6720 South Macadam Avenue, Suite 300
Portland, Oregon 97219
503.670.1108

ANCHOR QEA

August 22, 2023

Mr. Hank Stukey
Terra Hydr, Inc.
11670 SW Waldo Way
Sherwood, Oregon 97140

Re: Intent to Dispose of Nonhazardous Soils Generated During the 2023 Upland Feasibility Study DNAPL Data Gaps Investigation, NW Natural Gasco and Siltronic Corporation Properties, 7900 NW St. Helens Road (Gasco Site) and 7200 NW Front Avenue, Portland, Oregon 97210 (Siltronic Site)

Dear Mr. Stukey,

NW Natural requests transport and disposal of three 55-gallon drums containing petroleum-impacted soil (no free liquids) to Waste Management, Inc.'s, Hillsboro (Subtitle D) Landfill. The drums are currently stored at the NW Natural Gasco site.

During the second quarter of 2023, soil borings were installed within the Gasco Operable Unit to obtain supplemental data needed to support the upland feasibility study. All work was performed in accordance with the approved *Revised Upland Feasibility Study DNAPL Data Gaps Investigation Work Plan*.[1] Soil sampling investigation-derived wastes (IDW) were generated as part of this work.

On June 21, 2023, Anchor QEA, LLC, collected one 3-part composite soil sample, composed of a subsample from each of the three drums.

The composite sample was submitted to Apex Laboratories, LLC, for analysis of the following:

- Total cyanide (U.S. Environmental Protection Agency [EPA] 9013M/9012B)
- Free liquids (EPA 9095B)
- Total solids (SM 2540G)
- Corrosivity (EPA 9045D)
- Ignitability (EPA 1010M)
- Total petroleum hydrocarbons: diesel- and oil-range (NWTPH-Dx) and gasoline-range (NWTPH-Gx)
- Total metals: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver (EPA 6020B)
- Volatile organic compounds (EPA 5035A/8260D)
- Semivolatile organic compounds (SVOCs; EPA 8270E)

[1] Anchor QEA, LLC, 2021. *Revised Upland Feasibility Study DNAPL Data Gaps Investigation Work Plan*. Prepared for NW Natural. December 8, 2021.

- Leachable SVOCs (EPA 8270E) by toxicity characteristic leaching procedure (TCLP) by EPA 1311/8270E

The analytical results for the composite sample are provided in Table 1, including method detection limits (MDLs) for non-detect constituents. Total constituent concentrations and MDLs were screened against EPA toxicity characteristic (TC) regulatory threshold levels multiplied by 20 to account for the maximum leachable concentrations that could be attained based on the 20:1 liquid-to-solid ration employed in a TCLP test (the 20x rule). With the exception of 2,4-dinitrotoluene, none of the reported concentrations nor the MDLs for these constituents exceed the 20x rule values, indicating that TCLP testing is not needed for waste characterization purposes.

Due to laboratory dilution of the soil sample, the MDL for 2,4-dinitrotoluene was elevated to a concentration greater than the 20x TC regulatory threshold value. To confirm that 2,4-dinitrotoluene was not present at a concentration above the regulatory threshold value, a select list of SVOCs was tested by TCLP methodology. SVOC TCLP testing results were screened directly against the applicable TC screening values, and it was confirmed that 2,4-dinitrotoluene was not detected at a concentration above the laboratory MDL or the TC screening level (Table 1).

Based on the preceding, screening of all data (Table 1) indicates that total constituent concentrations would not leach at levels in excess of Resource Conservation Recovery Act (RCRA) TC regulatory threshold levels and therefore is not a RCRA hazardous waste due to TC.

The drums contain soil that may be contaminated with Siltronic spent trichloroethene (TCE) wastes. Impacted environmental media that may be contaminated with Siltronic spent TCE wastes require contaminant data be screened to determine whether the material would require disposal as a RCRA spent halogenated solvent waste code F002-listed hazardous waste (spent TCE halogenated solvent). If soil wastes are impacted by Siltronic spent TCE or TCE-related compounds at concentrations greater than the threshold values provided in the following table, then the waste soil would require management as F002-listed hazardous waste. If soil wastes have concentrations of TCE-related compounds equal to or less than the threshold values provided in the following table, then a No Longer Contained-In Determination would be appropriate, such that the waste would not require management as an F002-listed hazardous waste.

Analyte	May 2018 DEQ RBCs (µg/kg)
1,1-dichloroethylene (DCE)	29,000,000
cis-1,2-DCE	2,300,000
trans-1,2-DCE	23,000,000
TCE	51,000
Vinyl chloride	4,400

Notes:
µg/kg: microgram per kilogram
DEQ: Oregon Department of Environmental Quality
RBC: risk-based concentration

2023 Data Gaps IDW Sample Results

As summarized in the following table, F002 constituents were not detected above laboratory MDLs or F002 Contained-In Threshold Screening Values.

Analyte	20x TCLP Limit (µg/kg)	F002 Contained-In Threshold Screening Values (µg/kg)	Results (µg/kg)	Qualifier
TCE	10,000	51,000	16.2	U
cis-1,2-DCE	--	2,300,000	16.2	U
trans-1,2-DCE	--	23,000,000	16.2	U
1,1-DCE	14,000	29,000,000	16.2	U
Vinyl chloride	4,000	4,400	16.2	U

Notes:
U: Analyte is not detected above the MDL
--: no 20x TCLP limit established

As shown above, laboratory MDLs are well below Oregon Department of Environmental Quality (DEQ) May 2018 risk-based concentrations (RBCs) for Occupational Exposure by Ingestion, Dermal Contact, and Inhalation used for evaluating the applicability of an F002 waste code for soil IDW. Results of analytical data are provided in Table 1.

Conclusions

It is concluded that the drums of soil IDW described herein are acceptable for disposal as petroleum-impacted soil at a RCRA Subtitle D nonhazardous waste disposal facility. Upon acceptance of the attached profile, the waste will be transported off site and disposed of at Waste Management's Hillsboro Landfill.

A summary of analytical results (Table 1), completed Waste Management disposal profile (Attachment A), and Apex Laboratories analytical report (Attachment B) are also enclosed.

In response to the EZ Profile Addendum No. D.7, which requests documentation of the state-mandated cleanup, NW Natural's Voluntary Agreement with DEQ, No. WMCVC-NWR-94-13, is attached to this package (Attachment C). The Voluntary Agreement is dated August 8, 1994, with two addendums dated July 19, 2006, and October 11, 2016, respectively.

Please contact me if you have any questions.

Thank you,

Benjamin A. Uhl

Ben Uhl, RG
Senior Geologist

cc: Robert Wyatt (NW Natural); Patty Dost (Pearl Legal Group); Jen Mott and Tim Stone (Anchor QEA, LLC); Rob Ede (Hahn and Associates, Inc.); Traci Parker (Siltronic Corporation); Wesley Thomas (Oregon Department of Environmental Quality)

Attachments

Table 1	2023 Data Gaps – Soil Testing Analytical Results
Attachment A	Waste Management, Inc., Disposal Profile
Attachment B	Apex Laboratories Report No. A3F1416
Attachment C	Voluntary Agreement No. WMCVC-NWR-94-13, August 8, 1994, as Amended by the First Addendum, Dated July 19, 2006, and the Second Addendum, Dated October 11, 2016

