



November 9, 2020
Project No. 1874.01.01

Nicholas Green
City of John Day
450 E. Main Street
John Day, Oregon 97845

Re: Iron Triangle Property, John Day, Oregon—focused Phase II environmental site assessment

Dear Mr. Green:

At the request of the City of John Day (the City), Maul Foster & Alongi, Inc. (MFA) conducted a focused Phase II environmental site assessment (ESA) of the property located at 433 Patterson Bridge Road in John Day, Oregon (the Property) (see Figure 1).

MFA completed a Phase I ESA of the Property in June 2020 and identified the following recognized environmental conditions (RECs) in connection with the Property (MFA, 2020):

Equipment maintenance, equipment fueling, and equipment storage use. According to the previous Property owner, the Property had been used for equipment maintenance, fueling, and log truck storage from at least 1984 to 2020. The use of petroleum products and solvents in equipment maintenance and repair work was common. An appraisal for the Property provided by the City shows photographs of many drums stored throughout the Property without secondary containment. Three above ground storage tanks in concrete containment were present on the Property until early 2020 when, according to the previous Property owner, they were removed and relocated to a different site for use. According to the City, leakage from the tanks was likely. Two concrete oil sumps were observed inside the main shop building, and a wash water concrete sump was observed outside and adjacent to the main shop building to support equipment maintenance activities. Concrete is not impervious, and petroleum products and wash water can leak through sump structures. Based on aerial photographs and interviews, logging trucks and other equipment have been stored at the Property. Fluids and fuels can leak from parked equipment or spills can occur when equipment maintenance is conducted.

Oil staining in and around the main shop building. Aerial images and interviews suggest that the gravel/dirt surrounding the main shop building was previously oil stained. Oil stains were also observed on the concrete floor throughout the main shop building. The previous Property owner indicated that the stained soil was occasionally cleaned up and removed from the Property. No cleanup records for the removal of oil-stained dirt/gravel or associated confirmation soil sampling were available.

The purpose of this focused Phase II ESA is to evaluate subsurface conditions at the Property that may have been adversely impacted by the equipment maintenance and fueling and associated shop building. The assessment consisted of collecting and analyzing groundwater and soil sampled from reconnaissance borings.

PROPERTY BACKGROUND

The Property consists of approximately 14 acres and was previously used for industrial/commercial equipment maintenance including truck and heavy equipment repair, equipment fueling, truck parking/equipment storage, and log storage yard. Uses in the early 1900s include tailing pile storage from historical dredge mining. The Property currently contains one structure (the main shop building), which is vacant. The main shop building on the Property was previously used for equipment repair. A secondary shop building, office building, and fueling above ground storage tanks (ASTs) have been removed from the Property. According to the City, future re-use of the Property will be an industrial park.

INVESTIGATION SUMMARY

On August 26 and 27, 2020, MFA conducted field work to support the focused Phase II ESA. Prior to field activities, the boring locations were checked for the presence of subsurface utilities by public utility locators (i.e., Underground Utility Notification Center). MFA also coordinated with a private subsurface utility locator (Applied Professional Services, Inc.) to locate subsurface utilities and structures (e.g., utilities, pipes).

The focused Phase II ESA included the advancement of four rotosonic borings to facilitate collection of soil and groundwater samples at the Property (Figure 2). Three borings were located to assess the maintenance use and historical stained soil areas (B01, B02, and B03) while boring B04 was advanced in the approximate footprint of the former AST fueling area.

Soil and Reconnaissance Groundwater Sampling

MFA coordinated with Holt Services, Inc., a driller licensed in Oregon, to complete four borings (B01 through B04) using a TerraSonic TSi 150 drilling rig. Investigation locations are presented on Figure 2. Borings were advanced to between 10 and 15 feet below ground surface (bgs) under the observation of an MFA geologist, who collected samples, described soil types, and used a photoionization detector (PID) to screen for organic vapors. The soil at boring B01, B02, and B03 had no noticeable odor or staining, and the PID readings were zero parts per million (ppm). The soil at boring B04 had a petroleum-like odor from 5.5 to 6.5 feet bgs, and PID readings ranged from 14 ppm to 98 ppm. Boring logs including PID readings are provided in Attachment A. Soil and reconnaissance groundwater samples were collected from each of the four borings for laboratory analysis. Groundwater field sampling data sheets are provided in Attachment B.

SITE GEOLOGY AND HYDROGEOLOGY

The online geologic map of Oregon shows that Quaternary surficial deposits such as sediments, landslide deposits, alluvium, colluvium, and terrace deposits are present at and around the Property. The boring logs for the Property (Attachment A) indicate that sand and gravel are prevalent grain sizes and sandy gravel, gravel, and sand soils are present at the site to approximately 15 feet bgs, the maximum depth explored. Woody debris and organic soils were also observed at some of the boring locations. Groundwater was encountered in the borings at depths ranging from approximately 7 to 9 feet bgs.

ANALYTICAL WORK

Samples were submitted to Apex Laboratories, LLC in Tigard, Oregon under standard chain-of-custody procedures. Attachment C contains the laboratory report, and a data validation memorandum is included as Attachment D. The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

Soil

Selected soil samples were analyzed from each boring for petroleum hydrocarbon identification by Northwest Total Petroleum Hydrocarbons (NWTPH) hydrocarbon identification (HCID) and total metals by U.S. Environmental Protection Agency (EPA) method 6020A.

Because of the hydrocarbon detections by NWTPH-HCID method, soil samples from B03 and B04 were analyzed for diesel- and oil-range petroleum hydrocarbons by method NWTPH-Dx, polychlorinated biphenyls (PCBs) by EPA method 8082A, and polycyclic aromatic hydrocarbons (PAHs) by EPA method 8270E SIM. Soil from boring B04 was also analyzed for gasoline-range TPH by method NWTPH-Gx and volatile organic compounds by EPA method 8260D.

Groundwater

All four reconnaissance groundwater samples were analyzed for petroleum hydrocarbon identification by NWTPH-HCID and dissolved metals by EPA method 200.8.

The groundwater sample from B04 was analyzed for diesel- and oil-range petroleum hydrocarbons by method NWTPH-Dx, PCBs by EPA method 8082A, and PAHs by EPA method 8270E SIM.

RESULTS

The results below summarize the soil and groundwater analytical results and screening against appropriate Oregon Department of Environmental Quality (DEQ) Risk-based Concentrations (RBCs) presented in Tables 1 and 2. Based on the current and likely future use of the Property

(industrial park), concentrations were screened against RBCs for occupational workers, as well as construction and excavation workers (in the event of site redevelopment).

Soil

The results from the soil samples were screen against DEQ soil RBCs for soil ingestion, dermal contact, and inhalation for construction and excavation workers. Soil results are presented in Table 1. Additionally, results were screened against DEQ soil RBCs for soil vapor intrusion into buildings for occupational workers.

Soil from B04 had a diesel-range hydrocarbons detection above the soil ingestion, dermal contact, and inhalation RBC for construction/excavation workers. Soil samples had low-level detections for total metals, volatile organic compounds, and PAHs; however, none of these detections exceeded the applicable screening criteria (Table 1).

Groundwater

The groundwater sample results presented in Table 2 were screened against DEQ groundwater RBCs for occupational worker ingestion and inhalation from tap water and vapor intrusion into buildings as well as groundwater in excavations for construction and excavation workers.

Groundwater from B04 had a diesel-range hydrocarbons detection above the occupational worker ingestion and inhalation RBC. Additionally, dissolved arsenic was detected in all groundwater samples above the occupational worker ingestion and inhalation RBC for dissolved arsenic. There were also low-level detections for other dissolved metals and PAHs, but none of these detections exceeded the applicable RBCs (Table 2).

CONCLUSIONS AND RECOMMENDATIONS

The focused Phase II ESA analytical results support the following conclusions:

- Soil is present at boring B04 at approximately 6 feet bgs under the former fueling ASTs at concentrations above the RBC for construction/excavation workers.
- Groundwater in the vicinity of boring B04 is impacted with diesel-range TPH above the RBC for ingestion and inhalation from tapwater in an occupational setting.
- Groundwater across the Property at borings B01, B02, B03, and B04 exhibits elevated dissolved arsenic at concentrations above the RBC for ingestion and inhalation from tapwater in an occupational setting.

Based on these results, MFA recommends the following:

- Impacted soil in the vicinity of boring B04 will require additional characterization to identify the lateral and vertical extent of impacts. Contamination may be removed via excavation or left in place and managed under a contaminated media management plan depending on the City's redevelopment goals.
- TPH impacts in groundwater appear to be localized around the vicinity of boring B04, while dissolved arsenic impacts appear to be Property-wide. Groundwater use at the Property in the future will not include potable water uses and the receptor pathway for tapwater ingestion and inhalation is not complete. No additional investigation for groundwater is recommended.

Sincerely,

Maul Foster & Alongi, Inc.



Kyle K. Roslund, RG
Senior Geologist

Emily Curtis
Project Environmental Health and Safety
Specialist

Attachments: Limitations
References
Tables
Figures
A—Boring logs
B—Field sampling data sheets
C—Laboratory report
D—Data validation memorandum

LIMITATIONS

The services undertaken in completing this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this report.

REFERENCES

DEQ. 2013. Development of Oregon background metals concentrations in soil. Prepared by the Land Quality Division Cleanup Program. March.

MFA. 2020. Phase I environmental site assessment. Iron Triangle property, 433 Patterson Bridge Road, John Day, Oregon 97845. Prepared for City of John Day. June 22.

TABLES



Table 1
Soil Analytical Results
Iron Triangle—City of John Day

Location	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation ⁽¹⁾		RBC, Soil, Vapor Intrusion into Buildings, Occupational	DEQ Background Metals, Blue Mountain Region ⁽²⁾	B01	B02	B03	B04	B04
Sample Name					B01-S-8.0	B02-S-7.5	B03-S-5.0	B04-S-5.5	B04-S-6.0
Collection Date	Construction Worker	Excavation Worker			8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020
Collection Depth (ft bgs)					8	7.5	5	5.5	6
HCID (Detected/Not Detected)									
Gasoline-Range Hydrocarbons	NV	NV	NV	NV	ND	ND	ND	ND	DETECT
Diesel-Range Hydrocarbons	NV	NV	NV	NV	ND	ND	ND	DETECT	DETECT
Lube-Oil-Range Hydrocarbons	NV	NV	NV	NV	ND	ND	DETECT	ND	ND
TPH (mg/kg)									
Gasoline-Range Hydrocarbons	9,700	NV	NV	NV	--	--	--	--	866
Diesel-Range Hydrocarbons	4,600	NV	NV	NV	--	--	25 U	--	27,000
Lube-Oil-Range Hydrocarbons	4,600 ^(a)	NV	NV	NV	--	--	332	--	3,160 U
Total Metals (mg/kg)									
Arsenic	15	420	NV	14	3.23	2.09	2	2.92	4.63
Barium	69,000	NV	NV	950	159	156	135	122 J	454
Cadmium	350	9,700	NV	0.69	0.32 U	0.23 U	0.238 U	0.214 U	0.405 U
Chromium	NV	NV	NV	190	74.1	118	68.2	13.4	19
Lead	800	800	NV	21	8.23	3.62	4.02	6.21 J	10.6
Mercury	110	2,900	NV	1.4	0.128 U	0.0918 U	0.0953 U	0.0856 U	0.162 U
Selenium	NV	NV	NV	0.93	1.6 U	1.15 U	1.19 U	1.07 U	2.02 U
Silver	1,800	49,000	NV	0.51	0.32 U	0.23 U	0.238 U	0.214 U	0.405 U
Total PCBs (ug/kg)									
Aroclor 1016	NV	NV	NV	NV	--	--	11.4 U	--	20.7 U
Aroclor 1221	NV	NV	NV	NV	--	--	11.4 U	--	20.7 U
Aroclor 1232	NV	NV	NV	NV	--	--	11.4 U	--	20.7 U
Aroclor 1242	NV	NV	NV	NV	--	--	11.4 U	--	20.7 U
Aroclor 1248	NV	NV	NV	NV	--	--	11.4 U	--	20.7 U
Aroclor 1254	NV	NV	NV	NV	--	--	11.4 U	--	20.7 U
Aroclor 1260	NV	NV	NV	NV	--	--	11.4 U	--	20.7 U
Total PCB ^(b)	4.9	140	NV	NV	--	--	11.4 U	--	20.7 U
VOCs (ug/kg)									
1,1,1,2-Tetrachloroethane	NV	NV	NV	NV	--	--	--	--	453 U
1,1,1-Trichloroethane	470,000,000	NV	NV	NV	--	--	--	--	453 U
1,1,2,2-Tetrachloroethane	NV	NV	NV	NV	--	--	--	--	906 U
1,1,2-Trichloroethane	54,000	1,500,000	4,200	NV	--	--	--	--	453 U
1,1-Dichloroethane	3,200,000	89,000,000	5,900	NV	--	--	--	--	453 U

Table 1
Soil Analytical Results
Iron Triangle—City of John Day

Location Sample Name Collection Date Collection Depth (ft bgs)	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation ⁽¹⁾		RBC, Soil, Vapor Intrusion into Buildings, Occupational	DEQ Background Metals, Blue Mountain Region ⁽²⁾	B01	B02	B03	B04	B04
	Construction Worker	Excavation Worker			B01-S-8.0	B02-S-7.5	B03-S-5.0	B04-S-5.5	B04-S-6.0
					8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020
					8	7.5	5	5.5	6
1,1-Dichloroethene	13,000,000	370,000,000	680,000	NV	--	--	--	--	453 U
1,1-Dichloropropene	NV	NV	NV	NV	--	--	--	--	906 U
1,2,3-Trichlorobenzene	NV	NV	NV	NV	--	--	--	--	4,530 U
1,2,3-Trichloropropane	NV	NV	NV	NV	--	--	--	--	906 U
1,2,4-Trichlorobenzene	NV	NV	NV	NV	--	--	--	--	4,530 U
1,2,4-Trimethylbenzene	2,900,000	81,000,000	NV	NV	--	--	--	--	8,770
1,2-Dibromo-3-chloropropane	NV	NV	NV	NV	--	--	--	--	4,530 U
1,2-Dibromoethane	9,000	250,000	160	NV	--	--	--	--	906 U
1,2-Dichlorobenzene	20,000,000	560,000,000	NV	NV	--	--	--	--	453 U
1,2-Dichloroethane	200,000	5,600,000	1,000	NV	--	--	--	--	453 U
1,2-Dichloropropane	NV	NV	NV	NV	--	--	--	--	453 U
1,3,5-Trimethylbenzene	2,900,000	81,000,000	NV	NV	--	--	--	--	906 U
1,3-Dichlorobenzene	NV	NV	NV	NV	--	--	--	--	453 U
1,3-Dichloropropane	NV	NV	NV	NV	--	--	--	--	906 U
1,4-Dichlorobenzene	1,300,000	36,000,000	13,000	NV	--	--	--	--	453 U
2,2-Dichloropropane	NV	NV	NV	NV	--	--	--	--	906 U
2-Butanone	NV	NV	NV	NV	--	--	--	--	9,060 U
2-Chlorotoluene	NV	NV	NV	NV	--	--	--	--	906 U
2-Hexanone	NV	NV	NV	NV	--	--	--	--	9,060 U
4-Chlorotoluene	NV	NV	NV	NV	--	--	--	--	906 U
4-Isopropyltoluene	NV	NV	NV	NV	--	--	--	--	1,040
4-Methyl-2-pentanone	NV	NV	NV	NV	--	--	--	--	9,060 U
Acetone	NV	NV	NV	NV	--	--	--	--	18,100 U
Acrylonitrile	40,000	1,100,000	1,000	NV	--	--	--	--	1,810 U
Benzene	380,000	11,000,000	2,100	NV	--	--	--	--	181 U
Bromobenzene	NV	NV	NV	NV	--	--	--	--	453 U
Bromodichloromethane	230,000	6,300,000	530	NV	--	--	--	--	906 U
Bromoform	2,700,000	74,000,000	110,000	NV	--	--	--	--	1,810 U
Bromomethane	370,000	10,000,000	17,000	NV	--	--	--	--	9,060 U
Carbon disulfide	NV	NV	NV	NV	--	--	--	--	9,060 U
Carbon tetrachloride	320,000	8,900,000	1,600	NV	--	--	--	--	906 U
Chlorobenzene	4,700,000	130,000,000	NV	NV	--	--	--	--	453 U
Chlorobromomethane	NV	NV	NV	NV	--	--	--	--	906 U

Table 1
Soil Analytical Results
Iron Triangle—City of John Day

Location	RBC, Soil, Soil Ingestion, Dermal		RBC, Soil, Vapor	DEQ Background	B01	B02	B03	B04	B04
Sample Name	Contact, and Inhalation ⁽¹⁾		Intrusion into	Metals, Blue	B01-S-8.0	B02-S-7.5	B03-S-5.0	B04-S-5.5	B04-S-6.0
Collection Date	Construction	Excavation	Buildings,	Mountain	8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020
Collection Depth (ft bgs)	Worker	Worker	Occupational	Region ⁽²⁾	8	7.5	5	5.5	6
Chloroethane	NV	NV	NV	NV	--	--	--	--	9,060 U
Chloroform	410,000	11,000,000	410	NV	--	--	--	--	906 U
Chloromethane	25,000,000	700,000,000	300,000	NV	--	--	--	--	4,530 U
cis-1,2-Dichloroethene	710,000	20,000,000	NV	NV	--	--	--	--	453 U
cis-1,3-Dichloropropene	NV	NV	NV	NV	--	--	--	--	906 U
Dibromochloromethane	210,000	5,800,000	2,900	NV	--	--	--	--	1,810 U
Dibromomethane	NV	NV	NV	NV	--	--	--	--	906 U
Dichlorodifluoromethane	NV	NV	NV	NV	--	--	--	--	1,810 U
Ethylbenzene	1,700,000	49,000,000	17,000	NV	--	--	--	--	671
Hexachlorobutadiene	NV	NV	NV	NV	--	--	--	--	1,810 U
Isopropylbenzene	27,000,000	750,000,000	NV	NV	--	--	--	--	906 U
m,p-Xylene	NV	NV	NV	NV	--	--	--	--	3,280
Methyl tert-butyl ether	12,000,000	320,000,000	110,000	NV	--	--	--	--	906 U
Methylene chloride	2,100,000	58,000,000	950,000	NV	--	--	--	--	9,060 U
Naphthalene	580,000	16,000,000	83,000	NV	--	--	--	--	2,950 U
n-Butylbenzene	NV	NV	NV	NV	--	--	--	--	2,820
n-Propylbenzene	NV	NV	NV	NV	--	--	--	--	1,520
o-Xylene	NV	NV	NV	NV	--	--	--	--	625
sec-Butylbenzene	NV	NV	NV	NV	--	--	--	--	1,370
Styrene	56,000,000	NV	NV	NV	--	--	--	--	906 U
tert-Butylbenzene	NV	NV	NV	NV	--	--	--	--	906 U
Tetrachloroethene	1,800,000	50,000,000	36,000	NV	--	--	--	--	453 U
Toluene	28,000,000	770,000,000	NV	NV	--	--	--	--	906 U
trans-1,2-Dichloroethene	7,100,000	200,000,000	NV	NV	--	--	--	--	453 U
trans-1,3-Dichloropropene	NV	NV	NV	NV	--	--	--	--	906 U
Trichloroethene	130,000	3,700,000	2,300	NV	--	--	--	--	453 U
Trichlorofluoromethane	69,000,000	NV	NV	NV	--	--	--	--	1,810 U
Vinyl chloride	34,000	950,000	2,200	NV	--	--	--	--	453 U
Total Xylenes ^(c)	20,000,000	560,000,000	NV	NV	--	--	--	--	3,905

Table 1
Soil Analytical Results
Iron Triangle—City of John Day

Location	RBC, Soil, Soil Ingestion, Dermal Contact, and Inhalation ⁽¹⁾		RBC, Soil, Vapor Intrusion into Buildings, Occupational	DEQ Background Metals, Blue Mountain Region ⁽²⁾	B01	B02	B03	B04	B04
Sample Name					B01-S-8.0	B02-S-7.5	B03-S-5.0	B04-S-5.5	B04-S-6.0
Collection Date	Construction Worker	Excavation Worker			8/26/2020	8/26/2020	8/26/2020	8/26/2020	8/26/2020
Collection Depth (ft bgs)					8	7.5	5	5.5	6
PAHs (ug/kg)									
1-Methylnaphthalene	NV	NV	NV	NV	--	--	10.4 U	--	28,600
2-Methylnaphthalene	NV	NV	NV	NV	--	--	10.4 U	--	58,500
Acenaphthene	21,000,000	590,000,000	NV	NV	--	--	10.4 U	--	2,660 U
Acenaphthylene	NV	NV	NV	NV	--	--	10.4 U	--	749 U
Anthracene	110,000,000	NV	NV	NV	--	--	10.4 U	--	1,170 U
Benzo(a)anthracene	170,000	4,800,000	NV	NV	--	--	10.4 U	--	214
Benzo(a)pyrene	17,000	490,000	NV	NV	--	--	10.4 U	--	208 U
Benzo(b)fluoranthene	170,000	4,900,000	NV	NV	--	--	10.4 U	--	208 U
Benzo(ghi)perylene	NV	NV	NV	NV	--	--	10.4 U	--	208 U
Benzo(k)fluoranthene	1,700,000	49,000,000	NV	NV	--	--	10.4 U	--	208 U
Chrysene	17,000,000	490,000,000	NV	NV	--	--	10.4 U	--	223
Dibenzo(a,h)anthracene	17,000	490,000	NV	NV	--	--	10.4 U	--	208 U
Dibenzofuran	NV	NV	NV	NV	--	--	10.4 U	--	3,950
Fluoranthene	10,000,000	280,000,000	NV	NV	--	--	10.4 U	--	381
Fluorene	14,000,000	390,000,000	NV	NV	--	--	10.4 U	--	6,810
Indeno(1,2,3-cd)pyrene	170,000	4,900,000	NV	NV	--	--	10.4 U	--	208 U
Naphthalene	580,000	16,000,000	83,000	NV	--	--	14.6	--	20,200
Phenanthrene	NV	NV	NV	NV	--	--	14.6	--	12,200
Pyrene	7,500,000	210,000,000	NV	NV	--	--	10.4 U	--	1,850
cPAH TEQ ⁽¹⁾	17,000	490,000	NV	NV	--	--	ND	--	251

NOTES:

Shading (color key below) indicates values that exceed screening criteria; non-detects ("U") were not compared with screening criteria.

Oregon DEQ construction worker soil ingestion, dermal contact, and inhalation generic RBC.

-- = not analyzed.

cPAH TEQ = carcinogenic PAH toxicity equivalence.

ft bgs = feet below ground surface.

HCID = Hydrocarbon Identification.

J = estimated value.

mg/kg = milligrams per kilogram.

ND = non-detect.

NV = no value.

PAH = polycyclic aromatic hydrocarbon.

RBC = risk-based concentrations for individual chemicals

TPH = total petroleum hydrocarbons.

U = Result is non-detect to method reporting limit.

ug/kg = micrograms per kilogram.

VOC = volatile organic compound.

^(a) Value is for generic diesel/heating oil, since generic residual-range hydrocarbon values are not available.

^(b) Total PCB is the sum of all Aroclors. The highest detection limit is used when all analytes are non-detect.

REFERENCES:

⁽¹⁾ State of Oregon Department of Environmental Quality Risk-Based Concentration of Individual Chemicals. Revision: May 2018.

⁽²⁾ State of Oregon Department of Environmental Quality Background Levels of Metals in Soils for Cleanups. January 2018.

