
	1 NON-RCRA HAZARDOUS WASTE, SOLIDS, (MERCURY)	017	CF	20,000	P	611
	2					
	3					
	4					

14. Special Handling Instructions and Additional Information
1.CH1787256

Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf for purposes of transportation efficiency, convenience, or safety

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Phillip Hayes
Signature: Phillip Hayes
Month: 02 Day: 27 Year: 19

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: Amber Tapia
Signature:
Month: 2 Day: 27 Year: 19

Transporter 2 Printed/Typed Name:
Signature:
Month: Day: Year:

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month: Day: Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name:
Signature:
Month: 02 Day: 28 Year: 19

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

4B 1900878301-002 SC PPW 1/9/2019

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: CAD983669268
2. Page 1 of: 1
3. Emergency Response Phone: (800) 483-3718
4. Manifest Tracking Number: 011849170 FLE

GENERATOR

5. Generator's Name and Mailing Address:
University of California
University of California - Berkeley - EHandS University Hall
Berkeley, CA 94720

Generator's Phone: (510) 643-9574

Generator's Site Address (if different than mailing address):
1301 South 46th Street
Richmond,CA 94804

6. Transporter 1 Company Name: ~~Clean Harbors Environmental Services, Inc.~~ Tri - State Motor Transit CO.
U.S. EPA ID Number: ~~MAD039322250~~ MOD095038998

7. Transporter 2 Company Name:
U.S. EPA ID Number:

8. Designated Facility Name and Site Address:
Clean Harbors Buttonwillow LLC
2500 West Lokern Road
Buttonwillow, CA 93206

Facility's Phone: (661) 762-6200

U.S. EPA ID Number: CAD980675276

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1. NON-RCRA HAZARDOUS WASTE, SOLIDS, (MERCURY)	016	CF	18,000	P	611
	2.					
	3.					
	4.					

14. Special Handling Instructions and Additional Information
1.CH1787256

Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf for purposes of transportation efficiency convenience or safe

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name: Phillip Hayes
Signature: [signature]
Month Day Year: 02 28 19

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S.
Port of entry/exit:
Transporter signature (for exports only):
Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Gary Bruner
Signature: [signature]
Month Day Year: 2 28 19

Transporter 2 Printed/Typed Name:
Signature:
Month Day Year:

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number:
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year:

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Kevin Warren
Signature: [signature]
Month Day Year: 02 28 19

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

0938

4B1900878301-002 SC PPW 1/9/2019

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number
	CAD983669268	1	(800) 483-3718	011849171 FLE

5. Generator's Name and Mailing Address
University of California
University of California - Berkeley - EHandS University Hall
Berkeley, CA 94720
Generator's Phone: (510) 643-9574

Generator's Site Address (if different than mailing address)
1301 South 46th Street
Richmond, CA 94804

6. Transporter 1 Company Name: ~~Clean Harbors Environmental Services, Inc.~~ ART STATE MOTOR TRANSIT CO — U.S. EPA ID Number: ~~MAD039322250~~ MOD075038998

7. Transporter 2 Company Name — U.S. EPA ID Number

8. Designated Facility Name and Site Address
Clean Harbors Buttonwillow LLC
2500 West Lokern Road
Buttonwillow, CA 93206
Facility's Phone: (661) 762-6200

U.S. EPA ID Number: CAD980675276

9a HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt /Vol	13. Waste Codes
	1 NON-RCRA HAZARDOUS WASTE, SOLIDS, (MERCURY)	017	CF	20,000	P	611
	2					
	3					
	4					

14. Special Handling Instructions and Additional Information
1.CM1787256

Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf for purposes of transportation, efficiency, convenience, or safety

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent.
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offeror's Printed/Typed Name	Signature	Month	Day	Year
X Phillip Hayes	X	02	27	19

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name	Signature	Month	Day	Year
Andres De Lubiria		02	27	19
Transporter 2 Printed/Typed Name	Signature	Month	Day	Year

X

DESIGNATED FACILITY

18. Discrepancy

18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

18b. Alternate Facility (or Generator) — U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator) — Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1.	2.	3.	4.
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name	Signature	Month	Day	Year
		02	28	19

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

1664

4B1900878301-002 SC PPW 1/9/2019

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator ID Number: CAD983669268
2. Page 1 of: 1
3. Emergency Response Phone: (800) 483-3718
4. Manifest Tracking Number: 011849172 FLE

GENERATOR

5. Generator's Name and Mailing Address
University of California
University of California - Berkeley - EHandS University Hall
Berkeley, CA 94720
Generator's Phone: (510) 643-9574

Generator's Site Address (if different than mailing address)
1301 South 46th Street
Richmond,CA 94804