Table

Table 1
2023 Data Gaps – Soil Testing Analytical Results

Analyte	EPA TC Regulatory Threshold Values		F002 Threshold Screening Values[3]	Sample Number: 2023-DG-IDW-062123	
	20x EPA TC[1]	Actual EPA TC[2]		Result	
Conventionals					
Total Cyanide (mg/kg)	--	--	--	**146**	**--**
Free liquid (mL)	--	--	--	0.00	--
Total Solids (% by weight)	--	--	--	**83.4**	
Soil pH	--	--	--	**6.3**	**pH_S**
pH Temperature (°C)	--	--	--	**22.8**	**pH_S**
Flash Point (°F)	--	--	--	>150	--
Total Metals (mg/kg)					
Arsenic	100	5	--	**2.4**	**--**
Barium	2,000	100	--	**268**	**--**
Cadmium	20	1	--	**1.51**	**--**
Chromium	100	5	--	**17.5**	**--**
Lead	100	5	--	**64.8**	**--**
Mercury	4	0.2	--	**0.0683**	**J**
Selenium	20	1	--	0.608	U
Silver	100	5	--	0.122	U
Total Petroleum Hydrocarbons (mg/kg)					
Diesel Range	--	--	--	**295**	**F-17**
Gasoline Range	--	--	--	**73.2**	**--**
Oil Range	--	--	--	**211**	**F-17**
Volatile Organic Compounds (µg/kg)					
Acetone	--	--	--	649	U
Acrylonitrile	--	--	--	64.9	U
Benzene	10,000	500	--	**22.7**	**--**
Bromobenzene	--	--	--	16.2	U
Bromochloromethane	--	--	--	32.4	U
Bromodichloromethane	--	--	--	23.4	U
Bromoform	--	--	--	64.9	U
Bromomethane	--	--	--	649	U
2-Butanone (MEK)	4,000,000	200,000	--	324	U
n-Butylbenzene	--	--	--	32.4	U
sec-Butylbenzene	--	--	--	**64.9**	**--**
tert-Butylbenzene	--	--	--	32.4	U
Carbon disulfide	--	--	--	324	U
Carbon tetrachloride	10,000	500	--	32.4	U
Chlorobenzene	2,000,000	100,000	--	16.2	U
Chloroethane	--	--	--	324	U
Chloroform	120,000	6,000	--	32.4	U
Chloromethane	--	--	--	162	U
2-Chlorotoluene	--	--	--	32.4	U
4-Chlorotoluene	--	--	--	32.4	U
Dibromochloromethane	--	--	--	64.9	U
1,2-Dibromo-3-chloropropane	--	--	--	162	U
1,2-Dibromoethane (EDB)	--	--	--	32.4	U
Dibromomethane	--	--	--	32.4	U
1,2-Dichlorobenzene	--	--	--	16.2	U
1,3-Dichlorobenzene	--	--	--	16.2	U
1,4-Dichlorobenzene	150,000	7,500	--	16.2	U
Dichlorodifluoromethane	--	--	--	64.9	U
1,1-Dichloroethane	--	--	--	16.2	U
1,2-Dichloroethane (EDC)	10,000	500	--	16.2	U
1,1-Dichloroethene	14,000	700	29,000,000	16.2	U
cis-1,2-Dichloroethene	--	--	2,300,000	16.2	U
trans-1,2-Dichloroethene	--	--	23,000,000	16.2	U
1,2-Dichloropropane	--	--	--	16.2	U
1,3-Dichloropropane	--	--	--	32.4	U
2,2-Dichloropropane	--	--	--	32.4	U
1,1-Dichloropropene	--	--	--	32.4	U
cis-1,3-Dichloropropene	--	--	--	32.4	U
trans-1,3-Dichloropropene	--	--	--	32.4	U
Ethylbenzene	--	--	--	**101**	**--**
Hexachlorobutadiene	10,000	500	--	64.9	U
2-Hexanone	--	--	--	649	U
Isopropylbenzene	--	--	--	32.4	U
4-Isopropyltoluene	--	--	--	32.4	U
Methylene chloride	--	--	--	324	U
4-Methyl-2-pentanone (MiBK)	--	--	--	324	U

Table 1
2023 Data Gaps – Soil Testing Analytical Results

Analyte	EPA TC Regulatory Threshold Values		F002 Threshold Screening Values[3]	Sample Number: 2023-DG-IDW-062123	
	20x EPA TC[1]	Actual EPA TC[2]		Result	
Methyl tert-butyl ether (MTBE)	--	--	--	32.4	U
Naphthalene	--	--	--	**16,700**	**--**
n-Propylbenzene	--	--	--	16.2	U
Styrene	--	--	--	32.4	U
1,1,1,2-Tetrachloroethane	--	--	--	16.2	U
1,1,2,2-Tetrachloroethane	--	--	--	32.4	U
Tetrachloroethene (PCE)	14,000	700	--	16.2	U
Toluene	--	--	--	32.4	U
1,2,3-Trichlorobenzene	--	--	--	162	U
1,2,4-Trichlorobenzene	--	--	--	162	U
1,1,1-Trichloroethane	--	--	--	16.2	U
1,1,2-Trichloroethane	--	--	--	16.2	U
Trichloroethene (TCE)	10,000	500	51,000	16.2	U
Trichlorofluoromethane	--	--	--	64.9	U
1,2,3-Trichloropropane	--	--	--	32.4	U
1,2,4-Trimethylbenzene	--	--	--	**98**	**--**
1,3,5-Trimethylbenzene	--	--	--	**40.2**	**J**
Vinyl chloride	4,000	4,400	4,400	16.2	U
m,p-Xylene	--	--	--	**118**	--
o-Xylene	--	--	--	**51.9**	--
Semivolatile Organic Compounds (µg/kg)					
Acenaphthene	--	--	--	**13,700**	**--**
Acenaphthylene	--	--	--	**5,730**	**--**
Anthracene	--	--	--	**15,100**	**--**
Benz(a)anthracene	--	--	--	**10,400**	**--**
Benzo(a)pyrene	--	--	--	**13,200**	**--**
Benzo(b)fluoranthene	--	--	--	**9,990**	**--**
Benzo(k)fluoranthene	--	--	--	**4,210**	**J**
Benzo(g,h,i)perylene	--	--	--	**9,570**	**--**
Chrysene	--	--	--	**13,100**	**--**
Dibenz(a,h)anthracene	--	--	--	1,520	U
Fluoranthene	--	--	--	**40,700**	**--**
Fluorene	--	--	--	**10,800**	**--**
Indeno(1,2,3-cd)pyrene	--	--	--	**8,230**	**--**
1-Methylnaphthalene	--	--	--	**5,440**	**J**
2-Methylnaphthalene	--	--	--	**3,970**	**J**
Naphthalene	--	--	--	**11,900**	**--**
Phenanthrene	--	--	--	**72,200**	**--**
Pyrene	--	--	--	**48,900**	**--**
Carbazole	--	--	--	**3,530**	**J**
Dibenzofuran	--	--	--	1,520	U
2-Chlorophenol	--	--	--	7,600	U
4-Chloro-3-methylphenol	--	--	--	15,200	U
2,4-Dichlorophenol	--	--	--	7,600	U
2,4-Dimethylphenol	--	--	--	7,600	U
2,4-Dinitrophenol	--	--	--	37,900	U
4,6-Dinitro-2-methylphenol	--	--	--	37,900	U
2-Methylphenol	4,000,000	200,000	--	3,790	U
3+4-Methylphenol(s)	--	--	--	3,790	U
2-Nitrophenol	--	--	--	15,200	U
4-Nitrophenol	--	--	--	15,200	U
Pentachlorophenol (PCP)	2,000,000	100,000	--	15,200	U
Phenol	--	--	--	3,040	U
2,3,4,6-Tetrachlorophenol	--	--	--	7,600	U
2,3,5,6-Tetrachlorophenol	--	--	--	7,600	U
2,4,5-Trichlorophenol	8,000,000	400,000	--	7,600	U
Nitrobenzene	40,000	2,000	--	15,200	U
2,4,6-Trichlorophenol	40,000	2,000	--	7,600	U
Bis(2-ethylhexyl) phthalate	--	--	--	22,800	U
Butyl benzyl phthalate	--	--	--	15,200	U
Diethylphthalate	--	--	--	15,200	U
Dimethylphthalate	--	--	--	15,200	U
Di-n-butylphthalate	--	--	--	15,200	U
Di-n-octyl phthalate	--	--	--	15,200	U
N-Nitrosodimethylamine	--	--	--	3,790	U
N-Nitroso-di-n-propylamine	--	--	--	3,790	U
N-Nitrosodiphenylamine	--	--	--	3,790	U

Table 1
2023 Data Gaps – Soil Testing Analytical Results

Analyte	EPA TC Regulatory Threshold Values		F002 Threshold Screening Values[3]	Sample Number: 2023-DG-IDW-062123	
	20x EPA TC[1]	Actual EPA TC[2]		Result	
Bis(2-Chloroethoxy) methane	--	--	--	3,790	U
Bis(2-Chloroethyl) ether	--	--	--	3,790	U
2,2'-Oxybis(1-Chloropropane)	--	--	--	3,790	U
Hexachlorobenzene	2,600	130	--	1,520	U
Hexachlorobutadiene	10,000	500	--	3,790	U
Hexachlorocyclopentadiene	--	--	--	7,600	U
Hexachloroethane	60,000	3,000	--	3,790	U
2-Chloronaphthalene	--	--	--	1,520	U
1,2,4-Trichlorobenzene	--	--	--	3,790	U
4-Bromophenyl phenyl ether	--	--	--	3,790	U
4-Chlorophenyl phenyl ether	--	--	--	3,790	U
Aniline	--	--	--	7,600	U
4-Chloroaniline	--	--	--	3,790	U
2-Nitroaniline	--	--	--	30,400	U
3-Nitroaniline	--	--	--	30,400	U
4-Nitroaniline	--	--	--	30,400	U
2,4-Dinitrotoluene	2,600	130	--	15,200	U
2,6-Dinitrotoluene	--	--	--	15,200	U
Benzoic acid	--	--	--	190,000	U
Benzyl alcohol	--	--	--	7,600	U
Isophorone	--	--	--	3,790	U
Azobenzene (1,2-DPH)	--	--	--	3,790	U
Bis(2-Ethylhexyl) adipate	--	--	--	37,900	U
3,3'-Dichlorobenzidine	--	--	--	30,400	U, Q-52
1,2-Dinitrobenzene	--	--	--	37,900	U
1,3-Dinitrobenzene	--	--	--	37,900	U
1,4-Dinitrobenzene	--	--	--	37,900	U
Pyridine	100,000	5,000	--	7,600	U
1,2-Dichlorobenzene	--	--	--	3,790	U
1,3-Dichlorobenzene	--	--	--	3,790	U
1,4-Dichlorobenzene	150,000	7,500	--	3,790	U
TCLP Semivolatile Organic Compounds (mg/L)					
2-Methylphenol	--	200	--	0.05	U
3+4-Methylphenol(s)	--	--	--	0.05	U
Pentachlorophenol (PCP)	--	100	--	0.1	U
2,4,5-Trichlorophenol	--	400	--	0.05	U
2,4,6-Trichlorophenol	--	2	--	0.05	U
Hexachlorobenzene	--	0.13	--	0.02	U
Hexachlorobutadiene	--	0.5	--	0.05	U
Hexachloroethane	--	3	--	0.05	U
Nitrobenzene	--	2	--	0.05	U
2,4-Dinitrotoluene	--	0.13	--	0.02	U
Pyridine	--	5	--	0.1	U