⁽³⁾ cPAH TEQ values are based on toxic equivalence factors from USEPA Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. 1993. (EPA/600/R-93/089)

Table 2
Groundwater Analytical Results
Iron Triangle - City of John Day

Location	Groundwater, RBC, Ingestion and Inhalation from Tapwater, Occupational ⁽¹⁾	Groundwater, RBC, Vapor Intrusion into Buildings, Occupational ⁽¹⁾	Groundwater, RBC, GW in Excavation, Construction & Excavation Worker ⁽¹⁾	B01	B02	B03	B04
Sample Name				B01-W-7.0	B02-W-8.5	B03-W-8.0	B04-W-9.0
Collection Date				8/26/2020	8/26/2020	8/26/2020	8/26/2020
HCID (Detected/Not Detected)							
Gasoline-Range Hydrocarbons	NV	NV	NV	ND	ND	ND	ND
Diesel-Range Hydrocarbons	NV	NV	NV	ND	ND	ND	DETECT
Lube-Oil-Range Hydrocarbons	NV	NV	NV	ND	ND	ND	ND
TPH (mg/L)							
Diesel-Range Hydrocarbons	0.43	NV	NV	--	--	--	3.57
Lube-Oil-Range Hydrocarbons	0.43 ^(a)	NV	NV	--	--	--	0.412 U
Dissolved Metals (ug/L)							
Arsenic	0.31	NV	6,300	1.62	4.39	2.23	1.66
Barium	33,000	NV	NV	126	46.9	50.4	222
Cadmium	160	NV	130,000	0.2 U	0.2 U	0.2 U	0.2 U
Chromium	NV	NV	NV	2.69	1 U	1 U	1 U
Lead	15	NV	NV	0.321	0.2 U	0.2 U	0.423
Mercury	49	NV	NV	0.08 U	0.08 U	0.08 U	0.08 U
Selenium	NV	NV	NV	1 U	1 U	1 U	1 U
Silver	820	NV	1,100,000	0.2 U	0.2 U	0.2 U	0.2 U
Total PCBs (ug/L)							
Aroclor 1016	NV	NV	NV	--	--	--	0.099 U
Aroclor 1221	NV	NV	NV	--	--	--	0.099 U
Aroclor 1232	NV	NV	NV	--	--	--	0.099 U
Aroclor 1242	NV	NV	NV	--	--	--	0.099 U
Aroclor 1248	NV	NV	NV	--	--	--	0.099 U
Aroclor 1254	NV	NV	NV	--	--	--	0.099 U
Aroclor 1260	NV	NV	NV	--	--	--	0.099 U
Total PCBs ^(b)	0.028	NV	30	--	--	--	ND

Table 2
Groundwater Analytical Results
Iron Triangle - City of John Day

Location	Groundwater, RBC, Ingestion and Inhalation from Tapwater, Occupational ⁽¹⁾	Groundwater, RBC, Vapor Intrusion into Buildings, Occupational ⁽¹⁾	Groundwater, RBC, GW in Excavation, Construction & Excavation Worker ⁽¹⁾	B01	B02	B03	B04
Sample Name				B01-W-7.0	B02-W-8.5	B03-W-8.0	B04-W-9.0
Collection Date				8/26/2020	8/26/2020	8/26/2020	8/26/2020
PAHs (ug/L)							
1-Methylnaphthalene	NV	NV	NV	--	--	--	4.31 J
2-Methylnaphthalene	NV	NV	NV	--	--	--	3.39 J
Acenaphthene	2,500	NV	NV	--	--	--	0.438 UJ
Acenaphthylene	NV	NV	NV	--	--	--	0.103 UJ
Anthracene	NV	NV	NV	--	--	--	0.103 UJ
Benzo(a)anthracene	0.38	NV	NV	--	--	--	0.103 UJ
Benzo(a)pyrene	0.47	NV	NV	--	--	--	0.103 UJ
Benzo(b)fluoranthene	NV	NV	NV	--	--	--	0.103 UJ
Benzo(ghi)perylene	NV	NV	NV	--	--	--	0.103 UJ
Benzo(k)fluoranthene	NV	NV	NV	--	--	--	0.103 UJ
Chrysene	NV	NV	NV	--	--	--	0.103 UJ
Dibenzo(a,h)anthracene	0.47	NV	NV	--	--	--	0.103 UJ
Dibenzofuran	NV	NV	NV	--	--	--	0.196 UJ
Fluoranthene	NV	NV	NV	--	--	--	0.103 UJ
Fluorene	1,300	NV	NV	--	--	--	0.7 J
Indeno(1,2,3-cd)pyrene	NV	NV	NV	--	--	--	0.103 UJ
Naphthalene	0.72	11,000	500	--	--	--	0.206 UJ
Phenanthrene	NV	NV	NV	--	--	--	0.61 J
Pyrene	NV	NV	NV	--	--	--	0.103 UJ
cPAH TEQ ⁽²⁾	0.47	NV	NV	--	--	--	ND

NOTES:

Shading (color key below) indicates values that exceed screening criteria; non-detects ("U" or "UJ") were not compared with screening criteria.

Oregon DEQ occupational groundwater ingestion and inhalation from tapwater generic RBC.

-- = not analyzed.

cPAH TEQ = carcinogenic PAH toxicity equivalence.

DEQ = Department of Environmental Quality.

HCID = hydrocarbon identification.

J = estimated value.

mg/L = milligrams per liter.

ND = not detected.

NV = no value.

PAH = polycyclic aromatic hydrocarbon.

PCB = polychlorinated biphenyls.

RBC = risk-based concentrations for individual chemicals.

TPH = total petroleum hydrocarbons.

U = Result is non-detect to method reporting limit.

ug/L = micrograms per liter.

UJ = result is non-detect with an estimated reporting limit.

^(a) Value is for generic diesel/heating oil, since generic residual-range hydrocarbon values are not available.

^(b) Total PCB is the sum of all Aroclors. The highest detection limit is used when all analytes are non-detect.

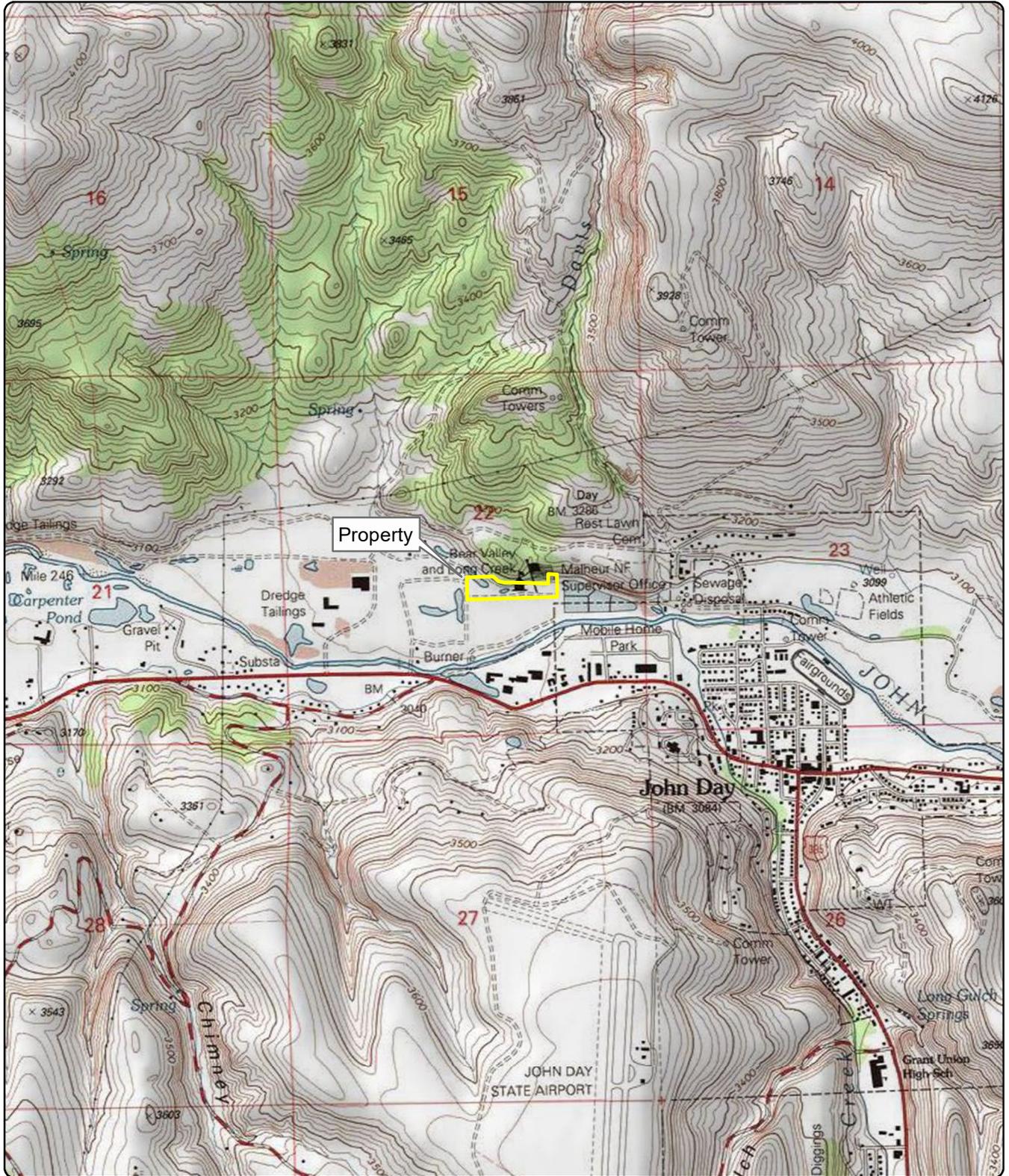
REFERENCES:

⁽¹⁾ State of Oregon Department of Environmental Quality Risk-Based Concentration of Individual Chemicals. Revision: May 2018.

⁽²⁾ cPAH TEQ values are based on toxic equivalence factors from USEPA Provisional Guidance for Quantitative Risk Assessment of Polycyclic Aromatic Hydrocarbons. 1993. (EPA/600/R-93/089)

FIGURES





Source:
 US Geological Survey (2000) 7.5-minute
 topographic quadrangle: John Day.
 Property boundary obtained from Grant County GIS.
 Township 13 South, Range 31 East, Section 22.

Legend

 Property Tax Lot

Figure 1
Site Location

433 Patterson Bridge Rd.
 John Day, Oregon



This product is for informational purposes and may not have been prepared for, or be suitable for, legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.



Path: X:\1874_01\Projects\Eig_Proposed_Boings.mxd
Print Date: 8/21/2020
Approved By:
Produced By: aquise
Project:

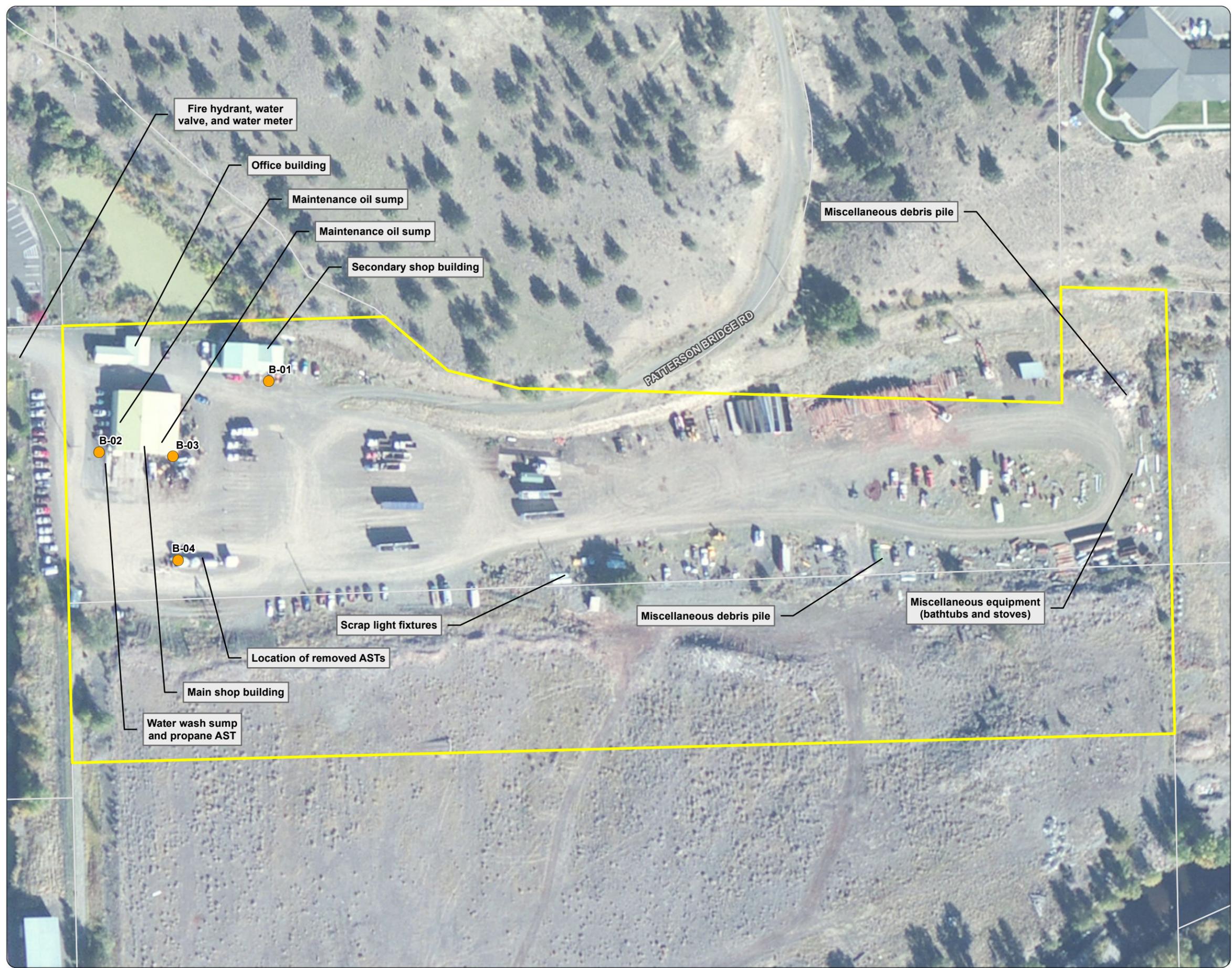
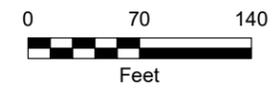


Figure 2
Boring Locations
433 Patterson Bridge Rd
John Day, Oregon

Legend

- Boring Locations
- Property Tax Lot
- Tax Lot



Source: Aerial photograph obtained from ArcGIS Online. Property boundary obtained from Grant County Assessor.



This product is for informational purposes and may not have been prepared for, or be suitable for, legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

ATTACHMENT A





Geologic Borehole Log

Project Number
1874.01.02

Boring Number
B-01

Sheet
1 of 1

Project Name **Iron Triangle Phase 2**
 Project Location **John Day, OR**
 Start/End Date **8/26/2020 to 8/26/2020**
 Driller/Equipment **Holt Services, Inc./Terra Sonic TSi 150**
 Geologist/Engineer **A. Clements**
 Sample Method **Core Barrel**

Surface Elevation (feet)
 Northing
 Easting
 Total Depth of Borehole **10.0-feet**
 Outer Hole Diam **4-inch**

Depth (feet, BGS)	Water Levels	Percent Recovery	Screen Int.	Sample Data		Lithologic Column	Soil Description
				Sample ID	PID (ppm)		
1							0 to 0.5 feet: SANDY GRAVEL with SILT (GW); light brown with gray clasts; 10% fines; 30% sand, fine to coarse, angular to subrounded; 60% gravel, fine to coarse, angular to subangular; loose; dry.
2							0.5 to 0.7 feet: SANDY GRAVEL with SILT (GW); light gray with gray clasts; 10% fines; 40% sand, fine to coarse, angular to subrounded; 50% gravel, fine to medium, angular to subrounded; loose; dry.
3		90					0.7 to 8.5 feet: SANDY SILTY GRAVEL (GM); very dark gray to black; 30% fines; 20% sand, fine to coarse, angular to subrounded; 50% gravel, fine to coarse, angular to subrounded; loose; trace woody debris in upper foot; moist.
4							
5							
6	▼						
7							
8		70		B01-W-7.0			
9	▽			B01-S-8.0	0		
10							8.5 to 10.0 feet: GRAVEL with SAND (GW); dark gray; 10% sand, fine to coarse; 90% gravel, fine to coarse, angular to subrounded; loose; trace fines; wet.

Total Depth = 10.0 feet bgs

NOTES:

- 1) bgs = below ground surface. 2) CB = core barrel. 3) GRAB = grab sample. 4) PID = photoionization detector. 5) ppm = parts per million.
- 6) GW = groundwater.

Borehole Completion Details
 0 to 10.0 feet: 4-inch borehole.

Reconnaissance Well Completion Details
 Temporary polyvinyl chloride screen set from 3.0 to 8.0 feet bgs.

Borehole Abandonment Details
 0 to 10.0 feet bgs: Bentonite chips hydrated with potable water.

▽ Observed at time of drilling. ▼ Observed at time of sampling.



MAUL FOSTER ALONGI

Geologic Borehole Log

Project Number
1874.01.02

Boring Number
B-02

Sheet
1 of 1

Project Name **Iron Triangle Phase 2**
 Project Location **John Day, OR**
 Start/End Date **8/26/2020 to 8/26/2020**
 Driller/Equipment **Holt Services, Inc./Terra Sonic TSi 150**
 Geologist/Engineer **A. Clements**
 Sample Method **Core Barrel**

Surface Elevation (feet)
 Northing
 Easting
 Total Depth of Borehole **15.0-feet**
 Outer Hole Diam **4-inch**

Depth (feet, BGS)	Water Levels	Percent Recovery	Screen Int.	Sample Data		Lithologic Column	Soil Description
				Sample ID	PID (ppm)		
0							0 to 0.3 feet: Asphalt.
1							0.3 to 1.5 feet: SANDY GRAVEL with SILT (GW); brownish gray with gray clasts; 10% fines; 40% sand, fine to coarse, angular to subrounded; 50% gravel, fine to coarse, angular to subangular; loose; dry.
2							1.5 to 3.0 feet: SANDY GRAVEL (GW); gray clasts; 20% sand, fine to coarse, angular to subrounded; 80% gravel, fine to coarse, angular to subangular; loose; trace fines and cobbles up to 4-inches in diameter; dry.
3	60						3.0 to 5.0 feet: No recovery.
4							
5							
6							5.0 to 7.0 feet: SANDY GRAVEL (GW); gray clasts; 20% sand, fine to coarse, angular to subrounded; 80% gravel, fine to coarse, angular to subangular; loose; trace fines and cobbles up to 4-inches in diameter; dry.
7							
8	100			B02-S-7.5	0		7.0 to 11.0 feet: SAND (SP); dark grayish brown; 100% sand, fine to medium, subangular to subrounded; loose; moist to wet.
9				B02-W-8.5			
10							
11							
12							11.0 to 15.0 feet: No recovery.
13	30						
14							
15							

Total Depth = 15.0 feet bgs

NOTES:

- 1) bgs = below ground surface. 2) CB = core barrel. 3) GRAB = grab sample. 4) PID = photoionization detector. 5) ppm = parts per million. 6) GW = groundwater.

Borehole Completion Details
 0 to 15.0 feet: 4-inch borehole.

Reconnaissance Well Completion Details
 Temporary polyvinyl chloride screen set from 5.0 to 10.0 feet bgs.

Borehole Abandonment Details
 0 to 15.0 feet bgs: Bentonite chips hydrated with potable water.

▽ Observed at time of drilling. ▼ Observed at time of sampling.

MFA BOREHOLE WIRECON SCREEN W:\GINT\GINT\PROJECTS\1874.01\IRON TRIANGLE PHASE 2.GPJ 9/17/20



MAUL FOSTER ALONGI

Geologic Borehole Log

Project Number
1874.01.02

Boring Number
B-03

Sheet
1 of 1

Project Name	Iron Triangle Phase 2	Surface Elevation (feet)	
Project Location	John Day, OR	Northing	
Start/End Date	8/26/2020 to 8/26/2020	Easting	
Driller/Equipment	Holt Services, Inc./Terra Sonic TSi 150	Total Depth of Borehole	15.0-feet
Geologist/Engineer	A. Clements	Outer Hole Diam	4-inch
Sample Method	Core Barrel		

Depth (feet, BGS)	Water Levels	Percent Recovery	Screen Int.	Sample Data		Lithologic Column	Soil Description
				Sample ID	PID (ppm)		
1							0 to 4.5 feet: SANDY GRAVEL (GW); light grayish brown with gray clasts; 40% sand, fine to coarse, angular to subrounded; 60% gravel, fine to coarse, angular to subangular; loose; dry.
2							
3		80					4.5 to 6.0 feet: SANDY SILTY GRAVEL (GM); very dark gray to black; 30% fines; 20% sand, fine to coarse, angular to subrounded; 50% gravel, fine to coarse, angular to subrounded; loose; trace woody debris is upper foot; moist to wet.
4							
5				B03-S-5.0			6.0 to 10.0 feet: No recovery.
6							
7	▼						10.0 to 15.0 feet: GRAVEL with SAND (GW); dark gray; 10% sand, fine to coarse; 90% gravel, fine to coarse, angular to subrounded; loose; trace fines; wet.
8		20		B03-W-8.0			
9	▽						
10							
11							
12							
13		80					
14							
15							

Total Depth = 15.0 feet bgs

NOTES:

- 1) bgs = below ground surface. 2) CB = core barrel. 3) GRAB = grab sample. 4) PID = photoionization detector. 5) ppm = parts per million.
- 6) GW = groundwater.

Borehole Completion Details
 0 to 15.0 feet: 4-inch borehole.

Reconnaissance Well Completion Details
 Temporary polyvinyl chloride screen set from 5.0 to 10.0 feet bgs.

Borehole Abandonment Details
 0 to 15.0 feet bgs: Bentonite chips hydrated with potable water.

▽ Observed at time of drilling. ▼ Observed at time of sampling.

MFA BOREHOLE WIRECON SCREEN W:\GINT\GINT\PROJECTS\1874.01\IRON TRIANGLE PHASE 2.GPJ 9/17/20



MAUL FOSTER ALONGI

Geologic Borehole Log

Project Number
1874.01.02

Boring Number
B-04

Sheet
1 of 1

Project Name **Iron Triangle Phase 2**
 Project Location **John Day, OR**
 Start/End Date **8/26/2020 to 8/26/2020**
 Driller/Equipment **Holt Services, Inc./Terra Sonic TSi 150**
 Geologist/Engineer **A. Clements**
 Sample Method **Core Barrel**

Surface Elevation (feet)
 Northing
 Easting
 Total Depth of Borehole **15.0-feet**
 Outer Hole Diam **4-inch**

Depth (feet, BGS)	Water Levels	Percent Recovery	Screen Int.	Sample Data		Lithologic Column	Soil Description
				Sample ID	PID (ppm)		
0							0 to 1.5 feet: SANDY GRAVEL (GW); light brown with gray clasts; 40% sand, fine to coarse, angular to subrounded; 60% gravel, fine to coarse, angular to subrounded; loose; dry.
1							
2							1.5 to 5.5 feet: SANDY GRAVEL with SILT (GP); brown with gray clasts; 10% fines; 40% sand, fine to coarse, angular to subrounded; 50% gravel, fine to medium, angular to subangular; loose.
3		100					
4							
5							
6				B04-S-5.5	14.0		5.5 to 11.5 feet: GRAVELLY SILTY SAND (SM); dark gray to black; 30% fines; 50% sand, fine to medium; 20% gravel, fine to medium, subangular to subrounded; loose; abundant woody debris and rootlets; organic odor throughout; moist to wet.
7				B04-S-6.0	98.0		At 5.5 to 6.5 feet: petroleum-like odor.
8		60					
9	▼						
10				B04-W-9.0			
11	▽						
12		100					11.5 to 15.0 feet: SILT (ML); dark gray to black; 100% fines, medium plasticity; soft; trace sand; organic odor; wet.
13							
14							
15							

Total Depth = 15.0 feet bgs

NOTES:

- 1) bgs = below ground surface. 2) CB = core barrel. 3) GRAB = grab sample. 4) PID = photoionization detector. 5) ppm = parts per million. 6) GW = groundwater.

Borehole Completion Details
 0 to 15.0 feet: 4-inch borehole.

Reconnaissance Well Completion Details
 Temporary polyvinyl chloride screen set from 5.0 to 10.0 feet bgs.

Borehole Abandonment Details
 0 to 15.0 feet bgs: Bentonite chips hydrated with potable water.

▽ Observed at time of drilling. ▼ Observed at time of sampling.

MFA BOREHOLE WIRECON SCREEN W:\GINT\GINT\PROJECTS\1874.01\IRON TRIANGLE PHASE 2.GPJ 9/17/20

ATTACHMENT B



Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	City of John Day	Sample Location	B-01		
Project #	1874.01	Sampler	A. Clements		
Project Name	Iron Triangle Phase 2	Sampling Date	8/26/2020		
Sampling Event	August 2020	Sample Name	B01-W-7.0		
Sub Area		Sample Depth	7		
FSDS QA:	K. Roslund 09/16/2020	Easting		Northing	
		TOC			

Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
8/26/2020	12:52	7.8		6.14			

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP	Turbidity
(2) Peristaltic Pump	1:11:00 PM	0.5		7.14	20.4	1816			716
Final Field Parameters	1:14:00 PM	0.75		7.04	20.1	1592			18

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Turbid initially, then cleared up to slightly turbid.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	1:14:00 PM	VOA-Glass	3	No
			Amber Glass	2	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly	1	Yes
			Total Bottles	6	

General Sampling Comments

Begin purge at 13:04.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	City of John Day	Sample Location	B-02		
Project #	1874.01	Sampler	A. Clements		
Project Name	Iron Triangle Phase 2	Sampling Date	8/26/2020		
Sampling Event	August 2020	Sample Name	B02-W-8.5		
Sub Area		Sample Depth	8.5		
FSDS QA:	K. Roslund 09/16/2020	Easting		Northing	
				TOC	

Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
8/26/2020	14:15	10.26		8.3			

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP	Turbidity
(2) Peristaltic Pump	2:26:00 PM			7.6	22.9	875.5			1225
Final Field Parameters	2:28:00 PM	0.5		7.26	22.5	823.8			824

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Turbid.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	2:28:00 PM	VOA-Glass	3	No
			Amber Glass	2	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly	1	Yes
			Total Bottles	6	

General Sampling Comments

Begin purge at 14:21.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	City of John Day	Sample Location	B-03		
Project #	1874.01	Sampler	A. Clements		
Project Name	Iron Triangle Phase 2	Sampling Date	8/26/2020		
Sampling Event	August 2020	Sample Name	B03-W-8.0		
Sub Area		Sample Depth	8		
FSDS QA:	K. Roslund 09/16/2020	Easting		Northing	
				TOC	

Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
8/26/2020	13:40	10.81		6.93			

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP	Turbidity
(2) Peristaltic Pump	1:52:00 PM			7.52	19.6	602			19.9
Final Field Parameters	1:54:00 PM	0.5		7.11	19.2	598.6			16.6

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Slightly turbid.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	1:54:00 PM	VOA-Glass	3	No
			Amber Glass	2	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly	1	Yes
			Total Bottles	6	

General Sampling Comments

Begin purge at 13:47.