6. Transporter 1 Company Name: Clean Harbors Environmental Services, Inc.
U.S. EPA ID Number: MAD039322250

7. Transporter 2 Company Name
U.S. EPA ID Number

8. Designated Facility Name and Site Address
Clean Harbors Buttonwillow LLC
2500 West Lokern Road
Buttonwillow, CA 93206
Facility's Phone: (661) 762-6200
U.S. EPA ID Number: CAD980675276

9a HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
	1 NON-RCRA HAZARDOUS WASTE, SOLIDS, (MERCURY)	017	CF	34,000	P	611
	2					
	3					
	4					

14. Special Handling Instructions and Additional Information
1.CR1787256

Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf for purposes of transportation efficiency convenience or safety

15. **GENERATOR'S/OFFEROR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent
I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true

Generator's/Offeror's Printed/Typed Name: Philip Hayes
Signature: [signature]
Month: 02 Day: 26 Year: 19

INT'L

16. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry/exit:
Transporter signature (for exports only): Date leaving U.S.:

TRANSPORTER

17. Transporter Acknowledgment of Receipt of Materials
Transporter 1 Printed/Typed Name: Jim L Burrough
Signature: [signature]
Month: 02 Day: 26 Year: 19
Transporter 2 Printed/Typed Name
Signature
Month Day Year

DESIGNATED FACILITY

18. Discrepancy
18a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection
Manifest Reference Number:

18b. Alternate Facility (or Generator)
U.S. EPA ID Number
Facility's Phone:

18c. Signature of Alternate Facility (or Generator)
Month Day Year

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1	2	3	4
H132			

20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a
Printed/Typed Name: Philip Hayes
Signature: [signature]
Month: 02 Day: 27 Year: 19

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

NO. 394466

CLEANHARBORS BUTTONWILLOW, LLC
WEIGHMASTER CERTIFICATE

09:22 am 02/28/19
REG. (80)
INBOUND 63400 lb

10:20 am 02/28/19

REG. (80)
63400 lb GROSS
34360 lb TARE
29040 lb NET

THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

WEIGHMASTER CLEANHARBORS BUTTONWILLOW, LLC

PROFILE NO. 401787236	GROSS WT. BY:	DEPUTY	DATE 02.28.19
DISPOSAL LOCATION STU	TARE WT. BY:	DEPUTY	DATE 2-28-19
DRIVER'S NAME PRINTED Samuel Tapia	WEIGHING LOCATION:	2500 W. LOKERN ROAD BUTTONWILLOW, CA 93206	
DRIVER'S NAME SIGNATURE Samuel Tapia	GENERATOR	University of Cal.	
TRACTOR NO. 165039	TRANSPORTER	Tri-State	
TRACTOR LIC. NO. AG-826011	MANIFEST NO.	011849169 FLE	
TRAILER LIC. NO. 174090	SERVICE ORDER NO.	1900878301-002	
BIN NUMBERS:	BIN TRACKING		

☐ END DUMP ☐ TRANSFER ☐ VACUUM ☑ VAN

☐ ROLL OFF - _____ ☐ FLAT BED ☐ _____

17 cfi

VIS	pH	SUL	CYA	OX	FL	FLASH	20%	
OTHER:								

IC	CR	PR	B.W. W.B.	LAB	SOLID BULK	WORK SHEET	LAND TRACK	W.T. SCAN	MAN-SCAN	RE-SCAN
								W	W	

DRUM NUMBER: 77973753-69

COMMENTS Delay No Line

BIN DROP FULL:

MOVE BIN TO: DATE: BY:

CHS-10014 REVISED (5/16)

NO. 394511

CLEANHARBORS BUTTONWILLOW, LLC
WEIGHMASTER CERTIFICATE

2:46 pm 02/28/19
REG. (25)
INBOUND 59920 lb

THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

WEIGHMASTER CLEANHARBORS BUTTONWILLOW, LLC

PROFILE NO.	CH1787256	GROSS WT. BY: C DEPUTY	DATE 02-28-19
DISPOSAL LOCATION	STK	TARE WT. BY: J DEPUTY	DATE 2/28/19
DRIVER'S NAME PRINTED	Gary Bruner	WEIGHING LOCATION:	2500 W. LOKERN ROAD BUTTONWILLOW, CA 93206
DRIVER'S NAME SIGNATURE	Gary Bruner	GENERATOR	University of CAL.
TRACTOR NO.	175050	TRANSPORTER	Tri-State
TRACTOR LIC. NO.	AH05444	MANIFEST NO	011849170 FLE
TRAILER LIC. NO.	174158	SERVICE ORDER NO.	1900878301 00 2
BIN NUMBERS:		BIN TRACKING	