Notes:
Bold: detected analyte
F-17: No fuel pattern detected. The diesel result represents carbon range C12 to C24, and the oil result represents >C24 to C40.
J: Estimated result. Result detected below the lowest point of the calibration curve but above the specified MDL.
pH_S: Method recommends preparation as soon as possible. See Sample Preparation Information section of Apex Laboratories report for details.
Q-52: Due to known erratic recoveries, the result and reporting levels for this analyte are reported as estimated values. This analyte may not have passed all QC requirements for this method.
U: Analyte is not detected above the MDL.
1. If laboratory results from the totals test exceed the "20x TC Threshold" value, then see results of the TCLP test for direct comparison to actual TC regulatory levels for regulatory status determination.
2. Screening levels found in Title 40 CFR 261 Subpart C.
3. F002 DEQ RBCs for Occupational Exposure by Ingestion, Dermal Contact, and Inhalation, May 2018
--: not applicable
µg/kg: microgram per kilogram
CFR: *Code of Federal Regulations*
DEQ: Oregon Department of Environmental Quality
EPA: U.S. Environmental Protection Agency
MDL: method detection limit
mg/kg: milligram per kilogram
mg/L: milligram per liter
mL: milliliter
QC: quality control
RBC: risk-based concentration
TC: toxicity characteristic
TCLP: toxicity characteristic leaching procedure

Attachment A
Waste Management, Inc., Disposal Profile

EZ Profile™

Requested Facility: Hillsboro Landfill ❑ Unsure Profile Number: 140713OR
❑ Multiple Generator Locations (Attach Locations) ❑ Request Certificate of Disposal ❑ Renewal? Original Profile Number:

A. GENERATOR INFORMATION (MATERIAL ORIGIN)

1. Generator Name: NW Natural
2. Generator Site Address: 7900 NW St. Helens Road
   (City, State, ZIP) Portland OR 97210
3. County: Multnomah
4. Contact Name: Tim Stone
5. Email: tsone@anchorqea.com
6. Phone: (503) 475-9150 7. Fax:
8. Generator EPA ID: 0000204701 ❑ N/A
9. State ID: ☑ N/A

B. BILLING INFORMATION ❑ SAME AS GENERATOR

1. Billing Name: Terra Hydr, Inc.
2. Billing Address: 11670 SW Waldo Way
   (City, State, ZIP) Sherwood OR 97140
3. Contact Name: Hank Stukey
4. Email: corporate@terrahydr.com
5. Phone: (503) 720-6590 6. Fax:
7. P.O. Number:
8. Payment Method: ❑ Credit Account ❑ Cash ❑ Credit Card at Gate

C. MATERIAL INFORMATION

1. Common Name: Soil, plastic, rubber, mics construction debris
   Describe Process(es) Generating Material: ❑ See Attached

Waste generated during soil boring installations.

2. Material Composition and Contaminants: ❑ See Attached

1. Soil	80-90 %
2. Rubber, plastic, misc construction debris	10-20 %
3.	
4.	
Total comp. must be equal to or greater than 100%	≥100%

3. State Waste Codes: ☑ N/A
4. Color: brown and gray
5. Physical State at 70˚F: ☑ Solid ❑ Liquid ❑ Other:
6. Free Liquid Range Percentage: 0 to 0 ❑ N/A
7. pH: 6.3 to 6.3 ❑ N/A
8. Strong Odor: ❑ Yes ☑ No Describe:
9. Flash Point: ❑ <140˚F ❑ 140˚–199˚F ☑ ≥200˚ ❑ N/A

D. REGULATORY INFORMATION

1. EPA Hazardous Waste? ❑ Yes* ☑ No
   Code:
2. State Hazardous Waste? ❑ Yes ☑ No
   Code:
3. Is this material non-hazardous due to Treatment, Delisting, or an Exclusion? ❑ Yes* ☑ No
4. Contains Underlying Hazardous Constituents? ❑ Yes* ☑ No
5. Does the material contain benzene? ☑ Yes* ❑ No
6. Facility remediation subject to 40 CFR 63 GGGGG? ❑ Yes* ☑ No
7. CERCLA or State-mandated clean-up? ☑ Yes* ❑ No
8. NRC, State-regulated, NORM or TENORM waste? ❑ Yes* ☑ No

***If Yes, see Addendum (page 2) for additional questions and space.**

9. Contains PCBs? → If Yes, answer a, b and c. ❑ Yes ☑ No
   a. Regulated by 40 CFR 761? ❑ Yes ❑ No
   b. Remediation under 40 CFR 761.61? ❑ Yes ❑ No
   c. Were PCBs imported into the US? ❑ Yes ❑ No
10. Regulated and/or Untreated Medical/Infectious Waste? ❑ Yes ☑ No
11. Contains Asbestos? ❑ Yes ☑ No
    → If Yes: ❑ Non-Friable ❑ Non-Friable - Regulated ❑ Friable
12. Contains Dioxins? (If Yes, please attach analysis) ❑ Yes ☑ No

E. ANALYTICAL AND OTHER REPRESENTATIVE INFORMATION

1. Analytical attached ☑ Yes

   Please identify Lab Report(s) and list specific representative Sample ID#s:

Please see Apex Labs analytical report A3F1416. Sample number "2023-DG-IDW-062123."

2. Other information attached (such as SDS)? ❑ Yes

F. SHIPPING AND DOT INFORMATION

1. ☑ One-Time Event ❑ Repeat Event/Ongoing Business
2. Estimated Annual Quantity/Unit of Measure: 3
   ❑ Tons ☑ Yards ❑ Drums ❑ Gallons ❑ Other
3. Container Type and Size: 55-gallon steel drums
4. USDOT Proper Shipping Name ☑ N/A
5. Estimated Start Date
6. Transportation Needed? ❑ Yes* ☑ No

G. GENERATOR CERTIFICATION (PLEASE READ AND CERTIFY BY SIGNATURE)

By signing this Waste Management ("WM") Profile, I hereby certify that all information submitted in this and all attached documents contain true and accurate descriptions of this material, and that all relevant information necessary for proper material characterization and to identify known and suspected hazards has been provided. Any analytical data attached was derived from a sample that is representative as defined in 40 CFR 261 - Appendix 1 or by using an equivalent method. All changes occurring in the character of the material (i.e., changes in the process or new analytical) will be identified by the Generator and be disclosed to WM prior to providing the material to WM. I am aware that there are significant penalties for knowingly submitting false information.

❑ I am authorized to sign on behalf of the Generator and I have confirmed with the Generator that information contained in this profile, as well as supporting documents provided, are accurate and complete.
❑ I am a duly authorized employee of Generator holding a position of technical responsibility with direct knowledge of the waste stream and the information contained in this profile, and I confirm that information contained in this profile, as well as supporting documents are accurate and complete.

Name (Print): Robert Wyatt
Title: Director, Legacy Environmental Program
Company: NW Natrual
Date: 8/17/23

Certification Signature

QUESTIONS? CALL 800 963 4776 FOR ASSISTANCE

Generator Name NW Natural Profile Number

Waste Name 2023 Data Gaps Investigation - Soil Boring Installations

Generator's NAICS Code 486210 Code Two;

Does the Generator's Facility manage, store, use, process, or discard any of the following materials in or from your production processes;

Yes[1]	No	Waste Classifications
○	◉	**Nuclear Materials**
○	◉	**Mineral Ore mining/overburden processing or extraction** *Uranium, Radium, Thorium, Plutonium, Cobalt, Strontium, Zirconium, Polonium, Beryllium*
○	◉	**Phosphate Fertilizer Production** *Phosphogypsum, Scale, Residuals, Slag*
○	◉	**Coal and Coal Burning Wastes** *Coal Fly/Bottom Ash*
○	◉	**Petroleum Refining/Production** *Filter Socks, Pipe Scale, Stratum Water, Refinery Process Sediments, Tank Bottoms*
○	◉	**Drinking Water and Wastewater Treatment Wastes** *Filter Socks, Pipe Scale, Stratum Water, Tank Bottoms, Bio-solids, Grit and Screenings, septic*
○	◉	**Other Processing Wastes** *Ceramic, Refractory, Zircon sand, Bauxite to Alumina processing, Titanium, Zirconium, Baghouse Dusts with refractory, "Mag-Thor" metals, Ceramic Insulators, Sand Blasting waste*
○	◉	**Geothermal Wastes** *Filter Socks, Pipe Scale, Stratum Water, Tank Bottoms*
○	◉	**Does the generator perform Metals Casting**
○	◉	**Are any of the Generator's wastes subject to an oil and gas exploration and production (E&P) exemption pursuant to section 3001(b)(2)(A)?**
○	◉	**Have any of the Generator's wastes been tested using isotopic testing, or known to contain radioactivity**
○	◉	**Does the Generator's facility have a Federal or State license to store, dispose or transport radioactive materials? Federal License No:** ____ **State License No:** ____

1- Any YES answers may require additional information, please contact your TSC representative at wmpnw2@wm.com

GENERATOR CERTIFICATION (PLEASE READ AND CERTIFY BY SIGNATURE)

By signing this form, I hereby certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

■ I am an Authorized Agent signing on behalf of the Generator, and I have confirmed with the Generator that information contained in this profile, as well as supporting documents provided, are accurate and complete.