Maul Foster & Alongi, Inc.

109 East 13th Street, Vancouver, WA 98660 (360) 694-2691 Fax. (360) 906-1

Water Field Sampling Data Sheet

Client Name	City of John Day	Sample Location	B-04		
Project #	1874.01	Sampler	A. Clements		
Project Name	Iron Triangle Phase 2	Sampling Date	8/26/2020		
Sampling Event	August 2020	Sample Name	B04-W-9.0		
Sub Area		Sample Depth	9		
FSDS QA:	K. Roslund 09/16/2020	Easting		Northing	
				TOC	

Hydrology/Level Measurements

Date	Time	DT-Bottom	DT-Product	DT-Water	(Product Thickness)	(Water Column)	(Gallons/ft x Water Column)
					DTP-DTW	DTB-DTW	Pore Volume
8/26/2020	14:50	9.38		8.78			

(0.75" = 0.023 gal/ft) (1" = 0.041 gal/ft) (1.5" = 0.092 gal/ft) (2" = 0.163 gal/ft) (3" = 0.367 gal/ft) (4" = 0.653 gal/ft) (6" = 1.469 gal/ft) (8" = 2.611 gal/ft)

Water Quality Data

Purge Method	Time	Purge Vol (gal)	Flowrate l/min	pH	Temp (C)	E Cond (uS/cm)	DO (mg/L)	ORP	Turbidity
(2) Peristaltic Pump	3:02:00 PM			6.69	21.1	742.8			736
Final Field Parameters	3:04:00 PM	0.5		6.63	20.9	739.8			607

Methods: (1) Submersible Pump (2) Peristaltic Pump (3) Disposable Bailer (4) Vacuum Pump (5) Dedicated Bailer (6) Inertia Pump (7) Other (specify)

Water Quality Observations:

Turbid, slight odor and sheen.

Sample Information

Sampling Method	Sample Type	Sampling Time	Container Code/Preservative	#	Filtered
(2) Peristaltic Pump	Groundwater	3:04:00 PM	VOA-Glass	3	No
			Amber Glass	2	No
			White Poly		
			Yellow Poly		
			Green Poly		
			Red Total Poly		
			Red Dissolved Poly	1	Yes
			Total Bottles	6	

General Sampling Comments

Begin purge at 14:57.

ATTACHMENT C





Friday, September 18, 2020

Kyle Roslund
Maul Foster & Alongi, INC.
3140 NE Broadway Street
Portland, OR 97232

RE: A0H0746 - Iron Triangle - 1874.01.02-01

Thank you for using Apex Laboratories. We greatly appreciate your business and strive to provide the highest quality services to the environmental industry.

Enclosed are the results of analyses for work order A0H0746, which was received by the laboratory on 8/28/2020 at 12:30:00PM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: pnerenberg@apex-labs.com, or by phone at 503-718-2323.

Please note: All samples will be disposed of within 30 days of sample receipt, unless prior arrangements have been made.

Cooler Receipt Information

(See Cooler Receipt Form for details)

Cooler #1 0.1 degC Cooler #2 1.9 degC

This Final Report is the official version of the data results for this sample submission, unless superseded by a subsequent, labeled amended report.
All other deliverables derived from this data, including Electronic Data Deliverables (EDDs), CLP-like forms, client requested summary sheets, and all other products are considered secondary to this report.



Apex Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Philip Nerenberg, Lab Director



Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: 1874.01.02-01

Project Manager: Kyle Roslund

Report ID:

A0H0746 - 09 18 20 1525

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
B01-S-8.0	A0H0746-01	Soil	08/26/20 08:30	08/28/20 12:30
B03-S-5.0	A0H0746-02	Soil	08/26/20 09:30	08/28/20 12:30
B02-S-7.5	A0H0746-03	Soil	08/26/20 10:30	08/28/20 12:30
B04-S-5.5	A0H0746-04	Soil	08/26/20 12:00	08/28/20 12:30
B04-S-6.0	A0H0746-05	Soil	08/26/20 12:15	08/28/20 12:30
Trip Blank 1	A0H0746-06	Water	08/26/20 00:00	08/28/20 12:30
B01-W-7.0	A0H0746-07	Water	08/26/20 13:14	08/28/20 12:30
B03-W-8.0	A0H0746-08	Water	08/26/20 13:54	08/28/20 12:30
B02-W-8.5	A0H0746-09	Water	08/26/20 14:28	08/28/20 12:30
B04-W-9.0	A0H0746-10	Water	08/26/20 15:04	08/28/20 12:30
Trip Blank 2	A0H0746-11	Water	08/26/20 00:00	08/28/20 12:30

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Maul Foster & Alongi, INC. 3140 NE Broadway Street Portland, OR 97232	Project: Iron Triangle Project Number: 1874.01.02-01 Project Manager: Kyle Roslund	Report ID: A0H0746 - 09 18 20 1525
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ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
B01-S-8.0 (A0H0746-01)				Matrix: Soil		Batch: 0090028		
Gasoline Range Organics	ND	---	29.6	mg/kg dry	1	09/02/20 00:48	NWTPH-HCID	
Diesel Range Organics	ND	---	74.1	mg/kg dry	1	09/02/20 00:48	NWTPH-HCID	
Oil Range Organics	ND	---	148	mg/kg dry	1	09/02/20 00:48	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 65 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>09/02/20 00:48</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>60 %</i>		<i>50-150 %</i>		<i>1</i>	<i>09/02/20 00:48</i>	<i>NWTPH-HCID</i>
B03-S-5.0 (A0H0746-02)				Matrix: Soil		Batch: 0090028		
Gasoline Range Organics	ND	---	22.5	mg/kg dry	1	09/02/20 01:30	NWTPH-HCID	
Diesel Range Organics	ND	---	56.3	mg/kg dry	1	09/02/20 01:30	NWTPH-HCID	
Oil Range Organics	DET	---	113	mg/kg dry	1	09/02/20 01:30	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 59 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>09/02/20 01:30</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>55 %</i>		<i>50-150 %</i>		<i>1</i>	<i>09/02/20 01:30</i>	<i>NWTPH-HCID</i>
B02-S-7.5 (A0H0746-03)				Matrix: Soil		Batch: 0090028		
Gasoline Range Organics	ND	---	21.5	mg/kg dry	1	09/02/20 01:51	NWTPH-HCID	
Diesel Range Organics	ND	---	53.8	mg/kg dry	1	09/02/20 01:51	NWTPH-HCID	
Oil Range Organics	ND	---	108	mg/kg dry	1	09/02/20 01:51	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 86 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>09/02/20 01:51</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>88 %</i>		<i>50-150 %</i>		<i>1</i>	<i>09/02/20 01:51</i>	<i>NWTPH-HCID</i>
B04-S-5.5 (A0H0746-04)				Matrix: Soil		Batch: 0090028		
Gasoline Range Organics	ND	---	21.6	mg/kg dry	1	09/02/20 02:12	NWTPH-HCID	
Diesel Range Organics	DET	---	54.1	mg/kg dry	1	09/02/20 02:12	NWTPH-HCID	
Oil Range Organics	ND	---	108	mg/kg dry	1	09/02/20 02:12	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 107 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>09/02/20 02:12</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>113 %</i>		<i>50-150 %</i>		<i>1</i>	<i>09/02/20 02:12</i>	<i>NWTPH-HCID</i>
B04-S-6.0 (A0H0746-05)				Matrix: Soil		Batch: 0090028		
Gasoline Range Organics	DET	---	41.1	mg/kg dry	1	09/02/20 02:32	NWTPH-HCID	F-09
Diesel Range Organics	DET	---	103	mg/kg dry	1	09/02/20 02:32	NWTPH-HCID	
Oil Range Organics	ND	---	205	mg/kg dry	1	09/02/20 02:32	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 127 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>09/02/20 02:32</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>85 %</i>		<i>50-150 %</i>		<i>1</i>	<i>09/02/20 02:32</i>	<i>NWTPH-HCID</i>

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Maul Foster & Alongi, INC. 3140 NE Broadway Street Portland, OR 97232	Project: Iron Triangle Project Number: 1874.01.02-01 Project Manager: Kyle Roslund	Report ID: A0H0746 - 09 18 20 1525
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ANALYTICAL SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
B01-W-7.0 (A0H0746-07)				Matrix: Water		Batch: 0080922		PRES
Gasoline Range Organics	ND	---	0.102	mg/L	1	09/01/20 09:52	NWTPH-HCID	
Diesel Range Organics	ND	---	0.255	mg/L	1	09/01/20 09:52	NWTPH-HCID	
Oil Range Organics	ND	---	0.255	mg/L	1	09/01/20 09:52	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 90 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>09/01/20 09:52</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>58 %</i>		<i>10-120 %</i>		<i>1</i>	<i>09/01/20 09:52</i>	<i>NWTPH-HCID</i>
B03-W-8.0 (A0H0746-08)				Matrix: Water		Batch: 0080922		
Gasoline Range Organics	ND	---	0.105	mg/L	1	09/01/20 10:15	NWTPH-HCID	
Diesel Range Organics	ND	---	0.263	mg/L	1	09/01/20 10:15	NWTPH-HCID	
Oil Range Organics	ND	---	0.263	mg/L	1	09/01/20 10:15	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 91 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>09/01/20 10:15</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>56 %</i>		<i>10-120 %</i>		<i>1</i>	<i>09/01/20 10:15</i>	<i>NWTPH-HCID</i>
B02-W-8.5 (A0H0746-09RE1)				Matrix: Water		Batch: 0090034		
Gasoline Range Organics	ND	---	0.102	mg/L	1	09/03/20 02:54	NWTPH-HCID	
Diesel Range Organics	ND	---	0.255	mg/L	1	09/03/20 02:54	NWTPH-HCID	
Oil Range Organics	ND	---	0.255	mg/L	1	09/03/20 02:54	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 83 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>09/03/20 02:54</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>29 %</i>		<i>10-120 %</i>		<i>1</i>	<i>09/03/20 02:54</i>	<i>NWTPH-HCID</i>
B04-W-9.0 (A0H0746-10)				Matrix: Water		Batch: 0090034		
Gasoline Range Organics	ND	---	0.103	mg/L	1	09/02/20 02:32	NWTPH-HCID	
Diesel Range Organics	DET	---	0.258	mg/L	1	09/02/20 02:32	NWTPH-HCID	
Oil Range Organics	ND	---	0.258	mg/L	1	09/02/20 02:32	NWTPH-HCID	
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>09/02/20 02:32</i>	<i>NWTPH-HCID</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>39 %</i>		<i>10-120 %</i>		<i>1</i>	<i>09/02/20 02:32</i>	<i>NWTPH-HCID</i>



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ANALYTICAL SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes	
B03-S-5.0 (A0H0746-02)				Matrix: Soil		Batch: 0090263			
Diesel	ND	---	25.0	mg/kg dry	1	09/09/20 23:48	NWTPH-Dx		
Oil	332	---	50.0	mg/kg dry	1	09/09/20 23:48	NWTPH-Dx		
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>09/09/20 23:48</i>	<i>NWTPH-Dx</i>	
B04-S-6.0 (A0H0746-05RE1)				Matrix: Soil		Batch: 0090263			
Diesel	27000	---	1580	mg/kg dry	20	09/10/20 08:47	NWTPH-Dx		
Oil	ND	---	3160	mg/kg dry	20	09/10/20 08:47	NWTPH-Dx		
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: %</i>		<i>Limits: 50-150 %</i>		<i>20</i>	<i>09/10/20 08:47</i>	<i>NWTPH-Dx</i>	<i>S-01</i>
B04-W-9.0 (A0H0746-10)				Matrix: Water		Batch: 0090034			
Diesel	3.57	---	0.206	mg/L	1	09/02/20 02:32	NWTPH-Dx		
Oil	ND	---	0.412	mg/L	1	09/02/20 02:32	NWTPH-Dx		
<i>Surrogate: o-Terphenyl (Surr)</i>		<i>Recovery: 115 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>09/02/20 02:32</i>	<i>NWTPH-Dx</i>	



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Maul Foster & Alongi, INC. 3140 NE Broadway Street Portland, OR 97232	Project: Iron Triangle Project Number: 1874.01.02-01 Project Manager: Kyle Roslund	Report ID: A0H0746 - 09 18 20 1525
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ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
B04-S-6.0 (A0H0746-05)				Matrix: Soil		Batch: 0090223		
Gasoline Range Organics	866	---	90.6	mg/kg dry	200	09/08/20 18:18	NWTPH-Gx (MS)	F-09
<i>Surrogate: 4-Bromofluorobenzene (Sur)</i>		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		<i>1</i>	<i>09/08/20 18:18</i>	<i>NWTPH-Gx (MS)</i>
<i>1,4-Difluorobenzene (Sur)</i>		<i>101 %</i>		<i>50-150 %</i>		<i>1</i>	<i>09/08/20 18:18</i>	<i>NWTPH-Gx (MS)</i>

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ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
B04-S-6.0 (A0H0746-05)				Matrix: Soil		Batch: 0090223		
Acetone	ND	---	18100	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Acrylonitrile	ND	---	1810	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Benzene	ND	---	181	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Bromobenzene	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Bromochloromethane	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Bromodichloromethane	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Bromoform	ND	---	1810	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Bromomethane	ND	---	9060	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
2-Butanone (MEK)	ND	---	9060	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
n-Butylbenzene	2820	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
sec-Butylbenzene	1370	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
tert-Butylbenzene	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Carbon disulfide	ND	---	9060	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Carbon tetrachloride	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Chlorobenzene	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Chloroethane	ND	---	9060	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Chloroform	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Chloromethane	ND	---	4530	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
2-Chlorotoluene	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
4-Chlorotoluene	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Dibromochloromethane	ND	---	1810	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,2-Dibromo-3-chloropropane	ND	---	4530	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,2-Dibromoethane (EDB)	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Dibromomethane	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,2-Dichlorobenzene	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,3-Dichlorobenzene	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,4-Dichlorobenzene	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Dichlorodifluoromethane	ND	---	1810	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,1-Dichloroethane	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,2-Dichloroethane (EDC)	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,1-Dichloroethene	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
cis-1,2-Dichloroethene	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
trans-1,2-Dichloroethene	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	

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Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
B04-S-6.0 (A0H0746-05)				Matrix: Soil		Batch: 0090223		
1,2-Dichloropropane	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,3-Dichloropropane	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
2,2-Dichloropropane	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,1-Dichloropropene	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
cis-1,3-Dichloropropene	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
trans-1,3-Dichloropropene	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Ethylbenzene	671	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Hexachlorobutadiene	ND	---	1810	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
2-Hexanone	ND	---	9060	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Isopropylbenzene	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
4-Isopropyltoluene	1040	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Methylene chloride	ND	---	9060	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
4-Methyl-2-pentanone (MiBK)	ND	---	9060	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Methyl tert-butyl ether (MTBE)	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Naphthalene	ND	---	2950	ug/kg dry	200	09/08/20 18:18	5035A/8260D	R-02
n-Propylbenzene	1520	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Styrene	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,1,1,2-Tetrachloroethane	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,1,2,2-Tetrachloroethane	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Tetrachloroethene (PCE)	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Toluene	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,2,3-Trichlorobenzene	ND	---	4530	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,2,4-Trichlorobenzene	ND	---	4530	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,1,1-Trichloroethane	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,1,2-Trichloroethane	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Trichloroethene (TCE)	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Trichlorofluoromethane	ND	---	1810	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,2,3-Trichloropropane	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,2,4-Trimethylbenzene	8770	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
1,3,5-Trimethylbenzene	ND	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
Vinyl chloride	ND	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
m,p-Xylene	3280	---	906	ug/kg dry	200	09/08/20 18:18	5035A/8260D	
o-Xylene	625	---	453	ug/kg dry	200	09/08/20 18:18	5035A/8260D	

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ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
B04-S-6.0 (A0H0746-05)				Matrix: Soil		Batch: 0090223		
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 99 %</i>		<i>Limits: 80-120 %</i>	<i>1</i>	<i>09/08/20 18:18</i>	<i>5035A/8260D</i>	
<i>Toluene-d8 (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>	<i>1</i>	<i>09/08/20 18:18</i>	<i>5035A/8260D</i>	
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>79-120 %</i>	<i>1</i>	<i>09/08/20 18:18</i>	<i>5035A/8260D</i>	
Trip Blank 1 (A0H0746-06)				Matrix: Water		Batch: 0090406		H-01
Acetone	ND	---	20.0	ug/L	1	09/15/20 18:00	EPA 8260D	
Acrylonitrile	ND	---	2.00	ug/L	1	09/15/20 18:00	EPA 8260D	
Benzene	ND	---	0.200	ug/L	1	09/15/20 18:00	EPA 8260D	
Bromobenzene	ND	---	0.500	ug/L	1	09/15/20 18:00	EPA 8260D	
Bromochloromethane	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
Bromodichloromethane	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
Bromoform	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
Bromomethane	ND	---	5.00	ug/L	1	09/15/20 18:00	EPA 8260D	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	09/15/20 18:00	EPA 8260D	
n-Butylbenzene	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
sec-Butylbenzene	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
tert-Butylbenzene	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
Carbon disulfide	ND	---	10.0	ug/L	1	09/15/20 18:00	EPA 8260D	
Carbon tetrachloride	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
Chlorobenzene	ND	---	0.500	ug/L	1	09/15/20 18:00	EPA 8260D	
Chloroethane	ND	---	5.00	ug/L	1	09/15/20 18:00	EPA 8260D	
Chloroform	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
Chloromethane	ND	---	5.00	ug/L	1	09/15/20 18:00	EPA 8260D	
2-Chlorotoluene	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
4-Chlorotoluene	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
Dibromochloromethane	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	09/15/20 18:00	EPA 8260D	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	09/15/20 18:00	EPA 8260D	
Dibromomethane	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	09/15/20 18:00	EPA 8260D	
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	09/15/20 18:00	EPA 8260D	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	09/15/20 18:00	EPA 8260D	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	09/15/20 18:00	EPA 8260D	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
Trip Blank 1 (A0H0746-06)				Matrix: Water		Batch: 0090406		H-01
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	09/15/20 18:00	EPA 8260D	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	09/15/20 18:00	EPA 8260D	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	09/15/20 18:00	EPA 8260D	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	09/15/20 18:00	EPA 8260D	
1,2-Dichloropropane	ND	---	0.500	ug/L	1	09/15/20 18:00	EPA 8260D	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	09/15/20 18:00	EPA 8260D	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	09/15/20 18:00	EPA 8260D	
2-Hexanone	ND	---	10.0	ug/L	1	09/15/20 18:00	EPA 8260D	
Isopropylbenzene	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
4-Isopropyltoluene	ND	---	2.00	ug/L	1	09/15/20 18:00	EPA 8260D	
Methylene chloride	ND	---	10.0	ug/L	1	09/15/20 18:00	EPA 8260D	
4-Methyl-2-pentanone (MIBK)	ND	---	10.0	ug/L	1	09/15/20 18:00	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
Naphthalene	ND	---	4.00	ug/L	1	09/15/20 18:00	EPA 8260D	
n-Propylbenzene	ND	---	0.500	ug/L	1	09/15/20 18:00	EPA 8260D	
Styrene	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	09/15/20 18:00	EPA 8260D	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	09/15/20 18:00	EPA 8260D	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	09/15/20 18:00	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	09/15/20 18:00	EPA 8260D	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	09/15/20 18:00	EPA 8260D	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	09/15/20 18:00	EPA 8260D	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	09/15/20 18:00	EPA 8260D	
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	09/15/20 18:00	EPA 8260D	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	09/15/20 18:00	EPA 8260D	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
Trip Blank 1 (A0H0746-06)		Matrix: Water			Batch: 0090406		H-01	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
Vinyl chloride	ND	---	0.400	ug/L	1	09/15/20 18:00	EPA 8260D	
m,p-Xylene	ND	---	1.00	ug/L	1	09/15/20 18:00	EPA 8260D	
o-Xylene	ND	---	0.500	ug/L	1	09/15/20 18:00	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 106 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>09/15/20 18:00</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>1</i>	<i>09/15/20 18:00</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>106 %</i>		<i>80-120 %</i>		<i>1</i>	<i>09/15/20 18:00</i>	<i>EPA 8260D</i>
Trip Blank 2 (A0H0746-11)		Matrix: Water			Batch: 0090406		H-01	
Acetone	ND	---	20.0	ug/L	1	09/15/20 18:29	EPA 8260D	
Acrylonitrile	ND	---	2.00	ug/L	1	09/15/20 18:29	EPA 8260D	
Benzene	ND	---	0.200	ug/L	1	09/15/20 18:29	EPA 8260D	
Bromobenzene	ND	---	0.500	ug/L	1	09/15/20 18:29	EPA 8260D	
Bromochloromethane	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
Bromodichloromethane	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
Bromoform	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
Bromomethane	ND	---	5.00	ug/L	1	09/15/20 18:29	EPA 8260D	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	09/15/20 18:29	EPA 8260D	
n-Butylbenzene	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
sec-Butylbenzene	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
tert-Butylbenzene	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
Carbon disulfide	ND	---	10.0	ug/L	1	09/15/20 18:29	EPA 8260D	
Carbon tetrachloride	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
Chlorobenzene	ND	---	0.500	ug/L	1	09/15/20 18:29	EPA 8260D	
Chloroethane	ND	---	5.00	ug/L	1	09/15/20 18:29	EPA 8260D	
Chloroform	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
Chloromethane	ND	---	5.00	ug/L	1	09/15/20 18:29	EPA 8260D	
2-Chlorotoluene	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
4-Chlorotoluene	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
Dibromochloromethane	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	09/15/20 18:29	EPA 8260D	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	09/15/20 18:29	EPA 8260D	
Dibromomethane	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	09/15/20 18:29	EPA 8260D	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC. 3140 NE Broadway Street Portland, OR 97232	Project: Iron Triangle Project Number: 1874.01.02-01 Project Manager: Kyle Roslund	Report ID: A0H0746 - 09 18 20 1525
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ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
Trip Blank 2 (A0H0746-11)			Matrix: Water			Batch: 0090406		H-01
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	09/15/20 18:29	EPA 8260D	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	09/15/20 18:29	EPA 8260D	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	09/15/20 18:29	EPA 8260D	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	09/15/20 18:29	EPA 8260D	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	09/15/20 18:29	EPA 8260D	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	09/15/20 18:29	EPA 8260D	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	09/15/20 18:29	EPA 8260D	
1,2-Dichloropropane	ND	---	0.500	ug/L	1	09/15/20 18:29	EPA 8260D	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
Ethylbenzene	ND	---	0.500	ug/L	1	09/15/20 18:29	EPA 8260D	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	09/15/20 18:29	EPA 8260D	
2-Hexanone	ND	---	10.0	ug/L	1	09/15/20 18:29	EPA 8260D	
Isopropylbenzene	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
4-Isopropyltoluene	ND	---	2.00	ug/L	1	09/15/20 18:29	EPA 8260D	
Methylene chloride	ND	---	10.0	ug/L	1	09/15/20 18:29	EPA 8260D	
4-Methyl-2-pentanone (MiBK)	ND	---	10.0	ug/L	1	09/15/20 18:29	EPA 8260D	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
Naphthalene	ND	---	4.00	ug/L	1	09/15/20 18:29	EPA 8260D	
n-Propylbenzene	ND	---	0.500	ug/L	1	09/15/20 18:29	EPA 8260D	
Styrene	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	09/15/20 18:29	EPA 8260D	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	09/15/20 18:29	EPA 8260D	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	09/15/20 18:29	EPA 8260D	
Toluene	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	09/15/20 18:29	EPA 8260D	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	09/15/20 18:29	EPA 8260D	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	09/15/20 18:29	EPA 8260D	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	09/15/20 18:29	EPA 8260D	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC. 3140 NE Broadway Street Portland, OR 97232	Project: Iron Triangle Project Number: 1874.01.02-01 Project Manager: Kyle Roslund	Report ID: A0H0746 - 09 18 20 1525
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ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
Trip Blank 2 (A0H0746-11)				Matrix: Water		Batch: 0090406		H-01
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	09/15/20 18:29	EPA 8260D	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	09/15/20 18:29	EPA 8260D	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
Vinyl chloride	ND	---	0.400	ug/L	1	09/15/20 18:29	EPA 8260D	
m,p-Xylene	ND	---	1.00	ug/L	1	09/15/20 18:29	EPA 8260D	
o-Xylene	ND	---	0.500	ug/L	1	09/15/20 18:29	EPA 8260D	
<i>Surrogate: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 107 %</i>		<i>Limits: 80-120 %</i>		<i>1</i>	<i>09/15/20 18:29</i>	<i>EPA 8260D</i>
<i>Toluene-d8 (Surr)</i>		<i>101 %</i>		<i>80-120 %</i>		<i>1</i>	<i>09/15/20 18:29</i>	<i>EPA 8260D</i>
<i>4-Bromofluorobenzene (Surr)</i>		<i>107 %</i>		<i>80-120 %</i>		<i>1</i>	<i>09/15/20 18:29</i>	<i>EPA 8260D</i>