3:50 pm 02/28/19

REG. (25)
59920 lb GROSS
35820 lb TARE
24100 lb NET

☐ END DUMP ☐ TRANSFER ☐ VACUUM ☑ VAN

☐ ROLL OFF - _____ ☐ FLAT BED ☐ _____

16 CF

VIS	pH	SUL	CYA	OX	FL	FLASH	20%	
OTHER:								

IC	CR	PR	B.W. W.B.	LAB	SOLID BULK	WORK SHEET	LAND TRACK	WT. SCAN	MAN-SCAN	RE-SCAN
(5)								✓	✓	

DRUM NUMBER: 77989501-16

COMMENTS: Delay No Line

BIN DROP FULL:

MOVE BIN TO: DATE: BY:

CHS-10014 REVISED (5/16)

NO. 394474

CLEANHARBORS BUTTONWILLOW, LLC
WEIGHMASTER CERTIFICATE

10:08 am 02/28/19
REG. (87)
INBOUND 61040 lb

THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

WEIGHMASTER CLEANHARBORS BUTTONWILLOW, LLC

PROFILE NO.	Clf1787256	GROSS WT. BY: / DEPUTY	DATE 02-28-19
DISPOSAL LOCATION	STM	TARE WT. BY: / DEPUTY	DATE 02-28-19
DRIVER'S NAME PRINTED	Andres DeZubiria	WEIGHING LOCATION:	2500 W. LOKERN ROAD BUTTONWILLOW, CA 93206
DRIVER'S NAME SIGNATURE		GENERATOR	University of CAL
TRACTOR NO.	2940	TRANSPORTER	T. State
TRACTOR LIC. NO.	AG-8124J5	MANIFEST NO.	011849171FLE
TRAILER LIC. NO.	9537LN	SERVICE ORDER NO.	19U878301-002
BIN NUMBERS:		BIN TRACKING	

10:54 am 02/28/19

REG. (87)
61040 lb GROSS
33980 lb TARE
27060 lb NET

☐ END DUMP ☐ TRANSFER ☐ VACUUM ☑ VAN

☐ ROLL OFF - _____ ☐ FLAT BED ☐ _____

17 OFF

VIS	pH	SUL	CYA	OX	FL	FLASH	20%	
OTHER:								

IC	CR	PR	B.W. W.B.	LAB	SOLID BULK	WORK SHEET	LAND TRACK	W.T. SCAN	MAN. SCAN	RE-SCAN
4								✓	✓	

DRUM NUMBER: 77974748-64

COMMENTS: Ok per FL

BIN DROP FULL:

MOVE BIN TO: DATE: BY:

CHS-10014 REVISED (5/16)

NO. 394399

CLEANHARBORS BUTTONWILLOW, LLC
WEIGHMASTER CERTIFICATE

10:13 am 02/27/19
REG. (10)
INBOUND 60540 lb

THIS IS TO CERTIFY that the following described commodity was weighed, measured, or counted by a weighmaster, whose signature is on this certificate, who is a recognized authority of accuracy, as prescribed by Chapter 7 (commencing with Section 12700) of Division 5 of the California Business and Professions Code, administered by the Division of Measurement Standards of the California Department of Food and Agriculture.

WEIGHMASTER CLEANHARBORS BUTTONWILLOW, LLC

PROFILE NO. CH1787256	GROSS WT. BY: DEPUTY DATE 02.27.19
DISPOSAL LOCATION STU	TARE WT. BY: DEPUTY DATE 02-27-19
DRIVER'S NAME PRINTED GENE MOMR	WEIGHING LOCATION: 2500 W. LOKERN ROAD BUTTONWILLOW, CA 93206
DRIVER'S NAME SIGNATURE	GENERATOR University of CAL.
TRACTOR NO. 17020	TRANSPORTER CH
TRACTOR LIC. NO. 9F85786	MANIFEST NO. 011849172FLE
TRAILER LIC. NO. T447148	SERVICE ORDER NO. 500878301-002
BIN NUMBERS:	BIN TRACKING

11:51 am 02/27/19

REG. (10)
60540 lb GROSS
33940 lb TARE
26600 lb NET

☐ END DUMP ☐ TRANSFER ☐ VACUUM ☑ VAN

☐ ROLL OFF - _____ ☐ FLAT BED ☐ _____

17 CF

VIS	pH	SUL	CYA	OX	FL	FLASH	20%	

OTHER:

IC	CR	PR	B.W. W.B.	LAB	SOLID BULK	WORK SHEET	LAND TRACK	W.T. SCAN	MAN-SCAN	RE-SCAN
								W	W	

DRUM NUMBER: 77946864-80

COMMENTS:

BIN DROP FULL:

MOVE BIN TO: DATE: BY:

CHS-10014 REVISED (5/16)