Name Print Robert Wyatt

Title Director, Legacy Environmental Program

Company NW Natural

Date 8/17/23

Certification Signature

Attachment B
Apex Laboratories Report No. A3F1416

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

ANALYTICAL REPORT

Tuesday, July 11, 2023

Ben Uhl
Anchor QEA, LLC
6720 SW Macadam Ave. Suite 125
Portland, OR 97219

RE: A3F1416 - Gasco Data Gaps - 000029-02.84 (03.003D)

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 A3F1416, which was received by the laboratory on 6/22/2023 at 8:30:00AM.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: dthomas@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)

Default Cooler	3.5	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

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Darwin Thomas, Business Development Director

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

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Client Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
2023-DG-IDW-062123	**A3F1416-01**	**SO**	**06/21/23 13:15**	**06/22/23 08:30**

Apex Laboratories

Darwin Thomas, Business Development Director

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ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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
2023-DG-IDW-062123 (A3F1416-01)				**Matrix: SO**		**Batch: 23G0046**		
Diesel	**295**	11.7	23.4	mg/kg dry	1	07/05/23 20:07	NWTPH-Dx	**F-17**
Oil	**211**	23.4	46.8	mg/kg dry	1	07/05/23 20:07	NWTPH-Dx	**F-17**
Surrogate: o-Terphenyl (Surr)		*Recovery: 95 %*		*Limits: 50-150 %*	*1*	*07/05/23 20:07*	*NWTPH-Dx*	

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ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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
2023-DG-IDW-062123 (A3F1416-01)				**Matrix: SO**		**Batch: 23F0856**		
Gasoline Range Organics	**73.2**	3.24	6.49	mg/kg dry	50	06/23/23 20:48	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)		*Recovery:*	*105 %*	*Limits: 50-150 %*	*1*	*06/23/23 20:48*	*NWTPH-Gx (MS)*	
1,4-Difluorobenzene (Sur)			*107 %*	*50-150 %*	*1*	*06/23/23 20:48*	*NWTPH-Gx (MS)*	

Apex Laboratories

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ANALYTICAL REPORT

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6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
2023-DG-IDW-062123 (A3F1416-01)				**Matrix: SO**		**Batch: 23F0856**		
Acetone	ND	649	1300	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Acrylonitrile	ND	64.9	130	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Benzene	**22.7**	6.49	13.0	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Bromobenzene	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Bromochloromethane	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Bromodichloromethane	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Bromoform	ND	64.9	130	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Bromomethane	ND	649	649	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
2-Butanone (MEK)	ND	324	649	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
n-Butylbenzene	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
sec-Butylbenzene	**64.9**	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
tert-Butylbenzene	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Carbon disulfide	ND	324	649	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Carbon tetrachloride	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Chlorobenzene	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Chloroethane	ND	324	649	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Chloroform	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Chloromethane	ND	162	324	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
2-Chlorotoluene	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
4-Chlorotoluene	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Dibromochloromethane	ND	64.9	130	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,2-Dibromo-3-chloropropane	ND	162	324	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,2-Dibromoethane (EDB)	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Dibromomethane	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,2-Dichlorobenzene	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,3-Dichlorobenzene	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,4-Dichlorobenzene	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Dichlorodifluoromethane	ND	64.9	130	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,1-Dichloroethane	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,2-Dichloroethane (EDC)	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,1-Dichloroethene	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
cis-1,2-Dichloroethene	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
trans-1,2-Dichloroethene	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	

Apex Laboratories

Darwin Thomas, Business Development Director

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

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
2023-DG-IDW-062123 (A3F1416-01)				**Matrix: SO**		**Batch: 23F0856**		
1,2-Dichloropropane	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,3-Dichloropropane	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
2,2-Dichloropropane	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,1-Dichloropropene	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
cis-1,3-Dichloropropene	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
trans-1,3-Dichloropropene	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Ethylbenzene	**101**	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Hexachlorobutadiene	ND	64.9	130	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
2-Hexanone	ND	649	649	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Isopropylbenzene	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
4-Isopropyltoluene	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Methylene chloride	ND	324	649	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
4-Methyl-2-pentanone (MiBK)	ND	324	649	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Methyl tert-butyl ether (MTBE)	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
n-Propylbenzene	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Styrene	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,1,1,2-Tetrachloroethane	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,1,2,2-Tetrachloroethane	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Tetrachloroethene (PCE)	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Toluene	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,2,3-Trichlorobenzene	ND	162	324	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,2,4-Trichlorobenzene	ND	162	324	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,1,1-Trichloroethane	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,1,2-Trichloroethane	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Trichloroethene (TCE)	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Trichlorofluoromethane	ND	64.9	130	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,2,3-Trichloropropane	ND	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,2,4-Trimethylbenzene	**98.0**	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
1,3,5-Trimethylbenzene	**40.2**	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	**J**
Vinyl chloride	ND	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
m,p-Xylene	**118**	32.4	64.9	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
o-Xylene	**51.9**	16.2	32.4	ug/kg dry	50	06/23/23 20:48	5035A/8260D	
Surrogate: 1,4-Difluorobenzene (Surr)		*Recovery: 100 %*		*Limits: 80-120 %*	*1*	*06/23/23 20:48*	*5035A/8260D*	

Apex Laboratories

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Darwin Thomas, Business Development Director

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Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

ANALYTICAL SAMPLE RESULTS

Volatile Organic Compounds by EPA 8260D

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
2023-DG-IDW-062123 (A3F1416-01)				**Matrix: SO**		**Batch: 23F0856**		
Surrogate: Toluene-d8 (Surr)			*Recovery: 101 %*	*Limits: 80-120 %*	*1*	*06/23/23 20:48*	*5035A/8260D*	
4-Bromofluorobenzene (Surr)			*95 %*	*79-120 %*	*1*	*06/23/23 20:48*	*5035A/8260D*	
2023-DG-IDW-062123 (A3F1416-01RE1)				**Matrix: SO**		**Batch: 23F0926**		
Naphthalene	**16700**	1300	2600	ug/kg dry	1000	06/26/23 19:13	5035A/8260D	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 103 %*	*Limits: 80-120 %*	*1*	*06/26/23 19:13*	*5035A/8260D*	
Toluene-d8 (Surr)			*103 %*	*80-120 %*	*1*	*06/26/23 19:13*	*5035A/8260D*	
4-Bromofluorobenzene (Surr)			*93 %*	*79-120 %*	*1*	*06/26/23 19:13*	*5035A/8260D*	

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ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
2023-DG-IDW-062123 (A3F1416-01)				**Matrix: SO**		**Batch: 23F1148**		
Acenaphthene	**13700**	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Acenaphthylene	**5730**	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Anthracene	**15100**	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Benz(a)anthracene	**10400**	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Benzo(a)pyrene	**13200**	2280	4560	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Benzo(b)fluoranthene	**9990**	2280	4560	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Benzo(k)fluoranthene	**4210**	2280	4560	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	**J**
Benzo(g,h,i)perylene	**9570**	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Chrysene	**13100**	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Dibenz(a,h)anthracene	ND	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Fluoranthene	**40700**	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Fluorene	**10800**	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Indeno(1,2,3-cd)pyrene	**8230**	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
1-Methylnaphthalene	**5440**	3040	6070	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	**J**
2-Methylnaphthalene	**3970**	3040	6070	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	**J**
Naphthalene	**11900**	3040	6070	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Phenanthrene	**72200**	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Pyrene	**48900**	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Carbazole	**3530**	2280	4560	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	**J**
Dibenzofuran	ND	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
2-Chlorophenol	ND	7600	15200	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
4-Chloro-3-methylphenol	ND	15200	30400	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
2,4-Dichlorophenol	ND	7600	15200	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
2,4-Dimethylphenol	ND	7600	15200	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
2,4-Dinitrophenol	ND	37900	76000	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
4,6-Dinitro-2-methylphenol	ND	37900	76000	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
2-Methylphenol	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
3+4-Methylphenol(s)	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
2-Nitrophenol	ND	15200	30400	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
4-Nitrophenol	ND	15200	30400	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Pentachlorophenol (PCP)	ND	15200	30400	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Phenol	ND	3040	6070	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
2,3,4,6-Tetrachlorophenol	ND	7600	15200	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	

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Darwin Thomas, Business Development Director