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

ANALYTICAL SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
B03-S-5.0 (A0H0746-02)				Matrix: Soil		Batch: 0090280		C-07
Aroclor 1016	ND	---	11.4	ug/kg dry	1	09/10/20 20:38	EPA 8082A	
Aroclor 1221	ND	---	11.4	ug/kg dry	1	09/10/20 20:38	EPA 8082A	
Aroclor 1232	ND	---	11.4	ug/kg dry	1	09/10/20 20:38	EPA 8082A	
Aroclor 1242	ND	---	11.4	ug/kg dry	1	09/10/20 20:38	EPA 8082A	
Aroclor 1248	ND	---	11.4	ug/kg dry	1	09/10/20 20:38	EPA 8082A	
Aroclor 1254	ND	---	11.4	ug/kg dry	1	09/10/20 20:38	EPA 8082A	
Aroclor 1260	ND	---	11.4	ug/kg dry	1	09/10/20 20:38	EPA 8082A	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 87 %</i>		<i>Limits: 60-125 %</i>		<i>1</i>	<i>09/10/20 20:38</i>	<i>EPA 8082A</i>
B04-S-6.0 (A0H0746-05)				Matrix: Soil		Batch: 0090280		C-07
Aroclor 1016	ND	---	20.7	ug/kg dry	1	09/10/20 21:13	EPA 8082A	
Aroclor 1221	ND	---	20.7	ug/kg dry	1	09/10/20 21:13	EPA 8082A	
Aroclor 1232	ND	---	20.7	ug/kg dry	1	09/10/20 21:13	EPA 8082A	
Aroclor 1242	ND	---	20.7	ug/kg dry	1	09/10/20 21:13	EPA 8082A	
Aroclor 1248	ND	---	20.7	ug/kg dry	1	09/10/20 21:13	EPA 8082A	
Aroclor 1254	ND	---	20.7	ug/kg dry	1	09/10/20 21:13	EPA 8082A	
Aroclor 1260	ND	---	20.7	ug/kg dry	1	09/10/20 21:13	EPA 8082A	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 68 %</i>		<i>Limits: 60-125 %</i>		<i>1</i>	<i>09/10/20 21:13</i>	<i>EPA 8082A</i>
B04-W-9.0 (A0H0746-10)				Matrix: Water		Batch: 0090248		C-07
Aroclor 1016	ND	---	0.0990	ug/L	1	09/09/20 18:11	EPA 8082A	
Aroclor 1221	ND	---	0.0990	ug/L	1	09/09/20 18:11	EPA 8082A	
Aroclor 1232	ND	---	0.0990	ug/L	1	09/09/20 18:11	EPA 8082A	
Aroclor 1242	ND	---	0.0990	ug/L	1	09/09/20 18:11	EPA 8082A	
Aroclor 1248	ND	---	0.0990	ug/L	1	09/09/20 18:11	EPA 8082A	
Aroclor 1254	ND	---	0.0990	ug/L	1	09/09/20 18:11	EPA 8082A	
Aroclor 1260	ND	---	0.0990	ug/L	1	09/09/20 18:11	EPA 8082A	
<i>Surrogate: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 79 %</i>		<i>Limits: 40-135 %</i>		<i>1</i>	<i>09/09/20 18:11</i>	<i>EPA 8082A</i>



Maul Foster & Alongi, INC.
3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**
Project Number: **1874.01.02-01**
Project Manager: **Kyle Roslund**

Report ID:
A0H0746 - 09 18 20 1525

ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E SIM

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
B03-S-5.0 (A0H0746-02)				Matrix: Soil		Batch: 0090251		
Acenaphthene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Acenaphthylene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Anthracene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Benz(a)anthracene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Chrysene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Fluoranthene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Fluorene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
1-Methylnaphthalene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
2-Methylnaphthalene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Naphthalene	14.6	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Phenanthrene	14.6	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Pyrene	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
Dibenzofuran	ND	---	10.4	ug/kg dry	1	09/10/20 04:22	EPA 8270E SIM	
<i>Surrogate: 2-Fluorobiphenyl (Surr)</i>		<i>Recovery: 68 %</i>		<i>Limits: 44-120 %</i>		<i>1</i>	<i>09/10/20 04:22</i>	<i>EPA 8270E SIM</i>
<i>p-Terphenyl-d14 (Surr)</i>		<i>81 %</i>		<i>54-127 %</i>		<i>1</i>	<i>09/10/20 04:22</i>	<i>EPA 8270E SIM</i>

B04-S-6.0 (A0H0746-05)				Matrix: Soil		Batch: 0090251		
Acenaphthene	ND	---	2660	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	R-02
Acenaphthylene	ND	---	749	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	R-02
Anthracene	ND	---	1170	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	R-02
Benz(a)anthracene	214	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
Chrysene	223	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC. 3140 NE Broadway Street Portland, OR 97232	Project: Iron Triangle Project Number: 1874.01.02-01 Project Manager: Kyle Roslund	Report ID: A0H0746 - 09 18 20 1525
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ANALYTICAL SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E SIM

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
B04-S-6.0 (A0H0746-05)			Matrix: Soil			Batch: 0090251		
Fluoranthene	381	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
Fluorene	6810	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
1-Methylnaphthalene	28600	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
2-Methylnaphthalene	58500	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
Naphthalene	20200	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
Phenanthrene	12200	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
Pyrene	1850	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
Dibenzofuran	3950	---	208	ug/kg dry	10	09/11/20 02:28	EPA 8270E SIM	
<i>Surrogate: 2-Fluorobiphenyl (Surr)</i>		<i>Recovery: 76 %</i>		<i>Limits: 44-120 %</i>		<i>10</i>	<i>09/11/20 02:28</i>	<i>EPA 8270E SIM</i>
<i>p-Terphenyl-d14 (Surr)</i>		<i>72 %</i>		<i>54-127 %</i>		<i>10</i>	<i>09/11/20 02:28</i>	<i>EPA 8270E SIM</i>
B04-W-9.0 (A0H0746-10)			Matrix: Water			Batch: 0090034		Q-22
Acenaphthene	ND	---	0.438	ug/L	1	09/05/20 04:44	EPA 8270E SIM	R-02
Acenaphthylene	ND	---	0.103	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Anthracene	ND	---	0.103	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Benz(a)anthracene	ND	---	0.103	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Benzo(a)pyrene	ND	---	0.103	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Benzo(b)fluoranthene	ND	---	0.103	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Benzo(k)fluoranthene	ND	---	0.103	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Benzo(g,h,i)perylene	ND	---	0.103	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Chrysene	ND	---	0.103	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Dibenz(a,h)anthracene	ND	---	0.103	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Fluoranthene	ND	---	0.103	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Fluorene	0.700	---	0.103	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Indeno(1,2,3-cd)pyrene	ND	---	0.103	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
1-Methylnaphthalene	4.31	---	0.206	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
2-Methylnaphthalene	3.39	---	0.206	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Naphthalene	ND	---	0.206	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Phenanthrene	0.610	---	0.103	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Pyrene	ND	---	0.103	ug/L	1	09/05/20 04:44	EPA 8270E SIM	
Dibenzofuran	ND	---	0.196	ug/L	1	09/05/20 04:44	EPA 8270E SIM	R-02

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
B01-S-8.0 (A0H0746-01) Matrix: Soil								
Batch: 0090288								
Arsenic	3.23	---	1.60	mg/kg dry	10	09/10/20 20:50	EPA 6020A	
Barium	159	---	1.60	mg/kg dry	10	09/10/20 20:50	EPA 6020A	
Cadmium	ND	---	0.320	mg/kg dry	10	09/10/20 20:50	EPA 6020A	
Chromium	74.1	---	1.60	mg/kg dry	10	09/10/20 20:50	EPA 6020A	
Lead	8.23	---	0.320	mg/kg dry	10	09/10/20 20:50	EPA 6020A	
Mercury	ND	---	0.128	mg/kg dry	10	09/10/20 20:50	EPA 6020A	
Selenium	ND	---	1.60	mg/kg dry	10	09/10/20 20:50	EPA 6020A	
Silver	ND	---	0.320	mg/kg dry	10	09/10/20 20:50	EPA 6020A	
B03-S-5.0 (A0H0746-02) Matrix: Soil								
Batch: 0090288								
Arsenic	2.00	---	1.19	mg/kg dry	10	09/10/20 20:54	EPA 6020A	
Barium	135	---	1.19	mg/kg dry	10	09/10/20 20:54	EPA 6020A	
Cadmium	ND	---	0.238	mg/kg dry	10	09/10/20 20:54	EPA 6020A	
Chromium	68.2	---	1.19	mg/kg dry	10	09/10/20 20:54	EPA 6020A	
Lead	4.02	---	0.238	mg/kg dry	10	09/10/20 20:54	EPA 6020A	
Mercury	ND	---	0.0953	mg/kg dry	10	09/10/20 20:54	EPA 6020A	
Selenium	ND	---	1.19	mg/kg dry	10	09/10/20 20:54	EPA 6020A	
Silver	ND	---	0.238	mg/kg dry	10	09/10/20 20:54	EPA 6020A	
B02-S-7.5 (A0H0746-03) Matrix: Soil								
Batch: 0090288								
Arsenic	2.09	---	1.15	mg/kg dry	10	09/10/20 20:59	EPA 6020A	
Barium	156	---	1.15	mg/kg dry	10	09/10/20 20:59	EPA 6020A	
Cadmium	ND	---	0.230	mg/kg dry	10	09/10/20 20:59	EPA 6020A	
Chromium	118	---	1.15	mg/kg dry	10	09/10/20 20:59	EPA 6020A	
Lead	3.62	---	0.230	mg/kg dry	10	09/10/20 20:59	EPA 6020A	
Mercury	ND	---	0.0918	mg/kg dry	10	09/10/20 20:59	EPA 6020A	
Selenium	ND	---	1.15	mg/kg dry	10	09/10/20 20:59	EPA 6020A	
Silver	ND	---	0.230	mg/kg dry	10	09/10/20 20:59	EPA 6020A	
B04-S-5.5 (A0H0746-04) Matrix: Soil								
Batch: 0090288								

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Philip Nerenberg, Lab Director

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Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes	
B04-S-5.5 (A0H0746-04)				Matrix: Soil					
Arsenic	2.92	---	1.07	mg/kg dry	10	09/10/20 21:18	EPA 6020A		
Barium	122	---	1.07	mg/kg dry	10	09/10/20 21:18	EPA 6020A	Q-39, Q-42	
Cadmium	ND	---	0.214	mg/kg dry	10	09/10/20 21:18	EPA 6020A	Q-42	
Chromium	13.4	---	1.07	mg/kg dry	10	09/10/20 21:18	EPA 6020A		
Lead	6.21	---	0.214	mg/kg dry	10	09/10/20 21:18	EPA 6020A	Q-39, Q-42	
Mercury	ND	---	0.0856	mg/kg dry	10	09/10/20 21:18	EPA 6020A		
Selenium	ND	---	1.07	mg/kg dry	10	09/10/20 21:18	EPA 6020A		
Silver	ND	---	0.214	mg/kg dry	10	09/10/20 21:18	EPA 6020A		
B04-S-6.0 (A0H0746-05)				Matrix: Soil					
Batch: 0090288									
Arsenic	4.63	---	2.02	mg/kg dry	10	09/10/20 21:32	EPA 6020A		
Barium	454	---	2.02	mg/kg dry	10	09/10/20 21:32	EPA 6020A		
Cadmium	ND	---	0.405	mg/kg dry	10	09/10/20 21:32	EPA 6020A		
Chromium	19.0	---	2.02	mg/kg dry	10	09/10/20 21:32	EPA 6020A		
Lead	10.6	---	0.405	mg/kg dry	10	09/10/20 21:32	EPA 6020A		
Mercury	ND	---	0.162	mg/kg dry	10	09/10/20 21:32	EPA 6020A		
Selenium	ND	---	2.02	mg/kg dry	10	09/10/20 21:32	EPA 6020A		
Silver	ND	---	0.405	mg/kg dry	10	09/10/20 21:32	EPA 6020A		



Maul Foster & Alongi, INC. 3140 NE Broadway Street Portland, OR 97232	Project: Iron Triangle Project Number: 1874.01.02-01 Project Manager: Kyle Roslund	Report ID: A0H0746 - 09 18 20 1525
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ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 200.8 (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
B01-W-7.0 (A0H0746-07)		Matrix: Water						
Batch: 0090254								
Arsenic	1.62	---	1.00	ug/L	1	09/09/20 22:06	EPA 200.8 (Diss)	
Barium	126	---	1.00	ug/L	1	09/09/20 22:06	EPA 200.8 (Diss)	
Cadmium	ND	---	0.200	ug/L	1	09/09/20 22:06	EPA 200.8 (Diss)	
Chromium	2.69	---	1.00	ug/L	1	09/09/20 22:06	EPA 200.8 (Diss)	
Lead	0.321	---	0.200	ug/L	1	09/09/20 22:06	EPA 200.8 (Diss)	
Mercury	ND	---	0.0800	ug/L	1	09/09/20 22:06	EPA 200.8 (Hg)	
Selenium	ND	---	1.00	ug/L	1	09/09/20 22:06	EPA 200.8 (Diss)	
Silver	ND	---	0.200	ug/L	1	09/09/20 22:06	EPA 200.8 (Diss)	
B03-W-8.0 (A0H0746-08)		Matrix: Water						
Batch: 0090250								
Arsenic	2.23	---	1.00	ug/L	1	09/09/20 22:34	EPA 200.8 (Diss)	
Barium	50.4	---	1.00	ug/L	1	09/09/20 22:34	EPA 200.8 (Diss)	
Cadmium	ND	---	0.200	ug/L	1	09/09/20 22:34	EPA 200.8 (Diss)	
Chromium	ND	---	1.00	ug/L	1	09/09/20 22:34	EPA 200.8 (Diss)	
Lead	ND	---	0.200	ug/L	1	09/09/20 22:34	EPA 200.8 (Diss)	
Mercury	ND	---	0.0800	ug/L	1	09/09/20 22:34	EPA 200.8 (Hg)	
Selenium	ND	---	1.00	ug/L	1	09/09/20 22:34	EPA 200.8 (Diss)	
Silver	ND	---	0.200	ug/L	1	09/09/20 22:34	EPA 200.8 (Diss)	
B02-W-8.5 (A0H0746-09)		Matrix: Water						
Batch: 0090250								
Arsenic	4.39	---	1.00	ug/L	1	09/09/20 22:39	EPA 200.8 (Diss)	
Barium	46.9	---	1.00	ug/L	1	09/09/20 22:39	EPA 200.8 (Diss)	
Cadmium	ND	---	0.200	ug/L	1	09/09/20 22:39	EPA 200.8 (Diss)	
Chromium	ND	---	1.00	ug/L	1	09/09/20 22:39	EPA 200.8 (Diss)	
Lead	ND	---	0.200	ug/L	1	09/09/20 22:39	EPA 200.8 (Diss)	
Mercury	ND	---	0.0800	ug/L	1	09/09/20 22:39	EPA 200.8 (Hg)	
Selenium	ND	---	1.00	ug/L	1	09/09/20 22:39	EPA 200.8 (Diss)	
Silver	ND	---	0.200	ug/L	1	09/09/20 22:39	EPA 200.8 (Diss)	
B04-W-9.0 (A0H0746-10)		Matrix: Water						
Batch: 0090250								

Apex Laboratories

Philip Nerenberg, Lab Director

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Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

ANALYTICAL SAMPLE RESULTS

Dissolved Metals by EPA 200.8 (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
B04-W-9.0 (A0H0746-10)		Matrix: Water						
Arsenic	1.66	---	1.00	ug/L	1	09/09/20 22:53	EPA 200.8 (Diss)	
Barium	222	---	1.00	ug/L	1	09/09/20 22:53	EPA 200.8 (Diss)	
Cadmium	ND	---	0.200	ug/L	1	09/09/20 22:53	EPA 200.8 (Diss)	
Chromium	ND	---	1.00	ug/L	1	09/09/20 22:53	EPA 200.8 (Diss)	
Lead	0.423	---	0.200	ug/L	1	09/09/20 22:53	EPA 200.8 (Diss)	
Mercury	ND	---	0.0800	ug/L	1	09/09/20 22:53	EPA 200.8 (Hg)	
Selenium	ND	---	1.00	ug/L	1	09/09/20 22:53	EPA 200.8 (Diss)	
Silver	ND	---	0.200	ug/L	1	09/09/20 22:53	EPA 200.8 (Diss)	

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3140 NE Broadway Street
Portland, OR 97232

Project: Iron Triangle

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

ANALYTICAL SAMPLE RESULTS

Percent Dry Weight

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
B01-S-8.0 (A0H0746-01)				Matrix: Soil		Batch: 0080909		
% Solids	63.6	---	1.00	%	1	09/01/20 08:31	EPA 8000D	
B03-S-5.0 (A0H0746-02)				Matrix: Soil		Batch: 0080909		
% Solids	86.9	---	1.00	%	1	09/01/20 08:31	EPA 8000D	
B02-S-7.5 (A0H0746-03)				Matrix: Soil		Batch: 0080909		
% Solids	87.8	---	1.00	%	1	09/01/20 08:31	EPA 8000D	
B04-S-5.5 (A0H0746-04)				Matrix: Soil		Batch: 0080909		
% Solids	90.8	---	1.00	%	1	09/01/20 08:31	EPA 8000D	
B04-S-6.0 (A0H0746-05)				Matrix: Soil		Batch: 0080909		
% Solids	47.7	---	1.00	%	1	09/01/20 08:31	EPA 8000D	



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0080922 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (0080922-BLK1)			Prepared: 08/31/20 11:00 Analyzed: 09/01/20 23:59									
NWTPH-HCID												
Gasoline Range Organics	ND	---	0.0909	mg/L	1	---	---	---	---	---	---	
Diesel Range Organics	ND	---	0.227	mg/L	1	---	---	---	---	---	---	
Oil Range Organics	ND	---	0.227	mg/L	1	---	---	---	---	---	---	
Surr: <i>o</i> -Terphenyl (Surr)		Recovery: 87 %		Limits: 50-150 %		Dilution: 1x						
4-Bromofluorobenzene (Surr)		27 %		10-120 %		"						

Batch 0090028 - NWTPH-HCID (Soil)						Soil						
Blank (0090028-BLK1)			Prepared: 09/01/20 13:05 Analyzed: 09/02/20 00:27									
NWTPH-HCID												
Gasoline Range Organics	ND	---	18.2	mg/kg wet	1	---	---	---	---	---	---	
Diesel Range Organics	ND	---	45.5	mg/kg wet	1	---	---	---	---	---	---	
Oil Range Organics	ND	---	90.9	mg/kg wet	1	---	---	---	---	---	---	
Surr: <i>o</i> -Terphenyl (Surr)		Recovery: 92 %		Limits: 50-150 %		Dilution: 1x						
4-Bromofluorobenzene (Surr)		96 %		50-150 %		"						

Duplicate (0090028-DUP1)						Prepared: 09/01/20 13:05 Analyzed: 09/02/20 01:09						
QC Source Sample: B01-S-8.0 (A0H0746-01)												
NWTPH-HCID												
Gasoline Range Organics	ND	---	29.9	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	---	74.8	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	---	150	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: <i>o</i> -Terphenyl (Surr)		Recovery: 71 %		Limits: 50-150 %		Dilution: 1x						
4-Bromofluorobenzene (Surr)		65 %		50-150 %		"						

Duplicate (0090028-DUP2)						Prepared: 09/01/20 13:05 Analyzed: 09/02/20 05:19						
QC Source Sample: Non-SDG (A0H0755-11)												
NWTPH-HCID												
Gasoline Range Organics	ND	---	22.2	mg/kg dry	1	---	ND	---	---	---	30%	
Diesel Range Organics	ND	---	55.5	mg/kg dry	1	---	ND	---	---	---	30%	
Oil Range Organics	ND	---	111	mg/kg dry	1	---	ND	---	---	---	30%	
Surr: <i>o</i> -Terphenyl (Surr)		Recovery: 78 %		Limits: 50-150 %		Dilution: 1x						
4-Bromofluorobenzene (Surr)		71 %		50-150 %		"						

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Philip Nerenberg, Lab Director



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503-718-2323
ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090028 - NWTPH-HCID (Soil)							Soil					

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Philip Nerenberg, Lab Director

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Maul Foster & Alongi, INC. 3140 NE Broadway Street Portland, OR 97232	Project: Iron Triangle Project Number: 1874.01.02-01 Project Manager: Kyle Roslund	Report ID: A0H0746 - 09 18 20 1525
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QUALITY CONTROL (QC) SAMPLE RESULTS

Hydrocarbon Identification Screen by NWTPH-HCID

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090034 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (0090034-BLK1)			Prepared: 09/01/20 14:47 Analyzed: 09/02/20 00:14									
<u>NWTPH-HCID</u>												
Gasoline Range Organics	ND	---	0.0909	mg/L	1	---	---	---	---	---	---	
Diesel Range Organics	ND	---	0.227	mg/L	1	---	---	---	---	---	---	
Oil Range Organics	ND	---	0.227	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 91 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>34 %</i>		<i>10-120 %</i>		<i>"</i>						



Maul Foster & Alongi, INC.	Project: Iron Triangle	
3140 NE Broadway Street	Project Number: 1874.01.02-01	Report ID:
Portland, OR 97232	Project Manager: Kyle Roslund	A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090034 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (0090034-BLK1)						Prepared: 09/01/20 14:47 Analyzed: 09/02/20 00:14						
<u>NWTPH-Dx</u>												
Diesel	ND	---	0.182	mg/L	1	---	---	---	---	---	---	
Oil	ND	---	0.364	mg/L	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 91 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS (0090034-BS1)						Prepared: 09/01/20 14:47 Analyzed: 09/02/20 00:37						
<u>NWTPH-Dx</u>												
Diesel	1.20	---	0.200	mg/L	1	1.25	---	96	59-115%	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 113 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS Dup (0090034-BSD1)						Prepared: 09/01/20 14:47 Analyzed: 09/02/20 01:00						
<u>NWTPH-Dx</u>												
Diesel	1.20	---	0.200	mg/L	1	1.25	---	96	59-115%	0.05	30%	Q-19
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 110 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						



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A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090263 - EPA 3546 (Fuels)						Soil						
Blank (0090263-BLK1)						Prepared: 09/09/20 12:47 Analyzed: 09/09/20 23:01						
<u>NWTPH-Dx</u>												
Diesel	ND	---	25.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	---	50.0	mg/kg wet	1	---	---	---	---	---	---	
Mineral Oil	ND	---	36.4	mg/kg wet	1	---	---	---	---	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 105 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
LCS (0090263-BS1)						Prepared: 09/09/20 12:47 Analyzed: 09/09/20 23:25						
<u>NWTPH-Dx</u>												
Diesel	132	---	25.0	mg/kg wet	1	125	---	105	73-115%	---	---	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 111 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
Duplicate (0090263-DUP1)						Prepared: 09/09/20 12:47 Analyzed: 09/10/20 00:13						
<u>QC Source Sample: B03-S-5.0 (A0H0746-02)</u>												
<u>NWTPH-Dx</u>												
Diesel	ND	---	25.0	mg/kg dry	1	---	ND	---	---	---	30%	
Oil	361	---	50.0	mg/kg dry	1	---	332	---	---	9	30%	
Mineral Oil	ND	---	44.0	mg/kg dry	1	---	ND	---	---	---	30%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 98 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
Duplicate (0090263-DUP2)						Prepared: 09/09/20 12:47 Analyzed: 09/10/20 01:24						
<u>QC Source Sample: Non-SDG (A0I0131-02)</u>												
Diesel	58.2	---	25.0	mg/kg dry	1	---	61.3	---	---	5	30%	F-11, F-15
Oil	83.5	---	50.0	mg/kg dry	1	---	75.0	---	---	11	30%	F-13, F-16
Mineral Oil	ND	---	46.2	mg/kg dry	1	---	ND	---	---	---	30%	
<i>Surr: o-Terphenyl (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						



Maul Foster & Alongi, INC.