APEX LABORATORIES

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
2023-DG-IDW-062123 (A3F1416-01)				**Matrix: SO**		**Batch: 23F1148**		
2,3,5,6-Tetrachlorophenol	ND	7600	15200	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
2,4,5-Trichlorophenol	ND	7600	15200	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
2,4,6-Trichlorophenol	ND	7600	15200	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Bis(2-ethylhexyl)phthalate	ND	22800	45600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Butyl benzyl phthalate	ND	15200	30400	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Diethylphthalate	ND	15200	30400	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Dimethylphthalate	ND	15200	30400	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Di-n-butylphthalate	ND	15200	30400	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Di-n-octyl phthalate	ND	15200	30400	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
N-Nitrosodimethylamine	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
N-Nitroso-di-n-propylamine	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
N-Nitrosodiphenylamine	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Bis(2-Chloroethoxy) methane	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Bis(2-Chloroethyl) ether	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
2,2'-Oxybis(1-Chloropropane)	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Hexachlorobenzene	ND	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Hexachlorobutadiene	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Hexachlorocyclopentadiene	ND	7600	15200	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Hexachloroethane	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
2-Chloronaphthalene	ND	1520	3040	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
1,2,4-Trichlorobenzene	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
4-Bromophenyl phenyl ether	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
4-Chlorophenyl phenyl ether	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Aniline	ND	7600	15200	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
4-Chloroaniline	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
2-Nitroaniline	ND	30400	60700	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
3-Nitroaniline	ND	30400	60700	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
4-Nitroaniline	ND	30400	60700	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Nitrobenzene	ND	15200	30400	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
2,4-Dinitrotoluene	ND	15200	30400	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
2,6-Dinitrotoluene	ND	15200	30400	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Benzoic acid	ND	190000	379000	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Benzyl alcohol	ND	7600	15200	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	

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

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

ANALYTICAL SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
2023-DG-IDW-062123 (A3F1416-01)				**Matrix: SO**		**Batch: 23F1148**		
Isophorone	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Azobenzene (1,2-DPH)	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Bis(2-Ethylhexyl) adipate	ND	37900	76000	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
3,3'-Dichlorobenzidine	ND	30400	60700	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	Q-52
1,2-Dinitrobenzene	ND	37900	76000	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
1,3-Dinitrobenzene	ND	37900	76000	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
1,4-Dinitrobenzene	ND	37900	76000	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Pyridine	ND	7600	15200	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
1,2-Dichlorobenzene	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
1,3-Dichlorobenzene	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
1,4-Dichlorobenzene	ND	3790	7600	ug/kg dry	1000	06/30/23 19:42	EPA 8270E	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery: %*		*Limits: 37-122 %*	*1000*	*06/30/23 19:42*	*EPA 8270E*	*S-01*
2-Fluorobiphenyl (Surr)		*116 %*		*44-120 %*	*1000*	*06/30/23 19:42*	*EPA 8270E*	*S-05*
Phenol-d6 (Surr)		*%*		*33-122 %*	*1000*	*06/30/23 19:42*	*EPA 8270E*	*S-01*
p-Terphenyl-d14 (Surr)		*133 %*		*54-127 %*	*1000*	*06/30/23 19:42*	*EPA 8270E*	*S-05*
2-Fluorophenol (Surr)		*202 %*		*35-120 %*	*1000*	*06/30/23 19:42*	*EPA 8270E*	*S-05*
2,4,6-Tribromophenol (Surr)		*%*		*39-132 %*	*1000*	*06/30/23 19:42*	*EPA 8270E*	*S-01*

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ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

ANALYTICAL SAMPLE RESULTS

TCLP Semivolatile Organic Compounds by EPA 1311/8270E

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
2023-DG-IDW-062123 (A3F1416-01RE1)				**Matrix: SO**		**Batch: 23G0128**		
2-Methylphenol	ND	---	0.0500	mg/L	10	07/07/23 11:46	1311/8270E	
3+4-Methylphenol(s)	ND	---	0.0500	mg/L	10	07/07/23 11:46	1311/8270E	
Pentachlorophenol (PCP)	ND	---	0.100	mg/L	10	07/07/23 11:46	1311/8270E	
2,4,5-Trichlorophenol	ND	---	0.0500	mg/L	10	07/07/23 11:46	1311/8270E	
2,4,6-Trichlorophenol	ND	---	0.0500	mg/L	10	07/07/23 11:46	1311/8270E	
Hexachlorobenzene	ND	---	0.0200	mg/L	10	07/07/23 11:46	1311/8270E	
Hexachlorobutadiene	ND	---	0.0500	mg/L	10	07/07/23 11:46	1311/8270E	
Hexachloroethane	ND	---	0.0500	mg/L	10	07/07/23 11:46	1311/8270E	
Nitrobenzene	ND	---	0.0500	mg/L	10	07/07/23 11:46	1311/8270E	
2,4-Dinitrotoluene	ND	---	0.0200	mg/L	10	07/07/23 11:46	1311/8270E	
Pyridine	ND	---	0.100	mg/L	10	07/07/23 11:46	1311/8270E	
Surrogate: Nitrobenzene-d5 (Surr)		*Recovery:*	*77 %*	*Limits: 44-120 %*	*10*	*07/07/23 11:46*	*1311/8270E*	
2-Fluorobiphenyl (Surr)			*82 %*	*44-120 %*	*10*	*07/07/23 11:46*	*1311/8270E*	
Phenol-d6 (Surr)			*27 %*	*10-133 %*	*10*	*07/07/23 11:46*	*1311/8270E*	
p-Terphenyl-d14 (Surr)			*99 %*	*50-134 %*	*10*	*07/07/23 11:46*	*1311/8270E*	
2-Fluorophenol (Surr)			*43 %*	*19-120 %*	*10*	*07/07/23 11:46*	*1311/8270E*	
2,4,6-Tribromophenol (Surr)			*100 %*	*43-140 %*	*10*	*07/07/23 11:46*	*1311/8270E*	*Q-41*

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ANALYTICAL REPORT

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6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

ANALYTICAL SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
2023-DG-IDW-062123 (A3F1416-01RE1)				**Matrix: SO**				
Batch: 23G0050								
Arsenic	**2.40**	0.608	1.22	mg/kg dry	10	07/05/23 21:20	EPA 6020B	
Barium	**268**	0.608	1.22	mg/kg dry	10	07/05/23 21:20	EPA 6020B	
Cadmium	**1.51**	0.122	0.243	mg/kg dry	10	07/05/23 21:20	EPA 6020B	
Chromium	**17.5**	0.608	1.22	mg/kg dry	10	07/05/23 21:20	EPA 6020B	
Lead	**64.8**	0.122	0.243	mg/kg dry	10	07/05/23 21:20	EPA 6020B	
Mercury	**0.0683**	0.0487	0.0973	mg/kg dry	10	07/05/23 21:20	EPA 6020B	**J**
Selenium	ND	0.608	1.22	mg/kg dry	10	07/05/23 21:20	EPA 6020B	
Silver	ND	0.122	0.243	mg/kg dry	10	07/05/23 21:20	EPA 6020B	

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Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

ANALYTICAL SAMPLE RESULTS

Soluble Cyanide by Flow Analysis (Non-Aqueous/Water Leach)

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
2023-DG-IDW-062123 (A3F1416-01RE1)				**Matrix: SO**		**Batch: 23G0071**		
Total Cyanide	**146**	3.00	3.00	mg/kg dry	25	07/05/23 16:50	EPA 9013M/9012B	

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Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

ANALYTICAL SAMPLE RESULTS

Solid and Moisture Determinations

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
2023-DG-IDW-062123 (A3F1416-01)				**Matrix: SO**				
Batch: 23F0915								
Total Solids	**83.4**	1.00	1.00	%	1	06/26/23 09:46	SM 2540 G	

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6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

ANALYTICAL SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
2023-DG-IDW-062123 (A3F1416-01)				**Matrix: SO**				
Batch: 23F0881								
Soil/Solid pH (measured in H2O)	**6.3**			pH Units	1	06/23/23 13:27	EPA 9045D	**pH_S**
pH Temperature (deg C)	**22.8**			pH Units	1	06/23/23 13:27	EPA 9045D	**pH_S**
Batch: 23F1084								
Flash Point (Ignitability)	>150° F	70	70	degF	1	06/29/23 13:12	EPA 1010M	
Batch: 23G0096								
Free Liquid	**ND**	---	0.00	mL	1	07/05/23 16:43	EPA 9095B	

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ANALYTICAL SAMPLE RESULTS

TCLP Extraction by EPA 1311

Analyte	Sample Result	Detection Limit	Reporting Limit	Units	Dilution	Date Analyzed	Method Ref.	Notes
2023-DG-IDW-062123 (A3F1416-01)				**Matrix: SO**		**Batch: 23F1091**		
TCLP Extraction	PREP	---		N/A	1	06/29/23 18:03	EPA 1311	

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ANALYTICAL REPORT

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6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23G0046 - EPA 3546 (Fuels)							**Soil**					
Blank (23G0046-BLK1)			Prepared: 07/05/23 05:34	Analyzed: 07/05/23 18:46								
NWTPH-Dx												
Diesel	ND	10.0	20.0	mg/kg wet	1	---	---	---	---	---	---	
Oil	ND	20.0	40.0	mg/kg wet	1	---	---	---	---	---	---	
Mineral Oil	ND	20.0	40.0	mg/kg wet	1	---	---	---	---	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 99 %*	*Limits: 50-150 %*			*Dilution: 1x*					
LCS (23G0046-BS1)			Prepared: 07/05/23 05:34	Analyzed: 07/05/23 19:06								
NWTPH-Dx												
Diesel	118	10.0	20.0	mg/kg wet	1	125	---	95	38-132%	---	---	
Surr: o-Terphenyl (Surr)			*Recovery: 103 %*	*Limits: 50-150 %*			*Dilution: 1x*					
Duplicate (23G0046-DUP1)			Prepared: 07/05/23 05:34	Analyzed: 07/05/23 19:47								
QC Source Sample: Non-SDG (A3F1413-01)												
Diesel	**7070**	143	286	mg/kg dry	10	---	3800	---	---	**60**	**30%**	F-17, Q-04
Oil	**4410**	286	572	mg/kg dry	10	---	2320	---	---	**62**	**30%**	F-17, Q-04
Mineral Oil	ND	286	572	mg/kg dry	10	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 79 %*	*Limits: 50-150 %*			*Dilution: 10x*					*S-05*
Duplicate (23G0046-DUP3)			Prepared: 07/05/23 05:35	Analyzed: 07/06/23 11:33								
QC Source Sample: Non-SDG (A3F1696-05RE1)												
Diesel	ND	9.66	19.3	mg/kg wet	1	---	ND	---	---	---	30%	
Oil	**91.0**	19.3	38.6	mg/kg wet	1	---	77.5	---	---	16	30%	F-17
Mineral Oil	ND	19.3	38.6	mg/kg wet	1	---	ND	---	---	---	30%	
Surr: o-Terphenyl (Surr)			*Recovery: 95 %*	*Limits: 50-150 %*			*Dilution: 1x*					

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0856 - EPA 5035A							**Soil**					
Blank (23F0856-BLK1)			Prepared: 06/23/23 08:53 Analyzed: 06/23/23 10:35									
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	2.50	5.00	mg/kg wet	50	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 103 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*108 %*	*50-150 %*			*"*					
LCS (23F0856-BS2)			Prepared: 06/23/23 08:53 Analyzed: 06/23/23 10:06									
NWTPH-Gx (MS)												
Gasoline Range Organics	26.1	2.50	5.00	mg/kg wet	50	25.0	---	104	80-120%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 98 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*107 %*	*50-150 %*			*"*					
Duplicate (23F0856-DUP1)			Prepared: 06/19/23 09:30 Analyzed: 06/23/23 11:26									
QC Source Sample: Non-SDG (A3F1410-01)												
Gasoline Range Organics	ND	3.92	7.84	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 103 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*110 %*	*50-150 %*			*"*					
Duplicate (23F0856-DUP2)			Prepared: 06/20/23 14:15 Analyzed: 06/23/23 18:15									
QC Source Sample: Non-SDG (A3F1425-01)												
Gasoline Range Organics	ND	3.54	7.08	mg/kg dry	50	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 106 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*108 %*	*50-150 %*			*"*					

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ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0856 - EPA 5035A							**Soil**					
Blank (23F0856-BLK1)			Prepared: 06/23/23 08:53 Analyzed: 06/23/23 10:35									
5035A/8260D												
Acetone	ND	500	1000	ug/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	50.0	100	ug/kg wet	50	---	---	---	---	---	---	
Benzene	ND	5.00	10.0	ug/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	50.0	100	ug/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	500	500	ug/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	250	500	ug/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	250	500	ug/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	250	500	ug/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	125	250	ug/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	50.0	100	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	125	250	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	50.0	100	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	

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Darwin Thomas, Business Development Director

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

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0856 - EPA 5035A							**Soil**					
Blank (23F0856-BLK1)			Prepared: 06/23/23 08:53 Analyzed: 06/23/23 10:35									
1,2-Dichloropropane	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	50.0	100	ug/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	500	500	ug/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	250	500	ug/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	250	500	ug/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	50.0	100	ug/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Styrene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	125	250	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	125	250	ug/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	50.0	100	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 102 %* *Limits: 80-120 %* *Dilution: 1x*

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Darwin Thomas, Business Development Director

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6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: **OR100062**

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0856 - EPA 5035A							**Soil**					
Blank (23F0856-BLK1)				Prepared: 06/23/23 08:53 Analyzed: 06/23/23 10:35								
Surr: Toluene-d8 (Surr)			*Recovery: 101 %*	*Limits: 80-120 %*			*Dilution: 1x*					
4-Bromofluorobenzene (Surr)			*94 %*	*79-120 %*			*"*					
LCS (23F0856-BS1)				Prepared: 06/23/23 08:53 Analyzed: 06/23/23 09:40								
5035A/8260D												
Acetone	1890	500	1000	ug/kg wet	50	2000	---	95	80-120%	---	---	
Acrylonitrile	995	50.0	100	ug/kg wet	50	1000	---	100	80-120%	---	---	
Benzene	1020	5.00	10.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Bromobenzene	910	12.5	25.0	ug/kg wet	50	1000	---	91	80-120%	---	---	
Bromochloromethane	1080	25.0	50.0	ug/kg wet	50	1000	---	108	80-120%	---	---	
Bromodichloromethane	1090	25.0	50.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
Bromoform	1030	50.0	100	ug/kg wet	50	1000	---	103	80-120%	---	---	
Bromomethane	1120	500	500	ug/kg wet	50	1000	---	112	80-120%	---	---	
2-Butanone (MEK)	1920	250	500	ug/kg wet	50	2000	---	96	80-120%	---	---	
n-Butylbenzene	938	25.0	50.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
sec-Butylbenzene	954	25.0	50.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
tert-Butylbenzene	906	25.0	50.0	ug/kg wet	50	1000	---	91	80-120%	---	---	
Carbon disulfide	922	250	500	ug/kg wet	50	1000	---	92	80-120%	---	---	
Carbon tetrachloride	1130	25.0	50.0	ug/kg wet	50	1000	---	113	80-120%	---	---	
Chlorobenzene	987	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
Chloroethane	1320	250	500	ug/kg wet	50	1000	---	**132**	**80-120%**	---	---	Q-56
Chloroform	1000	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
Chloromethane	934	125	250	ug/kg wet	50	1000	---	93	80-120%	---	---	
2-Chlorotoluene	910	25.0	50.0	ug/kg wet	50	1000	---	91	80-120%	---	---	
4-Chlorotoluene	930	25.0	50.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
Dibromochloromethane	1160	50.0	100	ug/kg wet	50	1000	---	116	80-120%	---	---	
1,2-Dibromo-3-chloropropane	933	125	250	ug/kg wet	50	1000	---	93	80-120%	---	---	
1,2-Dibromoethane (EDB)	974	25.0	50.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Dibromomethane	1040	25.0	50.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
1,2-Dichlorobenzene	960	12.5	25.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
1,3-Dichlorobenzene	962	12.5	25.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
1,4-Dichlorobenzene	944	12.5	25.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
Dichlorodifluoromethane	1040	50.0	100	ug/kg wet	50	1000	---	104	80-120%	---	---	
1,1-Dichloroethane	1040	12.5	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---	

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Darwin Thomas, Business Development Director

APEX LABORATORIES

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503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0856 - EPA 5035A							**Soil**					
LCS (23F0856-BS1)			Prepared: 06/23/23 08:53		Analyzed: 06/23/23 09:40							
1,2-Dichloroethane (EDC)	1050	12.5	25.0	ug/kg wet	50	1000	---	105	80-120%	---	---	
1,1-Dichloroethene	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
cis-1,2-Dichloroethene	1000	12.5	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
trans-1,2-Dichloroethene	986	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
1,2-Dichloropropane	1030	12.5	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
1,3-Dichloropropane	1000	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
2,2-Dichloropropane	981	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
1,1-Dichloropropene	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
cis-1,3-Dichloropropene	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
trans-1,3-Dichloropropene	1000	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
Ethylbenzene	924	12.5	25.0	ug/kg wet	50	1000	---	92	80-120%	---	---	
Hexachlorobutadiene	925	50.0	100	ug/kg wet	50	1000	---	92	80-120%	---	---	
2-Hexanone	1580	500	500	ug/kg wet	50	2000	---	**79**	**80-120%**	---	---	Q-55
Isopropylbenzene	920	25.0	50.0	ug/kg wet	50	1000	---	92	80-120%	---	---	
4-Isopropyltoluene	936	25.0	50.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
Methylene chloride	1070	250	500	ug/kg wet	50	1000	---	107	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	1720	250	500	ug/kg wet	50	2000	---	86	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	907	25.0	50.0	ug/kg wet	50	1000	---	91	80-120%	---	---	
Naphthalene	856	50.0	100	ug/kg wet	50	1000	---	86	80-120%	---	---	
n-Propylbenzene	945	12.5	25.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
Styrene	906	25.0	50.0	ug/kg wet	50	1000	---	91	80-120%	---	---	
1,1,1,2-Tetrachloroethane	1090	12.5	25.0	ug/kg wet	50	1000	---	109	80-120%	---	---	
1,1,2,2-Tetrachloroethane	870	25.0	50.0	ug/kg wet	50	1000	---	87	80-120%	---	---	
Tetrachloroethene (PCE)	984	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
Toluene	940	25.0	50.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
1,2,3-Trichlorobenzene	909	125	250	ug/kg wet	50	1000	---	91	80-120%	---	---	
1,2,4-Trichlorobenzene	856	125	250	ug/kg wet	50	1000	---	86	80-120%	---	---	
1,1,1-Trichloroethane	1070	12.5	25.0	ug/kg wet	50	1000	---	107	80-120%	---	---	
1,1,2-Trichloroethane	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Trichloroethene (TCE)	1100	12.5	25.0	ug/kg wet	50	1000	---	110	80-120%	---	---	
Trichlorofluoromethane	932	50.0	100	ug/kg wet	50	1000	---	93	80-120%	---	---	
1,2,3-Trichloropropane	984	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
1,2,4-Trimethylbenzene	916	25.0	50.0	ug/kg wet	50	1000	---	92	80-120%	---	---	
1,3,5-Trimethylbenzene	948	25.0	50.0	ug/kg wet	50	1000	---	95	80-120%	---	---	