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Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090223 - EPA 5035A												
Soil												
Blank (0090223-BLK1)												
Prepared: 09/08/20 09:00 Analyzed: 09/08/20 15:07												
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	ND	---	3.33	mg/kg wet	50	---	---	---	---	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>												
		<i>Recovery: 93 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>												
		<i>104 %</i>		<i>50-150 %</i>		<i>"</i>						
LCS (0090223-BS2)												
Prepared: 09/08/20 09:00 Analyzed: 09/08/20 14:40												
<u>NWTPH-Gx (MS)</u>												
Gasoline Range Organics	23.2	---	5.00	mg/kg wet	50	25.0	---	93	80-120%	---	---	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>												
		<i>Recovery: 92 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>												
		<i>101 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (0090223-DUP1)												
Prepared: 09/08/20 10:20 Analyzed: 09/08/20 19:40												
<u>QC Source Sample: Non-SDG (A010189-01)</u>												
Gasoline Range Organics	ND	---	7.61	mg/kg dry	50	---	ND	---	---	---	30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>												
		<i>Recovery: 95 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>												
		<i>103 %</i>		<i>50-150 %</i>		<i>"</i>						
Duplicate (0090223-DUP2)												
Prepared: 09/08/20 11:00 Analyzed: 09/08/20 20:34												
<u>QC Source Sample: Non-SDG (A010189-02)</u>												
Gasoline Range Organics	ND	---	7.20	mg/kg dry	50	---	ND	---	---	---	30%	
<i>Surr: 4-Bromofluorobenzene (Sur)</i>												
		<i>Recovery: 100 %</i>		<i>Limits: 50-150 %</i>		<i>Dilution: 1x</i>						
<i>1,4-Difluorobenzene (Sur)</i>												
		<i>104 %</i>		<i>50-150 %</i>		<i>"</i>						



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3140 NE Broadway Street
Portland, OR 97232

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Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090223 - EPA 5035A						Soil						
Blank (0090223-BLK1)			Prepared: 09/08/20 09:00 Analyzed: 09/08/20 15:07									
<u>5035A/8260D</u>												
Acetone	ND	---	667	ug/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	---	66.7	ug/kg wet	50	---	---	---	---	---	---	
Benzene	ND	---	6.67	ug/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	---	66.7	ug/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	---	333	ug/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	333	ug/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	---	333	ug/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	---	333	ug/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	---	167	ug/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	---	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	---	167	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	---	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director

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Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090223 - EPA 5035A												
Soil												
Blank (0090223-BLK1)												
Prepared: 09/08/20 09:00 Analyzed: 09/08/20 15:07												
1,2-Dichloropropane	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	66.7	ug/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	---	66.7	ug/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
Styrene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	---	66.7	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	---	33.3	ug/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	---	16.7	ug/kg wet	50	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr)

Recovery: 102 %

Limits: 80-120 %

Dilution: 1x

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QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090223 - EPA 5035A						Soil						
Blank (0090223-BLK1)						Prepared: 09/08/20 09:00 Analyzed: 09/08/20 15:07						
<i>Surr: Toluene-d8 (Surr)</i>		<i>Recovery: 102 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>97 %</i>		<i>79-120 %</i>		<i>"</i>						
LCS (0090223-BS1)						Prepared: 09/08/20 09:00 Analyzed: 09/08/20 14:13						
5035A/8260D												
Acetone	1970	---	1000	ug/kg wet	50	2000	---	98	80-120%	---	---	
Acrylonitrile	966	---	100	ug/kg wet	50	1000	---	97	80-120%	---	---	
Benzene	974	---	10.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Bromobenzene	930	---	25.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
Bromochloromethane	1040	---	50.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
Bromodichloromethane	1090	---	50.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
Bromoform	1020	---	100	ug/kg wet	50	1000	---	102	80-120%	---	---	
Bromomethane	1490	---	500	ug/kg wet	50	1000	---	149	80-120%	---	---	Q-56
2-Butanone (MEK)	1910	---	500	ug/kg wet	50	2000	---	96	80-120%	---	---	
n-Butylbenzene	912	---	50.0	ug/kg wet	50	1000	---	91	80-120%	---	---	
sec-Butylbenzene	952	---	50.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
tert-Butylbenzene	872	---	50.0	ug/kg wet	50	1000	---	87	80-120%	---	---	
Carbon disulfide	1920	---	500	ug/kg wet	50	1000	---	192	80-120%	---	---	Q-56
Carbon tetrachloride	1080	---	50.0	ug/kg wet	50	1000	---	108	80-120%	---	---	
Chlorobenzene	1030	---	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Chloroethane	1390	---	500	ug/kg wet	50	1000	---	139	80-120%	---	---	Q-56
Chloroform	1020	---	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Chloromethane	1090	---	250	ug/kg wet	50	1000	---	109	80-120%	---	---	
2-Chlorotoluene	976	---	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
4-Chlorotoluene	944	---	50.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
Dibromochloromethane	1080	---	100	ug/kg wet	50	1000	---	108	80-120%	---	---	
1,2-Dibromo-3-chloropropane	899	---	250	ug/kg wet	50	1000	---	90	80-120%	---	---	
1,2-Dibromoethane (EDB)	1000	---	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
Dibromomethane	1070	---	50.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
1,2-Dichlorobenzene	948	---	25.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
1,3-Dichlorobenzene	993	---	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
1,4-Dichlorobenzene	966	---	25.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Dichlorodifluoromethane	1110	---	100	ug/kg wet	50	1000	---	111	80-120%	---	---	
1,1-Dichloroethane	1060	---	25.0	ug/kg wet	50	1000	---	106	80-120%	---	---	



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090223 - EPA 5035A												
Soil												
LCS (0090223-BS1)												
Prepared: 09/08/20 09:00 Analyzed: 09/08/20 14:13												
1,2-Dichloroethane (EDC)	1090	---	25.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
1,1-Dichloroethene	1660	---	25.0	ug/kg wet	50	1000	---	166	80-120%	---	---	Q-56
cis-1,2-Dichloroethene	964	---	25.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
trans-1,2-Dichloroethene	1040	---	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
1,2-Dichloropropane	1020	---	25.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
1,3-Dichloropropane	980	---	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
2,2-Dichloropropane	1140	---	50.0	ug/kg wet	50	1000	---	114	80-120%	---	---	
1,1-Dichloropropene	970	---	50.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
cis-1,3-Dichloropropene	982	---	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
trans-1,3-Dichloropropene	1100	---	50.0	ug/kg wet	50	1000	---	110	80-120%	---	---	
Ethylbenzene	958	---	25.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
Hexachlorobutadiene	906	---	100	ug/kg wet	50	1000	---	91	80-120%	---	---	
2-Hexanone	1720	---	500	ug/kg wet	50	2000	---	86	80-120%	---	---	
Isopropylbenzene	956	---	50.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
4-Isopropyltoluene	908	---	50.0	ug/kg wet	50	1000	---	91	80-120%	---	---	
Methylene chloride	1120	---	500	ug/kg wet	50	1000	---	112	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	1840	---	500	ug/kg wet	50	2000	---	92	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	936	---	50.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
Naphthalene	849	---	100	ug/kg wet	50	1000	---	85	80-120%	---	---	
n-Propylbenzene	968	---	25.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Styrene	963	---	50.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
1,1,1,2-Tetrachloroethane	1120	---	25.0	ug/kg wet	50	1000	---	112	80-120%	---	---	
1,1,2,2-Tetrachloroethane	1100	---	50.0	ug/kg wet	50	1000	---	110	80-120%	---	---	
Tetrachloroethene (PCE)	1030	---	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Toluene	943	---	50.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
1,2,3-Trichlorobenzene	898	---	250	ug/kg wet	50	1000	---	90	80-120%	---	---	
1,2,4-Trichlorobenzene	850	---	250	ug/kg wet	50	1000	---	85	80-120%	---	---	
1,1,1-Trichloroethane	1030	---	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
1,1,2-Trichloroethane	994	---	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
Trichloroethene (TCE)	942	---	25.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
Trichlorofluoromethane	1420	---	100	ug/kg wet	50	1000	---	142	80-120%	---	---	Q-56
1,2,3-Trichloropropane	1040	---	50.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
1,2,4-Trimethylbenzene	914	---	50.0	ug/kg wet	50	1000	---	91	80-120%	---	---	
1,3,5-Trimethylbenzene	942	---	50.0	ug/kg wet	50	1000	---	94	80-120%	---	---	



Maul Foster & Alongi, INC.
3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**
Project Number: **1874.01.02-01**
Project Manager: **Kyle Roslund**

Report ID:
A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090223 - EPA 5035A												
Soil												
LCS (0090223-BS1)												
Prepared: 09/08/20 09:00 Analyzed: 09/08/20 14:13												
Vinyl chloride	1260	---	25.0	ug/kg wet	50	1000	---	126	80-120%	---	---	Q-56
m,p-Xylene	1940	---	50.0	ug/kg wet	50	2000	---	97	80-120%	---	---	
o-Xylene	888	---	25.0	ug/kg wet	50	1000	---	89	80-120%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>												
<i>Recovery: 100 % Limits: 80-120 % Dilution: 1x</i>												
<i>Toluene-d8 (Surr)</i>												
<i>99 % 80-120 % "</i>												
<i>4-Bromofluorobenzene (Surr)</i>												
<i>91 % 79-120 % "</i>												

Duplicate (0090223-DUP1)

Prepared: 09/08/20 10:20 Analyzed: 09/08/20 19:40

QC Source Sample: Non-SDG (A010189-01)

Acetone	ND	---	1520	ug/kg dry	50	---	ND	---	---	---	30%	
Acrylonitrile	ND	---	152	ug/kg dry	50	---	ND	---	---	---	30%	
Benzene	ND	---	15.2	ug/kg dry	50	---	ND	---	---	---	30%	
Bromobenzene	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
Bromochloromethane	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
Bromodichloromethane	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
Bromoform	ND	---	152	ug/kg dry	50	---	ND	---	---	---	30%	
Bromomethane	ND	---	761	ug/kg dry	50	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	---	761	ug/kg dry	50	---	ND	---	---	---	30%	
n-Butylbenzene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon disulfide	ND	---	761	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
Chlorobenzene	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroethane	ND	---	761	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroform	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
Chloromethane	ND	---	380	ug/kg dry	50	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromochloromethane	ND	---	152	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	---	380	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromomethane	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090223 - EPA 5035A							Soil					
Duplicate (0090223-DUP1)			Prepared: 09/08/20 10:20 Analyzed: 09/08/20 19:40									
QC Source Sample: Non-SDG (A010189-01)												
1,3-Dichlorobenzene	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	---	152	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	---	152	ug/kg dry	50	---	ND	---	---	---	30%	
2-Hexanone	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
Methylene chloride	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	---	152	ug/kg dry	50	---	ND	---	---	---	30%	
n-Propylbenzene	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
Styrene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	---	380	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	---	380	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090223 - EPA 5035A												
Soil												
Duplicate (0090223-DUP1)			Prepared: 09/08/20 10:20 Analyzed: 09/08/20 19:40									
QC Source Sample: Non-SDG (A010189-01)												
Trichloroethene (TCE)	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	---	152	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
Vinyl chloride	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
m,p-Xylene	ND	---	76.1	ug/kg dry	50	---	ND	---	---	---	30%	
o-Xylene	ND	---	38.0	ug/kg dry	50	---	ND	---	---	---	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 100 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>79-120 %</i>		<i>"</i>						

Duplicate (0090223-DUP2)			Prepared: 09/08/20 11:00 Analyzed: 09/08/20 20:34									
QC Source Sample: Non-SDG (A010189-02)												
Acetone	ND	---	1440	ug/kg dry	50	---	ND	---	---	---	30%	
Acrylonitrile	ND	---	144	ug/kg dry	50	---	ND	---	---	---	30%	
Benzene	ND	---	14.4	ug/kg dry	50	---	ND	---	---	---	30%	
Bromobenzene	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
Bromochloromethane	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
Bromodichloromethane	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
Bromoform	ND	---	144	ug/kg dry	50	---	ND	---	---	---	30%	
Bromomethane	ND	---	720	ug/kg dry	50	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	---	720	ug/kg dry	50	---	ND	---	---	---	30%	
n-Butylbenzene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon disulfide	ND	---	720	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
Chlorobenzene	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroethane	ND	---	720	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroform	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
Chloromethane	ND	---	360	ug/kg dry	50	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090223 - EPA 5035A						Soil						
Duplicate (0090223-DUP2)			Prepared: 09/08/20 11:00 Analyzed: 09/08/20 20:34									
QC Source Sample: Non-SDG (A010189-02)												
4-Chlorotoluene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromochloromethane	ND	---	144	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	---	360	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromomethane	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	---	144	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	---	144	ug/kg dry	50	---	ND	---	---	---	30%	
2-Hexanone	ND	---	720	ug/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
Methylene chloride	ND	---	720	ug/kg dry	50	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	---	720	ug/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	---	144	ug/kg dry	50	---	ND	---	---	---	30%	
n-Propylbenzene	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
Styrene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC. 3140 NE Broadway Street Portland, OR 97232	Project: Iron Triangle Project Number: 1874.01.02-01 Project Manager: Kyle Roslund	Report ID: A0H0746 - 09 18 20 1525
--	---	---

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090223 - EPA 5035A												
Soil												
Duplicate (0090223-DUP2)			Prepared: 09/08/20 11:00 Analyzed: 09/08/20 20:34									
QC Source Sample: Non-SDG (A010189-02)												
Tetrachloroethene (PCE)	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	---	360	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	---	360	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	---	144	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
Vinyl chloride	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
m,p-Xylene	ND	---	72.0	ug/kg dry	50	---	ND	---	---	---	30%	
o-Xylene	ND	---	36.0	ug/kg dry	50	---	ND	---	---	---	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 99 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>99 %</i>		<i>79-120 %</i>		<i>"</i>						

Matrix Spike (0090223-MS1)			Prepared: 09/04/20 10:47 Analyzed: 09/08/20 21:29									
QC Source Sample: Non-SDG (A010146-05)												
5035A/8260D												
Acetone	3460	---	1610	ug/kg dry	50	3220	ND	108	36-164%	---	---	
Acrylonitrile	1530	---	161	ug/kg dry	50	1610	ND	95	65-134%	---	---	
Benzene	1480	---	16.1	ug/kg dry	50	1610	ND	92	77-121%	---	---	
Bromobenzene	1500	---	40.2	ug/kg dry	50	1610	ND	93	78-121%	---	---	
Bromochloromethane	1560	---	80.4	ug/kg dry	50	1610	ND	97	78-125%	---	---	
Bromodichloromethane	1620	---	80.4	ug/kg dry	50	1610	ND	101	75-127%	---	---	
Bromoform	1440	---	161	ug/kg dry	50	1610	ND	90	67-132%	---	---	
Bromomethane	2440	---	804	ug/kg dry	50	1610	ND	152	53-143%	---	---	Q-54c
2-Butanone (MEK)	2960	---	804	ug/kg dry	50	3220	ND	92	51-148%	---	---	
n-Butylbenzene	1390	---	80.4	ug/kg dry	50	1610	ND	86	70-128%	---	---	
sec-Butylbenzene	1450	---	80.4	ug/kg dry	50	1610	ND	90	73-126%	---	---	
tert-Butylbenzene	1370	---	80.4	ug/kg dry	50	1610	ND	85	73-125%	---	---	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090223 - EPA 5035A						Soil						
Matrix Spike (0090223-MS1)						Prepared: 09/04/20 10:47 Analyzed: 09/08/20 21:29						
QC Source Sample: Non-SDG (A010146-05)												
Carbon disulfide	1940	---	804	ug/kg dry	50	1610	ND	120	63-132%	---	---	Q-54f
Carbon tetrachloride	1590	---	80.4	ug/kg dry	50	1610	ND	99	70-135%	---	---	
Chlorobenzene	1550	---	40.2	ug/kg dry	50	1610	ND	97	79-120%	---	---	
Chloroethane	2070	---	804	ug/kg dry	50	1610	ND	129	59-139%	---	---	Q-54a
Chloroform	1510	---	80.4	ug/kg dry	50	1610	ND	94	78-123%	---	---	
Chloromethane	1560	---	402	ug/kg dry	50	1610	ND	97	50-136%	---	---	
2-Chlorotoluene	1530	---	80.4	ug/kg dry	50	1610	ND	95	75-122%	---	---	
4-Chlorotoluene	1460	---	80.4	ug/kg dry	50	1610	ND	91	72-124%	---	---	
Dibromochloromethane	1590	---	161	ug/kg dry	50	1610	ND	99	74-126%	---	---	
1,2-Dibromo-3-chloropropane	1320	---	402	ug/kg dry	50	1610	ND	82	61-132%	---	---	
1,2-Dibromoethane (EDB)	1570	---	80.4	ug/kg dry	50	1610	ND	98	78-122%	---	---	
Dibromomethane	1640	---	80.4	ug/kg dry	50	1610	ND	102	78-125%	---	---	
1,2-Dichlorobenzene	1470	---	40.2	ug/kg dry	50	1610	ND	91	78-121%	---	---	
1,3-Dichlorobenzene	1500	---	40.2	ug/kg dry	50	1610	ND	93	77-121%	---	---	
1,4-Dichlorobenzene	1470	---	40.2	ug/kg dry	50	1610	ND	91	75-120%	---	---	
Dichlorodifluoromethane	1650	---	161	ug/kg dry	50	1610	ND	103	29-149%	---	---	
1,1-Dichloroethane	1610	---	40.2	ug/kg dry	50	1610	ND	100	76-125%	---	---	
1,2-Dichloroethane (EDC)	1670	---	40.2	ug/kg dry	50	1610	ND	104	73-128%	---	---	
1,1-Dichloroethene	1980	---	40.2	ug/kg dry	50	1610	ND	123	70-131%	---	---	Q-54d
cis-1,2-Dichloroethene	1470	---	40.2	ug/kg dry	50	1610	ND	91	77-123%	---	---	
trans-1,2-Dichloroethene	1620	---	40.2	ug/kg dry	50	1610	ND	101	74-125%	---	---	
1,2-Dichloropropane	1550	---	40.2	ug/kg dry	50	1610	ND	97	76-123%	---	---	
1,3-Dichloropropane	1540	---	80.4	ug/kg dry	50	1610	ND	96	77-121%	---	---	
2,2-Dichloropropane	1510	---	80.4	ug/kg dry	50	1610	ND	94	67-133%	---	---	
1,1-Dichloropropene	1460	---	80.4	ug/kg dry	50	1610	ND	91	76-125%	---	---	
cis-1,3-Dichloropropene	1480	---	80.4	ug/kg dry	50	1610	ND	92	74-126%	---	---	
trans-1,3-Dichloropropene	1600	---	80.4	ug/kg dry	50	1610	ND	99	71-130%	---	---	
Ethylbenzene	1470	---	40.2	ug/kg dry	50	1610	ND	91	76-122%	---	---	
Hexachlorobutadiene	1290	---	161	ug/kg dry	50	1610	ND	80	61-135%	---	---	
2-Hexanone	2650	---	804	ug/kg dry	50	3220	ND	82	53-145%	---	---	
Isopropylbenzene	1480	---	80.4	ug/kg dry	50	1610	ND	92	68-134%	---	---	
4-Isopropyltoluene	1360	---	80.4	ug/kg dry	50	1610	ND	85	73-127%	---	---	
Methylene chloride	1800	---	804	ug/kg dry	50	1610	ND	112	70-128%	---	---	



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090223 - EPA 5035A												
Soil												
Matrix Spike (0090223-MS1)												
Prepared: 09/04/20 10:47 Analyzed: 09/08/20 21:29												
QC Source Sample: Non-SDG (A010146-05)												
4-Methyl-2-pentanone (MiBK)	2810	---	804	ug/kg dry	50	3220	ND	87	65-135%	---	---	
Methyl tert-butyl ether (MTBE)	1460	---	80.4	ug/kg dry	50	1610	ND	91	73-125%	---	---	
Naphthalene	1380	---	161	ug/kg dry	50	1610	ND	86	62-129%	---	---	
n-Propylbenzene	1600	---	40.2	ug/kg dry	50	1610	96.4	93	73-125%	---	---	
Styrene	1510	---	80.4	ug/kg dry	50	1610	ND	94	76-124%	---	---	
1,1,1,2-Tetrachloroethane	1650	---	40.2	ug/kg dry	50	1610	ND	103	78-125%	---	---	
1,1,2,2-Tetrachloroethane	1630	---	80.4	ug/kg dry	50	1610	ND	101	70-124%	---	---	
Tetrachloroethene (PCE)	1540	---	40.2	ug/kg dry	50	1610	ND	96	73-128%	---	---	
Toluene	1460	---	80.4	ug/kg dry	50	1610	ND	90	77-121%	---	---	
1,2,3-Trichlorobenzene	1360	---	402	ug/kg dry	50	1610	ND	84	66-130%	---	---	
1,2,4-Trichlorobenzene	1320	---	402	ug/kg dry	50	1610	ND	82	67-129%	---	---	
1,1,1-Trichloroethane	1590	---	40.2	ug/kg dry	50	1610	ND	99	73-130%	---	---	
1,1,2-Trichloroethane	1550	---	40.2	ug/kg dry	50	1610	ND	97	78-121%	---	---	
Trichloroethene (TCE)	1470	---	40.2	ug/kg dry	50	1610	ND	92	77-123%	---	---	
Trichlorofluoromethane	1930	---	161	ug/kg dry	50	1610	ND	120	62-140%	---	---	Q-54b
1,2,3-Trichloropropane	1650	---	80.4	ug/kg dry	50	1610	ND	102	73-125%	---	---	
1,2,4-Trimethylbenzene	1440	---	80.4	ug/kg dry	50	1610	ND	89	75-123%	---	---	
1,3,5-Trimethylbenzene	1460	---	80.4	ug/kg dry	50	1610	ND	91	73-124%	---	---	
Vinyl chloride	1830	---	40.2	ug/kg dry	50	1610	ND	114	56-135%	---	---	Q-54e
m,p-Xylene	3010	---	80.4	ug/kg dry	50	3220	ND	94	77-124%	---	---	
o-Xylene	1390	---	40.2	ug/kg dry	50	1610	ND	87	77-123%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 100 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>99 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>94 %</i>		<i>79-120 %</i>		<i>"</i>						



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A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090406 - EPA 5030B												
Water												
Blank (0090406-BLK1)												
Prepared: 09/15/20 09:30 Analyzed: 09/15/20 17:31												
<u>EPA 8260D</u>												
Acetone	ND	---	20.0	ug/L	1	---	---	---	---	---	---	
Acrylonitrile	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Bromobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Bromochloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromodichloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromoform	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Bromomethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
n-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
sec-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
tert-Butylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Carbon disulfide	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Carbon tetrachloride	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Chlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Chloroethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
Chloroform	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Chloromethane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Chlorotoluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
4-Chlorotoluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Dibromochloromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Dibromomethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	---	---	---	---	---	---	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC.