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ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0856 - EPA 5035A							**Soil**					
LCS (23F0856-BS1)			Prepared: 06/23/23 08:53 Analyzed: 06/23/23 09:40									
Vinyl chloride	1060	12.5	25.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
m,p-Xylene	1820	25.0	50.0	ug/kg wet	50	2000	---	91	80-120%	---	---	
o-Xylene	854	12.5	25.0	ug/kg wet	50	1000	---	85	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 101 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*103 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*91 %*		*79-120 %*				*"*			
Duplicate (23F0856-DUP1)			Prepared: 06/19/23 09:30 Analyzed: 06/23/23 11:26									
QC Source Sample: Non-SDG (A3F1410-01)												
Acetone	ND	784	1570	ug/kg dry	50	---	ND	---	---	---	30%	
Acrylonitrile	ND	78.4	157	ug/kg dry	50	---	ND	---	---	---	30%	
Benzene	ND	7.84	15.7	ug/kg dry	50	---	ND	---	---	---	30%	
Bromobenzene	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
Bromochloromethane	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
Bromodichloromethane	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
Bromoform	ND	78.4	157	ug/kg dry	50	---	ND	---	---	---	30%	
Bromomethane	ND	784	784	ug/kg dry	50	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	392	784	ug/kg dry	50	---	ND	---	---	---	30%	
n-Butylbenzene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon disulfide	ND	392	784	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
Chlorobenzene	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroethane	ND	392	784	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroform	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
Chloromethane	ND	196	392	ug/kg dry	50	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromochloromethane	ND	78.4	157	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	196	392	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromomethane	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	

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6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0856 - EPA 5035A							**Soil**					
Duplicate (23F0856-DUP1)			Prepared: 06/19/23 09:30 Analyzed: 06/23/23 11:26									
QC Source Sample: Non-SDG (A3F1410-01)												
1,3-Dichlorobenzene	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	78.4	157	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	78.4	157	ug/kg dry	50	---	ND	---	---	---	30%	
2-Hexanone	ND	784	784	ug/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
Methylene chloride	ND	392	784	ug/kg dry	50	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	392	784	ug/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	78.4	157	ug/kg dry	50	---	ND	---	---	---	30%	
n-Propylbenzene	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
Styrene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	196	392	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	196	392	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	

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Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0856 - EPA 5035A							**Soil**					
Duplicate (23F0856-DUP1)			Prepared: 06/19/23 09:30 Analyzed: 06/23/23 11:26									
QC Source Sample: Non-SDG (A3F1410-01)												
Trichloroethene (TCE)	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	78.4	157	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
Vinyl chloride	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
m,p-Xylene	ND	39.2	78.4	ug/kg dry	50	---	ND	---	---	---	30%	
o-Xylene	ND	19.6	39.2	ug/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 103 %*	*Limits: 80-120 %*			*Dilution: 1x*					
Toluene-d8 (Surr)			*102 %*	*80-120 %*			*"*					
4-Bromofluorobenzene (Surr)			*94 %*	*79-120 %*			*"*					
Duplicate (23F0856-DUP2)			Prepared: 06/20/23 14:15 Analyzed: 06/23/23 18:15									
QC Source Sample: Non-SDG (A3F1425-01)												
Acetone	ND	708	1420	ug/kg dry	50	---	ND	---	---	---	30%	
Acrylonitrile	ND	70.8	142	ug/kg dry	50	---	ND	---	---	---	30%	
Benzene	ND	7.08	14.2	ug/kg dry	50	---	ND	---	---	---	30%	
Bromobenzene	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
Bromochloromethane	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
Bromodichloromethane	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
Bromoform	ND	70.8	142	ug/kg dry	50	---	ND	---	---	---	30%	
Bromomethane	ND	708	708	ug/kg dry	50	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	354	708	ug/kg dry	50	---	ND	---	---	---	30%	
n-Butylbenzene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon disulfide	ND	354	708	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
Chlorobenzene	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroethane	ND	354	708	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroform	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
Chloromethane	ND	177	354	ug/kg dry	50	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	

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6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: **OR100062**

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0856 - EPA 5035A							**Soil**					
Duplicate (23F0856-DUP2)			Prepared: 06/20/23 14:15 Analyzed: 06/23/23 18:15									
QC Source Sample: Non-SDG (A3F1425-01)												
4-Chlorotoluene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromochloromethane	ND	70.8	142	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	177	354	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromomethane	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	70.8	142	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	70.8	142	ug/kg dry	50	---	ND	---	---	---	30%	
2-Hexanone	ND	708	708	ug/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
Methylene chloride	ND	354	708	ug/kg dry	50	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	354	708	ug/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	70.8	142	ug/kg dry	50	---	ND	---	---	---	30%	
n-Propylbenzene	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
Styrene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	

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503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0856 - EPA 5035A							**Soil**					
Duplicate (23F0856-DUP2)			Prepared: 06/20/23 14:15 Analyzed: 06/23/23 18:15									
QC Source Sample: Non-SDG (A3F1425-01)												
Tetrachloroethene (PCE)	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	177	354	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	177	354	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
Trichloroethene (TCE)	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	70.8	142	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
Vinyl chloride	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
m,p-Xylene	ND	35.4	70.8	ug/kg dry	50	---	ND	---	---	---	30%	
o-Xylene	ND	17.7	35.4	ug/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 101 %*	*Limits: 80-120 %*			*Dilution: 1x*					
Toluene-d8 (Surr)			*101 %*	*80-120 %*			*"*					
4-Bromofluorobenzene (Surr)			*95 %*	*79-120 %*			*"*					
Matrix Spike (23F0856-MS1)			Prepared: 06/19/23 10:20 Analyzed: 06/23/23 15:43									
QC Source Sample: Non-SDG (A3F1410-10)												
5035A/8260D												
Acetone	2200	513	1030	ug/kg dry	50	2050	ND	107	36-164%	---	---	
Acrylonitrile	1110	51.3	103	ug/kg dry	50	1030	ND	109	65-134%	---	---	
Benzene	1170	5.13	10.3	ug/kg dry	50	1030	ND	114	77-121%	---	---	
Bromobenzene	1020	12.8	25.7	ug/kg dry	50	1030	ND	100	78-121%	---	---	
Bromochloromethane	1200	25.7	51.3	ug/kg dry	50	1030	ND	117	78-125%	---	---	
Bromodichloromethane	1210	25.7	51.3	ug/kg dry	50	1030	ND	118	75-127%	---	---	
Bromoform	1060	51.3	103	ug/kg dry	50	1030	ND	104	67-132%	---	---	
Bromomethane	1310	513	513	ug/kg dry	50	1030	ND	128	53-143%	---	---	
2-Butanone (MEK)	2160	257	513	ug/kg dry	50	2050	ND	105	51-148%	---	---	
n-Butylbenzene	1070	25.7	51.3	ug/kg dry	50	1030	ND	105	70-128%	---	---	
sec-Butylbenzene	1080	25.7	51.3	ug/kg dry	50	1030	ND	105	73-126%	---	---	
tert-Butylbenzene	1020	25.7	51.3	ug/kg dry	50	1030	ND	100	73-125%	---	---	