3140 NE Broadway Street
 Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090406 - EPA 5030B												
Water												
Blank (0090406-BLK1)			Prepared: 09/15/20 09:30 Analyzed: 09/15/20 17:31									
1,2-Dichloropropane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	---	---	---	---	---	---	
2-Hexanone	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Isopropylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
4-Isopropyltoluene	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
Methylene chloride	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	---	10.0	ug/L	1	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	4.00	ug/L	1	---	---	---	---	---	---	
n-Propylbenzene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Styrene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Vinyl chloride	ND	---	0.400	ug/L	1	---	---	---	---	---	---	
m,p-Xylene	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
o-Xylene	ND	---	0.500	ug/L	1	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr)

Recovery: 106 % Limits: 80-120 %

Dilution: 1x

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Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090406 - EPA 5030B												
Water												
Blank (0090406-BLK1)												
Prepared: 09/15/20 09:30 Analyzed: 09/15/20 17:31												
Surr: Toluene-d8 (Surr) Recovery: 102 % Limits: 80-120 % Dilution: 1x												
4-Bromofluorobenzene (Surr) 103 % 80-120 % "												
LCS (0090406-BS1)												
Prepared: 09/15/20 09:30 Analyzed: 09/15/20 16:32												
EPA 8260D												
Acetone	39.2	---	20.0	ug/L	1	40.0	---	98	80-120%	---	---	
Acrylonitrile	20.9	---	2.00	ug/L	1	20.0	---	104	80-120%	---	---	
Benzene	20.1	---	0.200	ug/L	1	20.0	---	101	80-120%	---	---	
Bromobenzene	19.4	---	0.500	ug/L	1	20.0	---	97	80-120%	---	---	
Bromochloromethane	19.2	---	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
Bromodichloromethane	20.9	---	1.00	ug/L	1	20.0	---	104	80-120%	---	---	
Bromoform	19.2	---	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
Bromomethane	20.2	---	5.00	ug/L	1	20.0	---	101	80-120%	---	---	
2-Butanone (MEK)	42.4	---	10.0	ug/L	1	40.0	---	106	80-120%	---	---	
n-Butylbenzene	18.9	---	1.00	ug/L	1	20.0	---	95	80-120%	---	---	
sec-Butylbenzene	19.4	---	1.00	ug/L	1	20.0	---	97	80-120%	---	---	
tert-Butylbenzene	20.7	---	1.00	ug/L	1	20.0	---	104	80-120%	---	---	
Carbon disulfide	15.4	---	10.0	ug/L	1	20.0	---	77	80-120%	---	---	Q-55
Carbon tetrachloride	21.8	---	1.00	ug/L	1	20.0	---	109	80-120%	---	---	
Chlorobenzene	19.6	---	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
Chloroethane	17.2	---	5.00	ug/L	1	20.0	---	86	80-120%	---	---	
Chloroform	19.9	---	1.00	ug/L	1	20.0	---	99	80-120%	---	---	
Chloromethane	17.1	---	5.00	ug/L	1	20.0	---	86	80-120%	---	---	
2-Chlorotoluene	20.9	---	1.00	ug/L	1	20.0	---	104	80-120%	---	---	
4-Chlorotoluene	21.2	---	1.00	ug/L	1	20.0	---	106	80-120%	---	---	
Dibromochloromethane	20.6	---	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
1,2-Dibromo-3-chloropropane	19.7	---	5.00	ug/L	1	20.0	---	98	80-120%	---	---	
1,2-Dibromoethane (EDB)	21.2	---	0.500	ug/L	1	20.0	---	106	80-120%	---	---	
Dibromomethane	21.0	---	1.00	ug/L	1	20.0	---	105	80-120%	---	---	
1,2-Dichlorobenzene	20.9	---	0.500	ug/L	1	20.0	---	105	80-120%	---	---	
1,3-Dichlorobenzene	20.8	---	0.500	ug/L	1	20.0	---	104	80-120%	---	---	
1,4-Dichlorobenzene	19.6	---	0.500	ug/L	1	20.0	---	98	80-120%	---	---	
Dichlorodifluoromethane	19.2	---	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
1,1-Dichloroethane	19.0	---	0.400	ug/L	1	20.0	---	95	80-120%	---	---	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090406 - EPA 5030B												
Water												
LCS (0090406-BS1)												
Prepared: 09/15/20 09:30						Analyzed: 09/15/20 16:32						
1,2-Dichloroethane (EDC)	20.6	---	0.400	ug/L	1	20.0	---	103	80-120%	---	---	
1,1-Dichloroethene	16.1	---	0.400	ug/L	1	20.0	---	80	80-120%	---	---	
cis-1,2-Dichloroethene	20.6	---	0.400	ug/L	1	20.0	---	103	80-120%	---	---	
trans-1,2-Dichloroethene	19.6	---	0.400	ug/L	1	20.0	---	98	80-120%	---	---	
1,2-Dichloropropane	18.8	---	0.500	ug/L	1	20.0	---	94	80-120%	---	---	
1,3-Dichloropropane	20.6	---	1.00	ug/L	1	20.0	---	103	80-120%	---	---	
2,2-Dichloropropane	26.9	---	1.00	ug/L	1	20.0	---	135	80-120%	---	---	Q-56
1,1-Dichloropropene	21.4	---	1.00	ug/L	1	20.0	---	107	80-120%	---	---	
cis-1,3-Dichloropropene	19.2	---	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
trans-1,3-Dichloropropene	19.9	---	1.00	ug/L	1	20.0	---	100	80-120%	---	---	
Ethylbenzene	21.2	---	0.500	ug/L	1	20.0	---	106	80-120%	---	---	
Hexachlorobutadiene	21.8	---	5.00	ug/L	1	20.0	---	109	80-120%	---	---	
2-Hexanone	40.4	---	10.0	ug/L	1	40.0	---	101	80-120%	---	---	
Isopropylbenzene	19.2	---	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
4-Isopropyltoluene	18.6	---	2.00	ug/L	1	20.0	---	93	80-120%	---	---	
Methylene chloride	21.3	---	10.0	ug/L	1	20.0	---	107	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	43.0	---	10.0	ug/L	1	40.0	---	108	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	21.2	---	1.00	ug/L	1	20.0	---	106	80-120%	---	---	
Naphthalene	16.4	---	4.00	ug/L	1	20.0	---	82	80-120%	---	---	
n-Propylbenzene	19.9	---	0.500	ug/L	1	20.0	---	100	80-120%	---	---	
Styrene	19.4	---	1.00	ug/L	1	20.0	---	97	80-120%	---	---	
1,1,1,2-Tetrachloroethane	21.9	---	0.400	ug/L	1	20.0	---	110	80-120%	---	---	
1,1,2,2-Tetrachloroethane	20.5	---	0.500	ug/L	1	20.0	---	103	80-120%	---	---	
Tetrachloroethene (PCE)	20.0	---	0.400	ug/L	1	20.0	---	100	80-120%	---	---	
Toluene	19.3	---	1.00	ug/L	1	20.0	---	97	80-120%	---	---	
1,2,3-Trichlorobenzene	19.1	---	2.00	ug/L	1	20.0	---	96	80-120%	---	---	
1,2,4-Trichlorobenzene	17.7	---	2.00	ug/L	1	20.0	---	89	80-120%	---	---	
1,1,1-Trichloroethane	21.8	---	0.400	ug/L	1	20.0	---	109	80-120%	---	---	
1,1,2-Trichloroethane	20.3	---	0.500	ug/L	1	20.0	---	101	80-120%	---	---	
Trichloroethene (TCE)	19.5	---	0.400	ug/L	1	20.0	---	98	80-120%	---	---	
Trichlorofluoromethane	20.0	---	2.00	ug/L	1	20.0	---	100	80-120%	---	---	
1,2,3-Trichloropropane	20.2	---	1.00	ug/L	1	20.0	---	101	80-120%	---	---	
1,2,4-Trimethylbenzene	19.3	---	1.00	ug/L	1	20.0	---	96	80-120%	---	---	
1,3,5-Trimethylbenzene	21.3	---	1.00	ug/L	1	20.0	---	107	80-120%	---	---	



Maul Foster & Alongi, INC.	Project: Iron Triangle	
3140 NE Broadway Street	Project Number: 1874.01.02-01	Report ID:
Portland, OR 97232	Project Manager: Kyle Roslund	A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090406 - EPA 5030B												
Water												
LCS (0090406-BS1)			Prepared: 09/15/20 09:30 Analyzed: 09/15/20 16:32									
Vinyl chloride	18.1	---	0.400	ug/L	1	20.0	---	91	80-120%	---	---	
m,p-Xylene	39.2	---	1.00	ug/L	1	40.0	---	98	80-120%	---	---	
o-Xylene	18.7	---	0.500	ug/L	1	20.0	---	94	80-120%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 97 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>96 %</i>		<i>80-120 %</i>		<i>"</i>						

Duplicate (0090406-DUP1)												
Prepared: 09/15/20 12:53 Analyzed: 09/15/20 22:42												
QC Source Sample: Non-SDG (A010256-06)												
Acetone	ND	---	20.0	ug/L	1	---	ND	---	---	---	30%	
Acrylonitrile	ND	---	2.00	ug/L	1	---	ND	---	---	---	30%	
Benzene	ND	---	0.200	ug/L	1	---	ND	---	---	---	30%	
Bromobenzene	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	
Bromochloromethane	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
Bromodichloromethane	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
Bromoform	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
Bromomethane	ND	---	5.00	ug/L	1	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	---	10.0	ug/L	1	---	ND	---	---	---	30%	
n-Butylbenzene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
Carbon disulfide	ND	---	10.0	ug/L	1	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
Chlorobenzene	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	
Chloroethane	ND	---	5.00	ug/L	1	---	ND	---	---	---	30%	
Chloroform	ND	---	1.00	ug/L	1	---	0.690	---	---	---	30%	***
Chloromethane	ND	---	5.00	ug/L	1	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
Dibromochloromethane	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	---	5.00	ug/L	1	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	
Dibromomethane	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090406 - EPA 5030B							Water					
Duplicate (0090406-DUP1)			Prepared: 09/15/20 12:53 Analyzed: 09/15/20 22:42									
QC Source Sample: Non-SDG (A010256-06)												
1,3-Dichlorobenzene	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	---	0.400	ug/L	1	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	0.400	ug/L	1	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	---	0.400	ug/L	1	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	---	0.400	ug/L	1	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	---	0.400	ug/L	1	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	---	5.00	ug/L	1	---	ND	---	---	---	30%	
2-Hexanone	ND	---	10.0	ug/L	1	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	---	2.00	ug/L	1	---	ND	---	---	---	30%	
Methylene chloride	ND	---	10.0	ug/L	1	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	---	10.0	ug/L	1	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
Naphthalene	ND	---	4.00	ug/L	1	---	ND	---	---	---	30%	
n-Propylbenzene	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	
Styrene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	---	0.400	ug/L	1	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	---	0.400	ug/L	1	---	ND	---	---	---	30%	
Toluene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	---	2.00	ug/L	1	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	---	2.00	ug/L	1	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	---	0.400	ug/L	1	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	

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Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090406 - EPA 5030B												
Water												
Duplicate (0090406-DUP1)			Prepared: 09/15/20 12:53 Analyzed: 09/15/20 22:42									
QC Source Sample: Non-SDG (A010256-06)												
Trichloroethene (TCE)	ND	---	0.400	ug/L	1	---	0.210	---	---	***	30%	
Trichlorofluoromethane	ND	---	2.00	ug/L	1	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
Vinyl chloride	ND	---	0.400	ug/L	1	---	ND	---	---	---	30%	
m,p-Xylene	ND	---	1.00	ug/L	1	---	ND	---	---	---	30%	
o-Xylene	ND	---	0.500	ug/L	1	---	ND	---	---	---	30%	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 108 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>100 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>103 %</i>		<i>80-120 %</i>		<i>"</i>						

Matrix Spike (0090406-MS1)

Prepared: 09/15/20 12:53 Analyzed: 09/16/20 02:48

H-01

QC Source Sample: Non-SDG (A010012-16)

EPA 8260D

Acetone	374	---	200	ug/L	10	400	ND	94	39-160%	---	---	
Acrylonitrile	195	---	20.0	ug/L	10	200	ND	97	63-135%	---	---	
Benzene	202	---	2.00	ug/L	10	200	ND	101	79-120%	---	---	
Bromobenzene	195	---	5.00	ug/L	10	200	ND	97	80-120%	---	---	
Bromochloromethane	190	---	10.0	ug/L	10	200	ND	95	78-123%	---	---	
Bromodichloromethane	208	---	10.0	ug/L	10	200	ND	104	79-125%	---	---	
Bromoform	188	---	10.0	ug/L	10	200	ND	94	66-130%	---	---	
Bromomethane	204	---	50.0	ug/L	10	200	ND	102	53-141%	---	---	
2-Butanone (MEK)	386	---	100	ug/L	10	400	ND	97	56-143%	---	---	
n-Butylbenzene	190	---	10.0	ug/L	10	200	ND	95	75-128%	---	---	
sec-Butylbenzene	199	---	10.0	ug/L	10	200	ND	100	77-126%	---	---	
tert-Butylbenzene	211	---	10.0	ug/L	10	200	ND	106	78-124%	---	---	
Carbon disulfide	165	---	100	ug/L	10	200	ND	82	64-133%	---	---	Q-54g
Carbon tetrachloride	227	---	10.0	ug/L	10	200	ND	114	72-136%	---	---	
Chlorobenzene	193	---	5.00	ug/L	10	200	ND	96	80-120%	---	---	
Chloroethane	172	---	50.0	ug/L	10	200	ND	86	60-138%	---	---	
Chloroform	198	---	10.0	ug/L	10	200	ND	99	79-124%	---	---	
Chloromethane	183	---	50.0	ug/L	10	200	ND	91	50-139%	---	---	

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3140 NE Broadway Street
 Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090406 - EPA 5030B						Water						
Matrix Spike (0090406-MS1)						Prepared: 09/15/20 12:53 Analyzed: 09/16/20 02:48						H-01
QC Source Sample: Non-SDG (A010012-16)												
2-Chlorotoluene	208	---	10.0	ug/L	10	200	ND	104	79-122%	---	---	
4-Chlorotoluene	211	---	10.0	ug/L	10	200	ND	106	78-122%	---	---	
Dibromochloromethane	204	---	10.0	ug/L	10	200	ND	102	74-126%	---	---	
1,2-Dibromo-3-chloropropane	183	---	50.0	ug/L	10	200	ND	92	62-128%	---	---	
1,2-Dibromoethane (EDB)	206	---	5.00	ug/L	10	200	ND	103	77-121%	---	---	
Dibromomethane	209	---	10.0	ug/L	10	200	ND	104	79-123%	---	---	
1,2-Dichlorobenzene	211	---	5.00	ug/L	10	200	ND	106	80-120%	---	---	
1,3-Dichlorobenzene	212	---	5.00	ug/L	10	200	ND	106	80-120%	---	---	
1,4-Dichlorobenzene	195	---	5.00	ug/L	10	200	ND	98	79-120%	---	---	
Dichlorodifluoromethane	203	---	10.0	ug/L	10	200	ND	101	32-152%	---	---	
1,1-Dichloroethane	193	---	4.00	ug/L	10	200	3.80	94	77-125%	---	---	
1,2-Dichloroethane (EDC)	195	---	4.00	ug/L	10	200	ND	98	73-128%	---	---	
1,1-Dichloroethene	177	---	4.00	ug/L	10	200	6.30	85	71-131%	---	---	
cis-1,2-Dichloroethene	256	---	4.00	ug/L	10	200	52.3	102	78-123%	---	---	
trans-1,2-Dichloroethene	194	---	4.00	ug/L	10	200	ND	97	75-124%	---	---	
1,2-Dichloropropane	184	---	5.00	ug/L	10	200	ND	92	78-122%	---	---	
1,3-Dichloropropane	195	---	10.0	ug/L	10	200	ND	98	80-120%	---	---	
2,2-Dichloropropane	173	---	10.0	ug/L	10	200	ND	86	60-139%	---	---	Q-54
1,1-Dichloropropene	218	---	10.0	ug/L	10	200	ND	109	79-125%	---	---	
cis-1,3-Dichloropropene	146	---	10.0	ug/L	10	200	ND	73	75-124%	---	---	Q-01
trans-1,3-Dichloropropene	176	---	10.0	ug/L	10	200	ND	88	73-127%	---	---	
Ethylbenzene	213	---	5.00	ug/L	10	200	ND	106	79-121%	---	---	
Hexachlorobutadiene	226	---	50.0	ug/L	10	200	ND	113	66-134%	---	---	
2-Hexanone	366	---	100	ug/L	10	400	ND	91	57-139%	---	---	
Isopropylbenzene	191	---	10.0	ug/L	10	200	ND	95	72-131%	---	---	
4-Isopropyltoluene	188	---	20.0	ug/L	10	200	ND	94	77-127%	---	---	
Methylene chloride	198	---	100	ug/L	10	200	ND	99	74-124%	---	---	
4-Methyl-2-pentanone (MiBK)	390	---	100	ug/L	10	400	ND	97	67-130%	---	---	
Methyl tert-butyl ether (MTBE)	199	---	10.0	ug/L	10	200	ND	99	71-124%	---	---	
Naphthalene	154	---	40.0	ug/L	10	200	ND	77	61-128%	---	---	
n-Propylbenzene	202	---	5.00	ug/L	10	200	ND	101	76-126%	---	---	
Styrene	191	---	10.0	ug/L	10	200	ND	96	78-123%	---	---	
1,1,1,2-Tetrachloroethane	217	---	4.00	ug/L	10	200	ND	108	78-124%	---	---	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC. 3140 NE Broadway Street Portland, OR 97232	Project: Iron Triangle Project Number: 1874.01.02-01 Project Manager: Kyle Roslund	Report ID: A0H0746 - 09 18 20 1525
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QUALITY CONTROL (QC) SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090406 - EPA 5030B						Water						
Matrix Spike (0090406-MS1)						Prepared: 09/15/20 12:53 Analyzed: 09/16/20 02:48						H-01
QC Source Sample: Non-SDG (A010012-16)												
1,1,2,2-Tetrachloroethane	204	---	5.00	ug/L	10	200	ND	102	71-121%	---	---	
Tetrachloroethene (PCE)	1930	---	4.00	ug/L	10	200	1930	-1	74-129%	---	---	Q-03
Toluene	194	---	10.0	ug/L	10	200	ND	97	80-121%	---	---	
1,2,3-Trichlorobenzene	188	---	20.0	ug/L	10	200	ND	94	69-129%	---	---	
1,2,4-Trichlorobenzene	171	---	20.0	ug/L	10	200	ND	85	69-130%	---	---	
1,1,1-Trichloroethane	225	---	4.00	ug/L	10	200	6.00	109	74-131%	---	---	
1,1,2-Trichloroethane	197	---	5.00	ug/L	10	200	ND	99	80-120%	---	---	
Trichloroethene (TCE)	429	---	4.00	ug/L	10	200	265	82	79-123%	---	---	
Trichlorofluoromethane	216	---	20.0	ug/L	10	200	ND	108	65-141%	---	---	
1,2,3-Trichloropropane	195	---	10.0	ug/L	10	200	ND	98	73-122%	---	---	
1,2,4-Trimethylbenzene	196	---	10.0	ug/L	10	200	ND	98	76-124%	---	---	
1,3,5-Trimethylbenzene	220	---	10.0	ug/L	10	200	ND	110	75-124%	---	---	
Vinyl chloride	185	---	4.00	ug/L	10	200	ND	92	58-137%	---	---	
m,p-Xylene	395	---	10.0	ug/L	10	400	ND	99	80-121%	---	---	
o-Xylene	184	---	5.00	ug/L	10	200	ND	92	78-122%	---	---	
<i>Surr: 1,4-Difluorobenzene (Surr)</i>		<i>Recovery: 99 %</i>		<i>Limits: 80-120 %</i>		<i>Dilution: 1x</i>						
<i>Toluene-d8 (Surr)</i>		<i>94 %</i>		<i>80-120 %</i>		<i>"</i>						
<i>4-Bromofluorobenzene (Surr)</i>		<i>98 %</i>		<i>80-120 %</i>		<i>"</i>						



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090248 - EPA 3510C (Neutral pH)						Water						
Blank (0090248-BLK1)						Prepared: 09/09/20 10:11 Analyzed: 09/09/20 17:18						C-07
<u>EPA 8082A</u>												
Aroclor 1016	ND	---	0.0182	ug/L	1	---	---	---	---	---	---	
Aroclor 1221	ND	---	0.0182	ug/L	1	---	---	---	---	---	---	
Aroclor 1232	ND	---	0.0182	ug/L	1	---	---	---	---	---	---	
Aroclor 1242	ND	---	0.0182	ug/L	1	---	---	---	---	---	---	
Aroclor 1248	ND	---	0.0182	ug/L	1	---	---	---	---	---	---	
Aroclor 1254	ND	---	0.0182	ug/L	1	---	---	---	---	---	---	
Aroclor 1260	ND	---	0.0182	ug/L	1	---	---	---	---	---	---	
<i>Surr: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 120 %</i>		<i>Limits: 40-135 %</i>		<i>Dilution: 1x</i>						
LCS (0090248-BS1)						Prepared: 09/09/20 10:11 Analyzed: 09/09/20 17:36						C-07
<u>EPA 8082A</u>												
Aroclor 1016	0.785	---	0.0200	ug/L	1	1.25	---	63	46-129%	---	---	
Aroclor 1260	1.08	---	0.0200	ug/L	1	1.25	---	86	45-134%	---	---	
<i>Surr: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 106 %</i>		<i>Limits: 40-135 %</i>		<i>Dilution: 1x</i>						
LCS Dup (0090248-BSD1)						Prepared: 09/09/20 10:11 Analyzed: 09/09/20 17:53						C-07, Q-19
<u>EPA 8082A</u>												
Aroclor 1016	0.772	---	0.0200	ug/L	1	1.25	---	62	46-129%	2	30%	
Aroclor 1260	1.04	---	0.0200	ug/L	1	1.25	---	83	45-134%	4	30%	
<i>Surr: Decachlorobiphenyl (Surr)</i>		<i>Recovery: 103 %</i>		<i>Limits: 40-135 %</i>		<i>Dilution: 1x</i>						



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QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090280 - EPA 3546												Soil
Blank (0090280-BLK1)												C-07
Prepared: 09/10/20 07:11 Analyzed: 09/10/20 17:41												
<u>EPA 8082A</u>												
Aroclor 1016	ND	---	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1221	ND	---	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1232	ND	---	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1242	ND	---	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1248	ND	---	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1254	ND	---	3.64	ug/kg wet	1	---	---	---	---	---	---	
Aroclor 1260	ND	---	3.64	ug/kg wet	1	---	---	---	---	---	---	
Surr: Decachlorobiphenyl (Surr) Recovery: 93 % Limits: 60-125 % Dilution: 1x												
LCS (0090280-BS1)												C-07
Prepared: 09/10/20 07:11 Analyzed: 09/10/20 17:58												
<u>EPA 8082A</u>												
Aroclor 1016	180	---	4.00	ug/kg wet	1	250	---	72	47-134%	---	---	
Aroclor 1260	215	---	4.00	ug/kg wet	1	250	---	86	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr) Recovery: 95 % Limits: 60-125 % Dilution: 1x												
Duplicate (0090280-DUP1)												C-07
Prepared: 09/10/20 07:11 Analyzed: 09/10/20 18:51												
<u>QC Source Sample: Non-SDG (A0H0768-01)</u>												
Aroclor 1016	ND	---	4.67	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1221	ND	---	6.07	ug/kg dry	1	---	ND	---	---	---	30%	R-02
Aroclor 1232	ND	---	4.67	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1242	ND	---	4.67	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1248	ND	---	4.67	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1254	ND	---	4.67	ug/kg dry	1	---	ND	---	---	---	30%	
Aroclor 1260	ND	---	4.67	ug/kg dry	1	---	ND	---	---	---	30%	
Surr: Decachlorobiphenyl (Surr) Recovery: 82 % Limits: 60-125 % Dilution: 1x												
Matrix Spike (0090280-MS1)												C-07
Prepared: 09/10/20 07:11 Analyzed: 09/10/20 20:02												
<u>QC Source Sample: Non-SDG (A0H0768-02)</u>												
<u>EPA 8082A</u>												
Aroclor 1016	228	---	4.96	ug/kg dry	1	310	ND	73	47-134%	---	---	
Aroclor 1260	252	---	4.96	ug/kg dry	1	310	ND	81	53-140%	---	---	
Surr: Decachlorobiphenyl (Surr) Recovery: 78 % Limits: 60-125 % Dilution: 1x												

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Philip Nerenberg, Lab Director



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6700 S.W. Sandburg Street
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ORELAP ID: OR100062

Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Polychlorinated Biphenyls by EPA 8082A

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090280 - EPA 3546							Soil					

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Maul Foster & Alongi, INC.
3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**
Project Number: **1874.01.02-01**
Project Manager: **Kyle Roslund**

Report ID:
A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E SIM

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090034 - EPA 3510C (Fuels/Acid Ext.)						Water						
Blank (0090034-BLK2)						Prepared: 09/01/20 14:47 Analyzed: 09/05/20 04:18						Q-22
<u>EPA 8270E SIM</u>												
Acenaphthene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Anthracene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Chrysene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Fluoranthene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Fluorene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	0.0727	ug/L	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	0.0727	ug/L	1	---	---	---	---	---	---	
Naphthalene	ND	---	0.0727	ug/L	1	---	---	---	---	---	---	
Phenanthrene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Pyrene	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	
Dibenzofuran	ND	---	0.0364	ug/L	1	---	---	---	---	---	---	



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QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E SIM

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090251 - EPA 3546						Soil						
Blank (0090251-BLK1)			Prepared: 09/09/20 10:22 Analyzed: 09/10/20 03:30									
<u>EPA 8270E SIM</u>												
Acenaphthene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	---	8.33	ug/kg wet	1	---	---	---	---	---	---	
<i>Surr: 2-Fluorobiphenyl (Surr)</i>		<i>Recovery: 75 %</i>		<i>Limits: 44-120 %</i>		<i>Dilution: 1x</i>						
<i>p-Terphenyl-d14 (Surr)</i>		<i>88 %</i>		<i>54-127 %</i>		<i>"</i>						

LCS (0090251-BS1)						Prepared: 09/09/20 10:22 Analyzed: 09/10/20 03:56						
<u>EPA 8270E SIM</u>												
Acenaphthene	690	---	10.0	ug/kg wet	1	800	---	86	40-123%	---	---	
Acenaphthylene	694	---	10.0	ug/kg wet	1	800	---	87	32-132%	---	---	
Anthracene	649	---	10.0	ug/kg wet	1	800	---	81	47-123%	---	---	
Benz(a)anthracene	654	---	10.0	ug/kg wet	1	800	---	82	49-126%	---	---	
Benzo(a)pyrene	660	---	10.0	ug/kg wet	1	800	---	83	45-129%	---	---	
Benzo(b)fluoranthene	707	---	10.0	ug/kg wet	1	800	---	88	45-132%	---	---	
Benzo(k)fluoranthene	688	---	10.0	ug/kg wet	1	800	---	86	47-132%	---	---	
Benzo(g,h,i)perylene	608	---	10.0	ug/kg wet	1	800	---	76	43-134%	---	---	
Chrysene	664	---	10.0	ug/kg wet	1	800	---	83	50-124%	---	---	

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC.

3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E SIM

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090251 - EPA 3546												
Soil												
LCS (0090251-BS1)												
Prepared: 09/09/20 10:22 Analyzed: 09/10/20 03:56												
Dibenz(a,h)anthracene	689	---	10.0	ug/kg wet	1	800	---	86	45-134%	---	---	
Fluoranthene	661	---	10.0	ug/kg wet	1	800	---	83	50-127%	---	---	
Fluorene	645	---	10.0	ug/kg wet	1	800	---	81	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	638	---	10.0	ug/kg wet	1	800	---	80	45-133%	---	---	
1-Methylnaphthalene	635	---	10.0	ug/kg wet	1	800	---	79	40-120%	---	---	
2-Methylnaphthalene	635	---	10.0	ug/kg wet	1	800	---	79	38-122%	---	---	
Naphthalene	617	---	10.0	ug/kg wet	1	800	---	77	35-123%	---	---	
Phenanthrene	649	---	10.0	ug/kg wet	1	800	---	81	50-121%	---	---	
Pyrene	653	---	10.0	ug/kg wet	1	800	---	82	47-127%	---	---	
Dibenzofuran	652	---	10.0	ug/kg wet	1	800	---	81	44-120%	---	---	
<i>Surr: 2-Fluorobiphenyl (Surr)</i>		<i>Recovery: 77 %</i>		<i>Limits: 44-120 %</i>		<i>Dilution: 1x</i>						
<i>p-Terphenyl-d14 (Surr)</i>		<i>84 %</i>		<i>54-127 %</i>		<i>"</i>						

Duplicate (0090251-DUP1)

Prepared: 09/09/20 10:22 Analyzed: 09/10/20 04:49

QC Source Sample: B03-S-5.0 (A0H0746-02)

EPA 8270E SIM

Acenaphthene	ND	---	10.8	ug/kg dry	1	---	ND	---	---	---	30%	
Acenaphthylene	ND	---	10.8	ug/kg dry	1	---	ND	---	---	---	30%	
Anthracene	ND	---	10.8	ug/kg dry	1	---	ND	---	---	---	30%	
Benz(a)anthracene	ND	---	10.8	ug/kg dry	1	---	ND	---	---	---	30%	
Benzo(a)pyrene	ND	---	10.8	ug/kg dry	1	---	ND	---	---	---	30%	
Benzo(b)fluoranthene	ND	---	10.8	ug/kg dry	1	---	ND	---	---	---	30%	
Benzo(k)fluoranthene	ND	---	10.8	ug/kg dry	1	---	ND	---	---	---	30%	
Benzo(g,h,i)perylene	ND	---	10.8	ug/kg dry	1	---	ND	---	---	---	30%	
Chrysene	ND	---	10.8	ug/kg dry	1	---	ND	---	---	---	30%	
Dibenz(a,h)anthracene	ND	---	10.8	ug/kg dry	1	---	ND	---	---	---	30%	
Fluoranthene	ND	---	10.8	ug/kg dry	1	---	5.88	---	---	***	30%	Q-05
Fluorene	ND	---	10.8	ug/kg dry	1	---	ND	---	---	---	30%	
Indeno(1,2,3-cd)pyrene	ND	---	10.8	ug/kg dry	1	---	ND	---	---	---	30%	
1-Methylnaphthalene	ND	---	10.8	ug/kg dry	1	---	ND	---	---	---	30%	
2-Methylnaphthalene	ND	---	10.8	ug/kg dry	1	---	6.19	---	---	***	30%	Q-05
Naphthalene	ND	---	10.8	ug/kg dry	1	---	14.6	---	---	***	30%	Q-05
Phenanthrene	ND	---	10.8	ug/kg dry	1	---	14.6	---	---	***	30%	Q-05
Pyrene	ND	---	10.8	ug/kg dry	1	---	5.44	---	---	***	30%	Q-05

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Maul Foster & Alongi, INC.	Project: Iron Triangle	
3140 NE Broadway Street	Project Number: 1874.01.02-01	Report ID:
Portland, OR 97232	Project Manager: Kyle Roslund	A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E SIM

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090251 - EPA 3546												
Soil												
Duplicate (0090251-DUP1)												
						Prepared: 09/09/20 10:22 Analyzed: 09/10/20 04:49						
QC Source Sample: B03-S-5.0 (A0H0746-02)												
Dibenzofuran	ND	---	10.8	ug/kg dry	1	---	ND	---	---	---	30%	
<i>Surr: 2-Fluorobiphenyl (Surr)</i>		<i>Recovery: 70 %</i>		<i>Limits: 44-120 %</i>		<i>Dilution: 1x</i>						
<i>p-Terphenyl-d14 (Surr)</i>		<i>76 %</i>		<i>54-127 %</i>		<i>"</i>						

Matrix Spike (0090251-MS1)												
						Prepared: 09/09/20 10:22 Analyzed: 09/10/20 05:41						
QC Source Sample: Non-SDG (A010114-21)												
EPA 8270E SIM												
Acenaphthene	702	---	23.0	ug/kg dry	1	874	ND	80	40-123%	---	---	
Acenaphthylene	702	---	16.4	ug/kg dry	1	874	ND	80	32-132%	---	---	
Anthracene	661	---	42.6	ug/kg dry	1	874	ND	71	47-123%	---	---	
Benz(a)anthracene	771	---	10.9	ug/kg dry	1	874	115	75	49-126%	---	---	
Benzo(a)pyrene	1050	---	10.9	ug/kg dry	1	874	122	106	45-129%	---	---	
Benzo(b)fluoranthene	992	---	10.9	ug/kg dry	1	874	157	96	45-132%	---	---	
Benzo(k)fluoranthene	760	---	10.9	ug/kg dry	1	874	47.5	82	47-132%	---	---	
Benzo(g,h,i)perylene	1010	---	10.9	ug/kg dry	1	874	79.9	107	43-134%	---	---	
Chrysene	809	---	10.9	ug/kg dry	1	874	139	77	50-124%	---	---	
Dibenz(a,h)anthracene	724	---	10.9	ug/kg dry	1	874	20.4	80	45-134%	---	---	
Fluoranthene	835	---	10.9	ug/kg dry	1	874	224	70	50-127%	---	---	
Fluorene	695	---	10.9	ug/kg dry	1	874	39.1	75	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	964	---	10.9	ug/kg dry	1	874	80.3	101	45-133%	---	---	
1-Methylnaphthalene	844	---	10.9	ug/kg dry	1	874	144	80	40-120%	---	---	
2-Methylnaphthalene	912	---	10.9	ug/kg dry	1	874	178	84	38-122%	---	---	
Naphthalene	741	---	10.9	ug/kg dry	1	874	115	72	35-123%	---	---	
Phenanthrene	868	---	10.9	ug/kg dry	1	874	277	68	50-121%	---	---	
Pyrene	879	---	10.9	ug/kg dry	1	874	221	75	47-127%	---	---	
Dibenzofuran	723	---	10.9	ug/kg dry	1	874	47.7	77	44-120%	---	---	
<i>Surr: 2-Fluorobiphenyl (Surr)</i>		<i>Recovery: 67 %</i>		<i>Limits: 44-120 %</i>		<i>Dilution: 1x</i>						
<i>p-Terphenyl-d14 (Surr)</i>		<i>77 %</i>		<i>54-127 %</i>		<i>"</i>						



Maul Foster & Alongi, INC. 3140 NE Broadway Street Portland, OR 97232	Project: Iron Triangle Project Number: 1874.01.02-01 Project Manager: Kyle Roslund	Report ID: A0H0746 - 09 18 20 1525
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QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090288 - EPA 3051A												
Soil												
Blank (0090288-BLK1) Prepared: 09/10/20 10:08 Analyzed: 09/10/20 20:31												
<u>EPA 6020A</u>												
Arsenic	ND	---	0.962	mg/kg wet	10	---	---	---	---	---	---	
Barium	ND	---	0.962	mg/kg wet	10	---	---	---	---	---	---	
Cadmium	ND	---	0.192	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	---	0.962	mg/kg wet	10	---	---	---	---	---	---	
Lead	ND	---	0.192	mg/kg wet	10	---	---	---	---	---	---	
Mercury	ND	---	0.0769	mg/kg wet	10	---	---	---	---	---	---	
Selenium	ND	---	0.962	mg/kg wet	10	---	---	---	---	---	---	
Silver	ND	---	0.192	mg/kg wet	10	---	---	---	---	---	---	
LCS (0090288-BS1) Prepared: 09/10/20 10:08 Analyzed: 09/10/20 20:40												
<u>EPA 6020A</u>												
Arsenic	50.6	---	1.00	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Barium	53.8	---	1.00	mg/kg wet	10	50.0	---	108	80-120%	---	---	
Cadmium	50.7	---	0.200	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Chromium	52.1	---	1.00	mg/kg wet	10	50.0	---	104	80-120%	---	---	
Lead	47.2	---	0.200	mg/kg wet	10	50.0	---	94	80-120%	---	---	
Mercury	0.943	---	0.0800	mg/kg wet	10	1.00	---	94	80-120%	---	---	
Selenium	25.0	---	1.00	mg/kg wet	10	25.0	---	100	80-120%	---	---	
Silver	26.6	---	0.200	mg/kg wet	10	25.0	---	106	80-120%	---	---	
Duplicate (0090288-DUP1) Prepared: 09/10/20 10:08 Analyzed: 09/10/20 21:22												
<u>QC Source Sample: B04-S-5.5 (A0H0746-04)</u>												
<u>EPA 6020A</u>												
Arsenic	3.48	---	1.08	mg/kg dry	10	---	2.92	---	---	18	20%	
Barium	167	---	1.08	mg/kg dry	10	---	122	---	---	32	20%	Q-04
Cadmium	ND	---	0.215	mg/kg dry	10	---	0.109	---	---	***	20%	Q-05
Chromium	16.0	---	1.08	mg/kg dry	10	---	13.4	---	---	18	20%	
Lead	7.81	---	0.215	mg/kg dry	10	---	6.21	---	---	23	20%	Q-04
Mercury	ND	---	0.0861	mg/kg dry	10	---	0.0675	---	---	***	20%	
Selenium	ND	---	1.08	mg/kg dry	10	---	ND	---	---	---	20%	
Silver	ND	---	0.215	mg/kg dry	10	---	ND	---	---	---	20%	
Matrix Spike (0090288-MS1) Prepared: 09/10/20 10:08 Analyzed: 09/10/20 21:27												

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Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020A (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090288 - EPA 3051A						Soil						
Matrix Spike (0090288-MS1)						Prepared: 09/10/20 10:08 Analyzed: 09/10/20 21:27						
QC Source Sample: B04-S-5.5 (A0H0746-04)												
EPA 6020A												
Arsenic	56.4	---	1.08	mg/kg dry	10	54.1	2.92	99	75-125%	---	---	
Barium	186	---	1.08	mg/kg dry	10	54.1	122	120	75-125%	---	---	
Cadmium	54.3	---	0.216	mg/kg dry	10	54.1	0.109	100	75-125%	---	---	
Chromium	67.0	---	1.08	mg/kg dry	10	54.1	13.4	99	75-125%	---	---	
Lead	56.3	---	0.216	mg/kg dry	10	54.1	6.21	93	75-125%	---	---	
Mercury	1.03	---	0.0866	mg/kg dry	10	1.08	0.0675	89	75-125%	---	---	
Selenium	26.0	---	1.08	mg/kg dry	10	27.1	ND	96	75-125%	---	---	
Silver	28.1	---	0.216	mg/kg dry	10	27.1	ND	104	75-125%	---	---	



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QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 200.8 (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090250 - Matrix Matched Direct Inject						Water						
Blank (0090250-BLK1)						Prepared: 09/09/20 10:20 Analyzed: 09/09/20 22:24						
<u>EPA 200.8 (Diss)</u>												
Arsenic	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Barium	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Cadmium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Chromium	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Lead	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Selenium	ND	---	1.00	ug/L	1	---	---	---	---	---	---	
Silver	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
<u>EPA 200.8 (Hg)</u>												
Mercury	ND	---	0.0800	ug/L	1	---	---	---	---	---	---	
LCS (0090250-BS1)						Prepared: 09/09/20 10:20 Analyzed: 09/09/20 22:29						
<u>EPA 200.8 (Diss)</u>												
Arsenic	53.7	---	1.00	ug/L	1	55.6	---	97	85-115%	---	---	
Barium	55.2	---	1.00	ug/L	1	55.6	---	99	85-115%	---	---	
Cadmium	56.5	---	0.200	ug/L	1	55.6	---	102	85-115%	---	---	
Chromium	53.3	---	1.00	ug/L	1	55.6	---	96	85-115%	---	---	
Lead	56.3	---	1.00	ug/L	1	55.6	---	101	85-115%	---	---	
Silver	29.3	---	0.200	ug/L	1	27.8	---	106	85-115%	---	---	
<u>EPA 200.8 (Hg)</u>												
Mercury	1.10	---	0.0800	ug/L	1	1.11	---	99	85-115%	---	---	
LCS (0090250-BS3)						Prepared: 09/09/20 10:20 Analyzed: 09/10/20 13:26						
<u>EPA 200.8 (Diss)</u>												
Selenium	27.2	---	1.00	ug/L	1	27.8	---	98	85-115%	---	---	Q-16
Duplicate (0090250-DUP1)						Prepared: 09/09/20 10:20 Analyzed: 09/09/20 23:02						
<u>QC Source Sample: Non-SDG (A0H0755-01)</u>												
Arsenic	1.05	---	1.00	ug/L	1	---	1.05	---	---	0.4	20%	
Barium	33.5	---	1.00	ug/L	1	---	32.9	---	---	2	20%	
Cadmium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	
Chromium	ND	---	1.00	ug/L	1	---	0.762	---	---	***	20%	
Lead	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	
Selenium	ND	---	1.00	ug/L	1	---	ND	---	---	---	20%	

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Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 200.8 (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090250 - Matrix Matched Direct Inject						Water						
Duplicate (0090250-DUP1)						Prepared: 09/09/20 10:20 Analyzed: 09/09/20 23:02						
QC Source Sample: Non-SDG (A0H0755-01)												
Silver	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	
Mercury	ND	---	0.0800	ug/L	1	---	ND	---	---	---	20%	
Matrix Spike (0090250-MS1)						Prepared: 09/09/20 10:20 Analyzed: 09/09/20 23:07						
QC Source Sample: Non-SDG (A0H0755-01)												
EPA 200.8 (Diss)												
Arsenic	55.1	---	1.00	ug/L	1	55.6	1.05	97	70-130%	---	---	
Barium	88.1	---	1.00	ug/L	1	55.6	32.9	99	70-130%	---	---	
Cadmium	57.4	---	0.200	ug/L	1	55.6	ND	103	70-130%	---	---	
Chromium	53.8	---	1.00	ug/L	1	55.6	0.762	96	70-130%	---	---	
Lead	56.0	---	1.00	ug/L	1	55.6	ND	101	70-130%	---	---	
Selenium	28.4	---	1.00	ug/L	1	27.8	ND	102	70-130%	---	---	
Silver	29.1	---	0.200	ug/L	1	27.8	ND	105	70-130%	---	---	
EPA 200.8 (Hg)												
Mercury	1.11	---	0.0800	ug/L	1	1.11	ND	100	70-130%	---	---	



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A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 200.8 (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090254 - EPA 3015A - Dissolved						Water						
Blank (0090254-BLK1)						Prepared: 09/09/20 10:59 Analyzed: 09/09/20 21:56						
<u>EPA 200.8 (Diss)</u>												
Arsenic	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
Barium	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
Cadmium	ND	---	0.200	ug/L	1	---	---	---	---	---	---	---
Chromium	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
Lead	ND	---	0.200	ug/L	1	---	---	---	---	---	---	---
Selenium	ND	---	1.00	ug/L	1	---	---	---	---	---	---	---
Silver	ND	---	0.200	ug/L	1	---	---	---	---	---	---	---
<u>EPA 200.8 (Hg)</u>												
Mercury	ND	---	0.0800	ug/L	1	---	---	---	---	---	---	---
LCS (0090254-BS1)						Prepared: 09/09/20 10:59 Analyzed: 09/09/20 22:01						
<u>EPA 200.8 (Diss)</u>												
Arsenic	54.6	---	1.00	ug/L	1	55.6	---	98	85-115%	---	---	---
Barium	55.4	---	1.00	ug/L	1	55.6	---	100	85-115%	---	---	---
Cadmium	56.4	---	0.200	ug/L	1	55.6	---	101	85-115%	---	---	---
Chromium	53.7	---	1.00	ug/L	1	55.6	---	97	85-115%	---	---	---
Lead	55.2	---	0.200	ug/L	1	55.6	---	99	85-115%	---	---	---
Selenium	27.8	---	1.00	ug/L	1	27.8	---	100	85-115%	---	---	---
Silver	29.0	---	0.200	ug/L	1	27.8	---	105	85-115%	---	---	---
<u>EPA 200.8 (Hg)</u>												
Mercury	1.09	---	0.0800	ug/L	1	1.11	---	98	85-115%	---	---	---
Duplicate (0090254-DUP1)						Prepared: 09/09/20 10:59 Analyzed: 09/09/20 22:15						
<u>QC Source Sample: Non-SDG (A0H0755-02)</u>												
Arsenic	1.17	---	1.00	ug/L	1	---	1.17	---	---	0.4	20%	---
Barium	216	---	1.00	ug/L	1	---	210	---	---	2	20%	---
Cadmium	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	---
Chromium	7.73	---	1.00	ug/L	1	---	7.59	---	---	2	20%	---
Lead	2.36	---	0.200	ug/L	1	---	2.36	---	---	0.08	20%	---
Selenium	ND	---	1.00	ug/L	1	---	ND	---	---	---	20%	---
Silver	ND	---	0.200	ug/L	1	---	ND	---	---	---	20%	---
Mercury	ND	---	0.0800	ug/L	1	---	ND	---	---	---	20%	---

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Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

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A0H0746 - 09 18 20 1525

QUALITY CONTROL (QC) SAMPLE RESULTS

Dissolved Metals by EPA 200.8 (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0090254 - EPA 3015A - Dissolved						Water						
Matrix Spike (0090254-MS1)						Prepared: 09/09/20 10:59 Analyzed: 09/09/20 22:20						
QC Source Sample: Non-SDG (A0H0755-02)												
EPA 200.8 (Diss)												
Arsenic	55.6	---	1.00	ug/L	1	55.6	1.17	98	70-130%	---	---	
Barium	268	---	1.00	ug/L	1	55.6	210	105	70-130%	---	---	
Cadmium	56.8	---	0.200	ug/L	1	55.6	ND	102	70-130%	---	---	
Chromium	60.7	---	1.00	ug/L	1	55.6	7.59	96	70-130%	---	---	
Lead	56.8	---	0.200	ug/L	1	55.6	2.36	98	70-130%	---	---	
Selenium	28.7	---	1.00	ug/L	1	27.8	ND	103	70-130%	---	---	
Silver	28.8	---	0.200	ug/L	1	27.8	ND	104	70-130%	---	---	
EPA 200.8 (Hg)												
Mercury	1.09	---	0.0800	ug/L	1	1.11	ND	98	70-130%	---	---	



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QUALITY CONTROL (QC) SAMPLE RESULTS

Percent Dry Weight

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 0080909 - Total Solids (Dry Weight) Soil												
Duplicate (0080909-DUP1) Prepared: 08/31/20 08:13 Analyzed: 09/01/20 08:31												
<u>QC Source Sample: Non-SDG (A0H0268-10)</u>												
% Solids	77.5	---	1.00	%	1	---	77.1	---	---	0.5	10%	
Duplicate (0080909-DUP2) Prepared: 08/31/20 08:13 Analyzed: 09/01/20 08:31												
<u>QC Source Sample: Non-SDG (A0H0701-04)</u>												
% Solids	97.0	---	1.00	%	1	---	97.1	---	---	0.1	10%	
Duplicate (0080909-DUP3) Prepared: 08/31/20 08:13 Analyzed: 09/01/20 08:31												
<u>QC Source Sample: Non-SDG (A0H0715-04)</u>												
% Solids	90.9	---	1.00	%	1	---	91.8	---	---	1	10%	
Duplicate (0080909-DUP4) Prepared: 08/31/20 08:14 Analyzed: 09/01/20 08:31												
<u>QC Source Sample: B04-S-5.5 (A0H0746-04)</u>												
<u>EPA 8000D</u>												
% Solids	91.6	---	1.00	%	1	---	90.8	---	---	0.9	10%	
Duplicate (0080909-DUP5) Prepared: 08/31/20 08:14 Analyzed: 09/01/20 08:31												
<u>QC Source Sample: Non-SDG (A0H0763-05)</u>												
% Solids	84.5	---	1.00	%	1	---	84.8	---	---	0.4	10%	
Duplicate (0080909-DUP6) Prepared: 08/31/20 19:35 Analyzed: 09/01/20 08:31												
<u>QC Source Sample: Non-SDG (A0H0789-01)</u>												
% Solids	79.6	---	1.00	%	1	---	79.2	---	---	0.6	10%	
Duplicate (0080909-DUP7) Prepared: 08/31/20 19:35 Analyzed: 09/01/20 08:31												
<u>QC Source Sample: Non-SDG (A0H0794-02)</u>												
% Solids	76.9	---	1.00	%	1	---	76.3	---	---	0.8	10%	

No Client related Batch QC samples analyzed for this batch. See notes page for more information.

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Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

SAMPLE PREPARATION INFORMATION

Hydrocarbon Identification Screen by NWTPH-HCID

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 0080922</u>							
A0H0746-07	Water	NWTPH-HCID	08/26/20 13:14	08/31/20 15:27	980mL/5mL	1000mL/5mL	1.02
A0H0746-08	Water	NWTPH-HCID	08/26/20 13:54	08/31/20 15:27	950mL/5mL	1000mL/5mL	1.05
<u>Batch: 0090034</u>							
A0H0746-09RE1	Water	NWTPH-HCID	08/26/20 14:28	09/01/20 14:47	980mL/5mL	1000mL/5mL	1.02
A0H0746-10	Water	NWTPH-HCID	08/26/20 15:04	09/01/20 14:47	970mL/5mL	1000mL/5mL	1.03

Prep: NWTPH-HCID (Soil)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 0090028</u>							
A0H0746-01	Soil	NWTPH-HCID	08/26/20 08:30	09/01/20 13:05	10.61g/10mL	10g/10mL	0.94
A0H0746-02	Soil	NWTPH-HCID	08/26/20 09:30	09/01/20 13:05	10.22g/10mL	10g/10mL	0.98
A0H0746-03	Soil	NWTPH-HCID	08/26/20 10:30	09/01/20 13:05	10.59g/10mL	10g/10mL	0.94
A0H0746-04	Soil	NWTPH-HCID	08/26/20 12:00	09/01/20 13:05	10.18g/10mL	10g/10mL	0.98
A0H0746-05	Soil	NWTPH-HCID	08/26/20 12:15	09/01/20 13:05	10.2g/10mL	10g/10mL	0.98

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 0090034</u>							
A0H0746-10	Water	NWTPH-Dx	08/26/20 15:04	09/01/20 14:47	970mL/5mL	1000mL/5mL	1.03

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 0090263</u>							
A0H0746-02	Soil	NWTPH-Dx	08/26/20 09:30	09/09/20 12:47	10.36g/5mL	10g/5mL	0.97
A0H0746-05RE1	Soil	NWTPH-Dx	08/26/20 12:15	09/09/20 12:47	5.3g/5mL	10g/5mL	1.89

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 0090223</u>							
A0H0746-05	Soil	NWTPH-Gx (MS)	08/26/20 12:15	08/26/20 12:15	3.05g/5mL	5g/5mL	1.64

Apex Laboratories

Philip Nerenberg, Lab Director

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Maul Foster & Alongi, INC.
 3140 NE Broadway Street
 Portland, OR 97232

Project: **Iron Triangle**
 Project Number: **1874.01.02-01**
 Project Manager: **Kyle Roslund**

Report ID:
A0H0746 - 09 18 20 1525

SAMPLE PREPARATION INFORMATION

Volatile Organic Compounds by EPA 8260D

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 0090406</u>							
A0H0746-06	Water	EPA 8260D	08/26/20 00:00	09/15/20 12:53	5mL/5mL	5mL/5mL	1.00
A0H0746-11	Water	EPA 8260D	08/26/20 00:00	09/15/20 12:53	5mL/5mL	5mL/5mL	1.00

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 0090223</u>							
A0H0746-05	Soil	5035A/8260D	08/26/20 12:15	08/26/20 12:15	3.05g/5mL	5g/5mL	1.64

Polychlorinated Biphenyls by EPA 8082A

Prep: EPA 3510C (Neutral pH)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 0090248</u>							
A0H0746-10	Water	EPA 8082A	08/26/20 15:04	09/09/20 10:11	1010mL/5mL	1000mL/5mL	0.99

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 0090280</u>							
A0H0746-02	Soil	EPA 8082A	08/26/20 09:30	09/10/20 07:11	10.07g/5mL	10g/5mL	0.99
A0H0746-05	Soil	EPA 8082A	08/26/20 12:15	09/10/20 07:11	10.11g/5mL	10g/5mL	0.99

Polyaromatic Hydrocarbons (PAHs) by EPA 8270E SIM

Prep: EPA 3510C (Fuels/Acid Ext.)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 0090034</u>							
A0H0746-10	Water	EPA 8270E SIM	08/26/20 15:04	09/01/20 14:47	970mL/5mL	1000mL/2mL	2.58

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
<u>Batch: 0090251</u>							
A0H0746-02	Soil	EPA 8270E SIM	08/26/20 09:30	09/09/20 10:22	11.06g/5mL	10g/5mL	0.90
A0H0746-05	Soil	EPA 8270E SIM	08/26/20 12:15	09/09/20 12:29	10.07g/5mL	10g/5mL	0.99

Total Metals by EPA 6020A (ICPMS)

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Philip Nerenberg, Lab Director



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3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**

Project Number: **1874.01.02-01**

Project Manager: **Kyle Roslund**

Report ID:

A0H0746 - 09 18 20 1525

SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020A (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 0090288							
A0H0746-01	Soil	EPA 6020A	08/26/20 08:30	09/10/20 10:08	0.492g/50mL	0.5g/50mL	1.02
A0H0746-02	Soil	EPA 6020A	08/26/20 09:30	09/10/20 10:08	0.483g/50mL	0.5g/50mL	1.04
A0H0746-03	Soil	EPA 6020A	08/26/20 10:30	09/10/20 10:08	0.496g/50mL	0.5g/50mL	1.01
A0H0746-04	Soil	EPA 6020A	08/26/20 12:00	09/10/20 10:08	0.515g/50mL	0.5g/50mL	0.97
A0H0746-05	Soil	EPA 6020A	08/26/20 12:15	09/10/20 10:08	0.518g/50mL	0.5g/50mL	0.97

Dissolved Metals by EPA 200.8 (ICPMS)

Prep: EPA 3015A - Dissolved

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 0090254							
A0H0746-07	Water	EPA 200.8 (Diss)	08/26/20 13:14	09/09/20 10:59	45mL/50mL	45mL/50mL	1.00
A0H0746-07	Water	EPA 200.8 (Hg)	08/26/20 13:14	09/09/20 10:59	45mL/50mL	45mL/50mL	1.00

Prep: Matrix Matched Direct Inject

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 0090250							
A0H0746-08	Water	EPA 200.8 (Diss)	08/26/20 13:54	09/09/20 10:20	45mL/50mL	45mL/50mL	1.00
A0H0746-08	Water	EPA 200.8 (Hg)	08/26/20 13:54	09/09/20 10:20	45mL/50mL	45mL/50mL	1.00
A0H0746-09	Water	EPA 200.8 (Diss)	08/26/20 14:28	09/09/20 10:20	45mL/50mL	45mL/50mL	1.00
A0H0746-09	Water	EPA 200.8 (Hg)	08/26/20 14:28	09/09/20 10:20	45mL/50mL	45mL/50mL	1.00
A0H0746-10	Water	EPA 200.8 (Diss)	08/26/20 15:04	09/09/20 10:20	45mL/50mL	45mL/50mL	1.00
A0H0746-10	Water	EPA 200.8 (Hg)	08/26/20 15:04	09/09/20 10:20	45mL/50mL	45mL/50mL	1.00

Percent Dry Weight

Prep: Total Solids (Dry Weight)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 0080909							
A0H0746-01	Soil	EPA 8000D	08/26/20 08:30	08/31/20 08:14			NA
A0H0746-02	Soil	EPA 8000D	08/26/20 09:30	08/31/20 08:14			NA
A0H0746-03	Soil	EPA 8000D	08/26/20 10:30	08/31/20 08:14			NA
A0H0746-04	Soil	EPA 8000D	08/26/20 12:00	08/31/20 08:14			NA
A0H0746-05	Soil	EPA 8000D	08/26/20 12:15	08/31/20 08:14			NA

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Maul Foster & Alongi, INC. 3140 NE Broadway Street Portland, OR 97232	Project: Iron Triangle Project Number: 1874.01.02-01 Project Manager: Kyle Roslund	Report ID: A0H0746 - 09 18 20 1525
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QUALIFIER DEFINITIONS

Client Sample and Quality Control (QC) Sample Qualifier Definitions:

Apex Laboratories

- C-07** Extract has undergone Sulfuric Acid Cleanup by EPA 3665A, Sulfur Cleanup by EPA 3660B, and Florisil Cleanup by EPA 3620B in order to minimize matrix interference.
- F-09** Results in the Gasoline Range are primarily due to overlap from a heavier fuel hydrocarbon product.
- F-11** The hydrocarbon pattern indicates possible weathered diesel, mineral oil, or a contribution from a related component.
- F-13** The chromatographic pattern does not resemble the fuel standard used for quantitation
- F-15** Results for diesel are estimated due to overlap from the reported oil result.
- F-16** Results for oil are estimated due to overlap from the reported diesel result.
- H-01** This sample was analyzed outside the recommended holding time.
- PRES** Incomplete field preservation. Additional preservative was added to adjust the pH within the appropriate range for this analysis.
- Q-01** Spike recovery and/or RPD is outside acceptance limits.
- Q-03** Spike recovery and/or RPD is outside control limits due to the high concentration of analyte present in the sample.
- Q-04** Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
- Q-05** Analyses are not controlled on RPD values from sample and duplicate concentrations that are below 5 times the reporting level.
- Q-16** Reanalysis of an original Batch QC sample.
- Q-19** Blank Spike Duplicate (BSD) sample analyzed in place of Matrix Spike/Duplicate samples due to limited sample amount available for analysis.
- Q-22** Due to limited sample volume or hold time restraints, the NWTPH-Dx extract was used for the 8270 SIM PAH analysis. Therefore no PAH Surrogates and/or Batch QC results are available. Results are Estimated Values.
- Q-39** Results for sample duplicate are significantly higher than the sample results. See duplicate results in QC section of the report.
- Q-42** Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)
- Q-54** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +15%. The results are reported as Estimated Values.
- Q-54a** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +19%. The results are reported as Estimated Values.
- Q-54b** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +22%. The results are reported as Estimated Values.
- Q-54c** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +29%. The results are reported as Estimated Values.
- Q-54d** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +46%. The results are reported as Estimated Values.



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- Q-54e** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +6%. The results are reported as Estimated Values.
- Q-54f** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +72%. The results are reported as Estimated Values.
- Q-54g** Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by -3%. The results are reported as Estimated Values.
- Q-55** Daily CCV/LCS recovery for this analyte was below the +/-20% criteria listed in EPA 8260, however there is adequate sensitivity to ensure detection at the reporting level.
- Q-56** Daily CCV/LCS recovery for this analyte was above the +/-20% criteria listed in EPA 8260
- R-02** The Reporting Limit for this analyte has been raised to account for interference from coeluting organic compounds present in the sample.
- S-01** Surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.



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REPORTING NOTES AND CONVENTIONS:

Abbreviations:

- DET Analyte DETECTED at or above the detection or reporting limit.
- ND Analyte NOT DETECTED at or above the detection or reporting limit.
- NR Result Not Reported
- RPD Relative Percent Difference. RPDs for Matrix Spikes and Matrix Spike Duplicates are based on concentration, not recovery.

Detection Limits: Limit of Detection (LOD)

Limits of Detection (LODs) are normally set at a level of one half the validated Limit of Quantitation (LOQ).
If no value is listed ('-----'), then the data has not been evaluated below the Reporting Limit.

Reporting Limits: Limit of Quantitation (LOQ)

Validated Limits of Quantitation (LOQs) are reported as the Reporting Limits for all analyses where the LOQ, MRL, PQL or CRL are requested. The LOQ represents a level at or above the low point of the calibration curve, that has been validated according to Apex Laboratories' comprehensive LOQ policies and procedures.

Reporting Conventions:

- Basis: Results for soil samples are generally reported on a 100% dry weight basis.
The Result Basis is listed following the units as " dry", " wet", or " " (blank) designation.
 - " dry" Sample results and Reporting Limits are reported on a dry weight basis. (i.e. "ug/kg dry")
See Percent Solids section for details of dry weight analysis.
 - " wet" Sample results and Reporting Limits for this analysis are normally dry weight corrected, but have not been modified in this case.
 - " " Results without 'wet' or 'dry' designation are not normally dry weight corrected. These results are considered 'As Received'.

QC Source:

In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) may be analyzed to demonstrate accuracy and precision of the extraction batch.

Non-Client Batch QC Samples (Duplicates and Matrix Spike/Duplicates) may not be included in this report. Please request a Full QC report if this data is required.

Miscellaneous Notes:

- " --- " QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
- " *** " Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to 1/2 the Reporting Limit (RL).
-For Blank hits falling between 1/2 the RL and the RL (J flagged hits), the associated sample and QC data will receive a 'B-02' qualifier.
-For Blank hits above the RL, the associated sample and QC data will receive a 'B' qualifier, per Apex Laboratories' Blank Policy.
For further details, please request a copy of this document.



Maul Foster & Alongi, INC. 3140 NE Broadway Street Portland, OR 97232	Project: Iron Triangle Project Number: 1874.01.02-01 Project Manager: Kyle Roslund	Report ID: A0H0746 - 09 18 20 1525
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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks (Cont.):

Sample results flagged with a 'B' or 'B-02' qualifier are potentially biased high if the sample results are less than ten times the level found in the blank for inorganic analyses, or less than five times the level found in the blank for organic analyses.

'B' and 'B-02' qualifications are only applied to sample results detected above the Reporting Level.

Preparation Notes:

Mixed Matrix Samples:

Water Samples:

Water samples containing significant amounts of sediment are decanted or separated prior to extraction, and only the water portion analyzed, unless otherwise directed by the client.

Soil and Sediment Samples:

Soil and Sediment samples containing significant amounts of water are decanted prior to extraction, and only the solid portion analyzed, unless otherwise directed by the client.

Sampling and Preservation Notes:

Certain regulatory programs, such as National Pollutant Discharge Elimination System (NPDES), require that activities such as sample filtration (for dissolved metals, orthophosphate, hexavalent chromium, etc.) and testing of short hold analytes (pH, Dissolved Oxygen, etc.) be performed in the field (on-site) within a short time window. In addition, sample matrix spikes are required for some analyses, and sufficient volume must be provided, and billable site specific QC requested, if this is required. All regulatory permits should be reviewed to ensure that these requirements are being met.

Data users should be aware of which regulations pertain to the samples they submit for testing. If related sample collection activities are not approved for a particular regulatory program, results should be considered estimates. Apex Laboratories will qualify these analytes according to the most stringent requirements, however results for samples that are for non-regulatory purposes may be acceptable.

Samples that have been filtered and preserved at Apex Laboratories per client request are listed in the preparation section of the report with the date and time of filtration listed.

Apex Laboratories maintains detailed records on sample receipt, including client label verification, cooler temperature, sample preservation, hold time compliance and field filtration. Data is qualified as necessary, and the lack of qualification indicates compliance with required parameters.



Apex Laboratories, LLC

6700 S.W. Sandburg Street
Tigard, OR 97223
503-718-2323
ORELAP ID: OR100062

Maul Foster & Alongi, INC.
3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**
Project Number: **1874.01.02-01**
Project Manager: **Kyle Roslund**

Report ID:
A0H0746 - 09 18 20 1525

LABORATORY ACCREDITATION INFORMATION

ORELAP Certification ID: OR100062 (Primary Accreditation) -
EPA ID: OR01039

All methods and analytes reported from work performed at Apex Laboratories are included on Apex Laboratories' ORELAP Scope of Certification, with the exception of any analyte(s) listed below:

Apex Laboratories

Matrix	Analysis	TNI_ID	Analyte	TNI_ID	Accreditation
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All reported analytes are included in Apex Laboratories' current ORELAP scope.

Secondary Accreditations

Apex Laboratories also maintains reciprocal accreditation with non-TNI states (Washington DOE), as well as other state specific accreditations not listed here.

Subcontract Laboratory Accreditations

Subcontracted data falls outside of Apex Laboratories' Scope of Accreditation. Please see the Subcontract Laboratory report for full details, or contact your Project Manager for more information.

Field Testing Parameters

Results for Field Tested data are provided by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

Apex Laboratories

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Philip Nerenberg, Lab Director



Maul Foster & Alongi, INC.
3140 NE Broadway Street
Portland, OR 97232

Project: **Iron Triangle**
Project Number: **1874.01.02-01**
Project Manager: **Kyle Roslund**

Report ID:
A0H0746 - 09 18 20 1525

APEX LABS COOLER RECEIPT FORM

Client: MFA Element WO#: A0 #0746

Project/Project #: Iron Triangle #1874.01.02-01

Delivery Info:

Date/time received: 8/28/20 @ 1230 By: AKK

Delivered by: Apex Client ESS FedEx UPS Swift Senvoy SDS Other

Cooler Inspection Date/time inspected: 8/28/20 @ 1230 By: AKK

Chain of Custody included? Yes No Custody seals? Yes No

Signed/dated by client? Yes No

Signed/dated by Apex? Yes No

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	<u>0.1</u>	<u>1.9</u>					
Received on ice? (Y/N)	<u>Y</u>	<u>Y</u>					
Temp. blanks? (Y/N)	<u>Y</u>	<u>Y</u>					
Ice type: (Gel/Real/Other)	<u>Real</u>	<u>Real</u>					
Condition:	<u>Good</u>	<u>Good</u>					

Cooler out of temp? (Y/N) Possible reason why: _____

If some coolers are in temp and some out, were green dots applied to out of temperature samples? Yes/No/NA

Out of temperature samples form initiated? Yes/No/NA

Samples Inspection: Date/time inspected: 8/28/20 @ 1450 By: AKK

All samples intact? Yes No Comments: _____

Bottle labels/COCs agree? Yes No Comments: Ton conts. read B01-W-7.0 @1252, B03-W-8.0 @1340, B02-W-8.5 @1415, and B04-W-9.0 @1450. TB#2393.

COC/container discrepancies form initiated? Yes No NA

Containers/volumes received appropriate for analysis? Yes No Comments: _____

Do VOA vials have visible headspace? Yes No NA

Comments B01 + B02 + B04 3/3 sed.

Water samples: pH checked: Yes No NA pH appropriate? Yes No NA

Comments: _____

Additional information: _____

Labeled by: AKK Witness: [Signature] Cooler Inspected by: AKK See Project Contact Form: Y

Philip Nerenberg

ATTACHMENT D



DATA QUALITY ASSURANCE/QUALITY CONTROL REVIEW

PROJECT NO. 1874.01.02 | SEPTEMBER 28, 2020 | CITY OF JOHN DAY

Maul Foster & Alongi, Inc. (MFA) conducted an independent review of the quality of analytical results for groundwater, soil, and quality assurance samples collected at the Iron Triangle Property. The samples were collected on August 26, 2020.

Apex Laboratories, LLC (Apex) performed the analyses. Apex report number A0H0746 was reviewed. The analyses performed and samples analyzed are listed below.

Analysis	Reference
Diesel and/or Oil Hydrocarbons	NWTPH-Dx
Gasoline Range Hydrocarbons	NWTPH-Gx
HCID	NWTPH-HCID
Total and Dissolved Metals	EPA 6020A
Percent Dry Weight	EPA 8000D
Polyaromatic Hydrocarbons	EPA 8270E-SIM
Polychlorinated Biphenyls	EPA 8082A
Volatile Organic Compounds	EPA 8260D

NOTES:

EPA = U.S. Environmental Protection Agency.
 HCID = Hydrocarbon Identification Screen.
 SIM = selective ion monitoring.

Samples Analyzed		
Report A0H0746		
B01-S-8.0	B04-S-6.0	B02-W-8.5
B03-S-5.0	Trip Blank 1	B04-W-9.0
B02-S-7.5	B01-W-7.0	Trip Blank 2
B04-S-5.5	B03-W-8.0	--

DATA QUALIFICATIONS

Analytical results were evaluated according to applicable sections of EPA procedures (EPA, 2017a,b) and appropriate laboratory and method-specific guidelines (Apex, 2019; EPA, 1986).

Data validation procedures were modified, as appropriate, to accommodate quality-control requirements for methods not specifically addressed by the EPA procedures (e.g., NWTPH-Dx).

According to report A0H0746, the NWTPH-HCID and NWTPH-Gx gasoline range organics results from sample B04-S-6.0 have been flagged by the laboratory as primarily due to overlap from a heavier fuel hydrocarbon product. The results were reported as hydrocarbon range results and not as specific products; thus, qualification was not required.

Apex noted that, to minimize matrix interference, EPA Method 8082A samples and associated batch quality control samples were processed with sulfuric acid cleanup by EPA Method 3665A, sulfur cleanup by EPA Method 3660B, and florisil cleanup by EPA Method 3620B. No action was required.

According to report A0H0746, the EPA Method 8270E results from sample B04-W-9.0 and its associated laboratory blank, had limited sample volume or hold time restraints, thus the NWTPH-Dx extract was used for the EPA Method 8270-SIM analysis. The lab noted that the results are estimated values and the reviewer qualified the detected results as estimated with “J” and the non-detect results as non-detect with estimated reporting limits with “UJ” in the table below.

Report	Sample	Analysis	Original Result	Qualified Result
A0H0746	B04-W-9.0	EPA 8270D-SIM	Detected	J
			Non-Detect	UJ

NOTES:

J = result is estimated.

UJ = result is non-detect with an estimated reporting limit.

The data are considered acceptable for their intended use, with the appropriate data qualifiers assigned.

HOLDING TIMES, PRESERVATION, AND SAMPLE STORAGE

Holding Times

Extractions and analyses were performed within the recommended holding time criteria, except the EPA 8260D results from samples Trip Blank 1 and Trip Blank 2 and their associated QC, which exceeded the 14-day hold time by six days. The associated sample non-detect results from Trip Blank 1 and Trip Blank 2 have been qualified with “UJ” as non-detect with estimated reporting limits.

Report	Sample	Analysis	Original Result	Qualified Result
A0H0746	Trip Blank 1	EPA 8260D	U	UJ
	Trip Blank 2		U	UJ

NOTES:

U = result is non-detect.

UJ = result is non-detect with an estimated reporting limit.

Preservation and Sample Storage

The samples were preserved and stored appropriately, except for the NWTPH-HCID sample vial from sample B01-W-7.0, which had incomplete field preservation. Additional preservation was added to adjust the pH within appropriate range for analysis and since NWTPH-HCID is a detection analysis; thus, no qualifications were necessary.

According to report A0H0746, samples B01-S-8.0, B02-S-7.5, B04-S-5.5 and B04-S-6.0 had sediment in the vials. No actions were required by the reviewer.

BLANKS

Method Blanks

Laboratory method blank analyses were performed at the required frequencies. For purposes of data qualification, the method blanks were associated with all samples prepared in the analytical batch. All analytes were non-detect to the reporting limit.

Trip Blanks

Two trip blanks (Trip Blank 1 and Trip Blank 2) were submitted with report A0H0746. All analytes were non-detect to the reporting limit.

Equipment Rinsate Blanks

Equipment rinsate blanks were not required for this sampling event, as all samples were collected using dedicated, single-use equipment.

SURROGATE RECOVERY RESULTS

The samples were spiked with surrogate compounds to evaluate laboratory performance on individual samples.

The reviewer took no action based surrogate percent recoveries that were outside of acceptance limits due to dilutions necessary to quantify high concentrations of target analytes present in the samples. The laboratory appropriately documented and qualified surrogate outliers. Associated batch quality assurance/quality control for samples with surrogate outliers was within acceptance limits. All remaining surrogate recoveries were within acceptance limits.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS

Matrix spike/matrix spike duplicate (MS/MSD) results are used to evaluate laboratory precision and accuracy. All MS samples were extracted and analyzed at the required frequency. When MS percent recoveries were outside acceptance limits because of high concentrations of analyte in the sample and MS exceedances were flagged by the laboratory because of high concentrations of analyte, no qualifications were made by the reviewer.

According to report A0H0746, the NWTPH-Dx batch 0090034 had a laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) analyzed in lieu of the MS and MSD. No actions were required by the reviewer.

According to report A0H0746, the EPA Method 8260D batch 0080223 MS (0090223-MS1) bromomethane recovery exceeded the upper control limit of 143 percent, at 152 percent. The source sample used to prepare the MS was not project related; thus, no qualifications were necessary.

According to report A0H0746, the EPA Method 8260D batch 0090406 MS (0090406-MS1) cis-1,3-dichloropropene recovery was below the lower control limit of 75 percent, at 73 percent. The source sample used to prepare the MS was not project related; thus, no qualifications were necessary.

According to report A0H0746, the EPA Method 8082A batch 0090248 had an LCS and LCSD analyzed in lieu of the MS and MSD. No actions were required by the reviewer.

All remaining recoveries were within acceptance limits for percent recovery and RPDs.

LABORATORY DUPLICATE RESULTS

Duplicate results are used to evaluate laboratory precision. All duplicate samples were extracted and analyzed at the required frequency. Laboratory duplicate results within five times the MRL were not evaluated for precision.

According to report A0H0746, the NWTPH-Dx batch 0090263 laboratory duplicate (0090263-DUP2) had diesel and oil had hydrocarbon patterns indicating possible weathered diesel, mineral oil, or a contribution from a related component, that the chromatographic pattern does not resemble the fuel standard, there is overlap from reported oil and there is overlap from reported diesel. The source sample used to prepare the laboratory duplicate was not project related; thus, no qualifications were necessary.

According to report A0H0746, the EPA Method 6020A laboratory duplicate (0090288-DUP1) total barium and total lead RPD exceeded the 20 percent limit at 32 percent and 23 percent, respectively. The associated barium and lead results from the source sample have been qualified with "J" as estimated in the table below.

Report	Sample	Analyte	Original Result (mg/kg)	Qualified Result (mg/kg)
A0H0746	B04-S-5.5	Barium	122	122 J
		Lead	6.21	6.21 J

NOTES:

J = result is estimated.

mg/kg = milligram per kilogram.

All remaining laboratory duplicate RPDs were within acceptance limits.

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RESULTS

An LCS/LCSD is spiked with target analytes to provide information on laboratory precision and accuracy. The LCS/LCSD samples were extracted and analyzed at the required frequency.

According to report A0H0746, the EPA Method 8260D batch 0090223 LCS (0090223-BS1) bromomethane, carbon disulfide, chloroethane, 1,1-dichloroethene, trichlorofluoromethane, and vinyl chloride recoveries exceeded the upper control limit of 120 percent, ranging from 126 percent to 192 percent. The associated sample results were non-detect for bromomethane, carbon disulfide, chloroethane, 1,1-dichloroethene, trichlorofluoromethane, and vinyl chloride; thus, no qualifications were necessary.

According to report A0H0746, the EPA Method 8260D batch 0090406 LCS (0090406-BS1) carbon disulfide recovery was below the lower acceptable limit of 80 percent, at 77 percent, and the 2,2-dichloropropane recovery exceeded the upper control limit of 120 percent, at 135 percent. Carbon disulfide results were previously qualified in the holding time section and 2,2-dichloropropane was non-detect in the associated samples; thus, no additional qualifications were necessary.

All remaining LCS/LCSD results were within acceptance limits for percent recovery and RPD.

FIELD DUPLICATE RESULTS

Field duplicate samples measure both field and laboratory precision. No field duplicates were analyzed with this sampling event.

REPORTING LIMITS

Apex used routine reporting limits for non-detect results, except for samples requiring dilutions because of high analyte concentrations and/or matrix interferences.

DATA PACKAGE

The data packages were reviewed for transcription errors, omissions, and anomalies.

According to report A0H0746, samples B01-W-7.0, B03-W-8.0, B02-W-8.5, and B04-W-9.0 sample times on the bottles did not match the chain of custody. The times on the chain of custody were used; thus, no further actions were required.

No additional issues were found.

REFERENCES

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