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Tigard, OR 97223
503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0856 - EPA 5035A							**Soil**					
Matrix Spike (23F0856-MS1)			Prepared: 06/19/23 10:20		Analyzed: 06/23/23 15:43							
QC Source Sample: Non-SDG (A3F1410-10)												
Carbon disulfide	1060	257	513	ug/kg dry	50	1030	ND	104	63-132%	---	---	
Carbon tetrachloride	1310	25.7	51.3	ug/kg dry	50	1030	ND	128	70-135%	---	---	
Chlorobenzene	1090	12.8	25.7	ug/kg dry	50	1030	ND	106	79-120%	---	---	
Chloroethane	1510	257	513	ug/kg dry	50	1030	ND	**147**	**59-139%**	---	---	Q-54
Chloroform	1140	25.7	51.3	ug/kg dry	50	1030	ND	111	78-123%	---	---	
Chloromethane	1080	128	257	ug/kg dry	50	1030	ND	105	50-136%	---	---	
2-Chlorotoluene	1030	25.7	51.3	ug/kg dry	50	1030	ND	101	75-122%	---	---	
4-Chlorotoluene	1040	25.7	51.3	ug/kg dry	50	1030	ND	101	72-124%	---	---	
Dibromochloromethane	1210	51.3	103	ug/kg dry	50	1030	ND	118	74-126%	---	---	
1,2-Dibromo-3-chloropropane	939	128	257	ug/kg dry	50	1030	ND	92	61-132%	---	---	
1,2-Dibromoethane (EDB)	1050	25.7	51.3	ug/kg dry	50	1030	ND	103	78-122%	---	---	
Dibromomethane	1160	25.7	51.3	ug/kg dry	50	1030	ND	113	78-125%	---	---	
1,2-Dichlorobenzene	1050	12.8	25.7	ug/kg dry	50	1030	ND	103	78-121%	---	---	
1,3-Dichlorobenzene	1070	12.8	25.7	ug/kg dry	50	1030	ND	104	77-121%	---	---	
1,4-Dichlorobenzene	1030	12.8	25.7	ug/kg dry	50	1030	ND	101	75-120%	---	---	
Dichlorodifluoromethane	1230	51.3	103	ug/kg dry	50	1030	ND	120	29-149%	---	---	
1,1-Dichloroethane	1200	12.8	25.7	ug/kg dry	50	1030	ND	117	76-125%	---	---	
1,2-Dichloroethane (EDC)	1180	12.8	25.7	ug/kg dry	50	1030	ND	115	73-128%	---	---	
1,1-Dichloroethene	1190	12.8	25.7	ug/kg dry	50	1030	ND	116	70-131%	---	---	
cis-1,2-Dichloroethene	1160	12.8	25.7	ug/kg dry	50	1030	ND	113	77-123%	---	---	
trans-1,2-Dichloroethene	1140	12.8	25.7	ug/kg dry	50	1030	ND	112	74-125%	---	---	
1,2-Dichloropropane	1150	12.8	25.7	ug/kg dry	50	1030	ND	113	76-123%	---	---	
1,3-Dichloropropane	1100	25.7	51.3	ug/kg dry	50	1030	ND	107	77-121%	---	---	
2,2-Dichloropropane	1080	25.7	51.3	ug/kg dry	50	1030	ND	105	67-133%	---	---	
1,1-Dichloropropene	1190	25.7	51.3	ug/kg dry	50	1030	ND	116	76-125%	---	---	
cis-1,3-Dichloropropene	1070	25.7	51.3	ug/kg dry	50	1030	ND	105	74-126%	---	---	
trans-1,3-Dichloropropene	1050	25.7	51.3	ug/kg dry	50	1030	ND	103	71-130%	---	---	
Ethylbenzene	1040	12.8	25.7	ug/kg dry	50	1030	ND	101	76-122%	---	---	
Hexachlorobutadiene	1030	51.3	103	ug/kg dry	50	1030	ND	100	61-135%	---	---	
2-Hexanone	1790	513	513	ug/kg dry	50	2050	ND	87	53-145%	---	---	Q-54b
Isopropylbenzene	1030	25.7	51.3	ug/kg dry	50	1030	ND	100	68-134%	---	---	
4-Isopropyltoluene	1070	25.7	51.3	ug/kg dry	50	1030	ND	104	73-127%	---	---	
Methylene chloride	1180	257	513	ug/kg dry	50	1030	ND	115	70-128%	---	---	

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ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0856 - EPA 5035A							**Soil**					
Matrix Spike (23F0856-MS1)			Prepared: 06/19/23 10:20 Analyzed: 06/23/23 15:43									
QC Source Sample: Non-SDG (A3F1410-10)												
4-Methyl-2-pentanone (MiBK)	1940	257	513	ug/kg dry	50	2050	ND	94	65-135%	---	---	
Methyl tert-butyl ether (MTBE)	998	25.7	51.3	ug/kg dry	50	1030	ND	97	73-125%	---	---	
Naphthalene	907	51.3	103	ug/kg dry	50	1030	ND	88	62-129%	---	---	
n-Propylbenzene	1060	12.8	25.7	ug/kg dry	50	1030	ND	103	73-125%	---	---	
Styrene	1020	25.7	51.3	ug/kg dry	50	1030	ND	100	76-124%	---	---	
1,1,1,2-Tetrachloroethane	1220	12.8	25.7	ug/kg dry	50	1030	ND	119	78-125%	---	---	
1,1,2,2-Tetrachloroethane	953	25.7	51.3	ug/kg dry	50	1030	ND	93	70-124%	---	---	
Tetrachloroethene (PCE)	1130	12.8	25.7	ug/kg dry	50	1030	35.4	107	73-128%	---	---	
Toluene	1040	25.7	51.3	ug/kg dry	50	1030	ND	102	77-121%	---	---	
1,2,3-Trichlorobenzene	976	128	257	ug/kg dry	50	1030	ND	95	66-130%	---	---	
1,2,4-Trichlorobenzene	919	128	257	ug/kg dry	50	1030	ND	90	67-129%	---	---	
1,1,1-Trichloroethane	1240	12.8	25.7	ug/kg dry	50	1030	ND	121	73-130%	---	---	
1,1,2-Trichloroethane	1110	12.8	25.7	ug/kg dry	50	1030	ND	109	78-121%	---	---	
Trichloroethene (TCE)	1240	12.8	25.7	ug/kg dry	50	1030	ND	121	77-123%	---	---	
Trichlorofluoromethane	3440	51.3	103	ug/kg dry	50	1030	ND	**336**	**62-140%**	---	---	Q-01
1,2,3-Trichloropropane	1060	25.7	51.3	ug/kg dry	50	1030	ND	103	73-125%	---	---	
1,2,4-Trimethylbenzene	1030	25.7	51.3	ug/kg dry	50	1030	ND	100	75-123%	---	---	
1,3,5-Trimethylbenzene	1070	25.7	51.3	ug/kg dry	50	1030	ND	104	73-124%	---	---	
Vinyl chloride	1280	12.8	25.7	ug/kg dry	50	1030	ND	125	56-135%	---	---	
m,p-Xylene	2030	25.7	51.3	ug/kg dry	50	2050	ND	99	77-124%	---	---	
o-Xylene	955	12.8	25.7	ug/kg dry	50	1030	ND	93	77-123%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 102 %*		*Limits: 80-120 %*				*Dilution: 1x*			
Toluene-d8 (Surr)			*101 %*		*80-120 %*				*"*			
4-Bromofluorobenzene (Surr)			*91 %*		*79-120 %*				*"*			

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Darwin Thomas, Business Development Director

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

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0926 - EPA 5035A							**Soil**					
Blank (23F0926-BLK1)				Prepared: 06/26/23 10:10 Analyzed: 06/26/23 12:50								
5035A/8260D												
Acetone	ND	500	1000	ug/kg wet	50	---	---	---	---	---	---	
Acrylonitrile	ND	50.0	100	ug/kg wet	50	---	---	---	---	---	---	
Benzene	ND	5.00	10.0	ug/kg wet	50	---	---	---	---	---	---	
Bromobenzene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Bromochloromethane	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Bromodichloromethane	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Bromoform	ND	50.0	100	ug/kg wet	50	---	---	---	---	---	---	
Bromomethane	ND	500	500	ug/kg wet	50	---	---	---	---	---	---	
2-Butanone (MEK)	ND	250	500	ug/kg wet	50	---	---	---	---	---	---	
n-Butylbenzene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
sec-Butylbenzene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
tert-Butylbenzene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Carbon disulfide	ND	250	500	ug/kg wet	50	---	---	---	---	---	---	
Carbon tetrachloride	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Chlorobenzene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Chloroethane	ND	250	500	ug/kg wet	50	---	---	---	---	---	---	
Chloroform	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Chloromethane	ND	125	250	ug/kg wet	50	---	---	---	---	---	---	
2-Chlorotoluene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
4-Chlorotoluene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Dibromochloromethane	ND	50.0	100	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromo-3-chloropropane	ND	125	250	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Dibromomethane	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Dichlorodifluoromethane	ND	50.0	100	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethane	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloroethene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
cis-1,2-Dichloroethene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
trans-1,2-Dichloroethene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	

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Darwin Thomas, Business Development Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: **OR100062**

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0926 - EPA 5035A							**Soil**					
Blank (23F0926-BLK1)			Prepared: 06/26/23 10:10 Analyzed: 06/26/23 12:50									
1,2-Dichloropropane	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,3-Dichloropropane	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
2,2-Dichloropropane	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,1-Dichloropropene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
cis-1,3-Dichloropropene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
trans-1,3-Dichloropropene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Ethylbenzene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Hexachlorobutadiene	ND	50.0	100	ug/kg wet	50	---	---	---	---	---	---	
2-Hexanone	ND	250	500	ug/kg wet	50	---	---	---	---	---	---	
Isopropylbenzene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
4-Isopropyltoluene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Methylene chloride	ND	250	500	ug/kg wet	50	---	---	---	---	---	---	
4-Methyl-2-pentanone (MiBK)	ND	250	500	ug/kg wet	50	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Naphthalene	ND	50.0	100	ug/kg wet	50	---	---	---	---	---	---	
n-Propylbenzene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Styrene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,1,1,2-Tetrachloroethane	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,1,2,2-Tetrachloroethane	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Tetrachloroethene (PCE)	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Toluene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichlorobenzene	ND	125	250	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	125	250	ug/kg wet	50	---	---	---	---	---	---	
1,1,1-Trichloroethane	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
1,1,2-Trichloroethane	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Trichloroethene (TCE)	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
Trichlorofluoromethane	ND	50.0	100	ug/kg wet	50	---	---	---	---	---	---	
1,2,3-Trichloropropane	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
Vinyl chloride	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	
m,p-Xylene	ND	25.0	50.0	ug/kg wet	50	---	---	---	---	---	---	
o-Xylene	ND	12.5	25.0	ug/kg wet	50	---	---	---	---	---	---	

Surr: 1,4-Difluorobenzene (Surr) *Recovery: 100 %* *Limits: 80-120 %* *Dilution: 1x*

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Darwin Thomas, Business Development Director

APEX LABORATORIES

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503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0926 - EPA 5035A							**Soil**					
Blank (23F0926-BLK1)			Prepared: 06/26/23 10:10 Analyzed: 06/26/23 12:50									
Surr: Toluene-d8 (Surr)			*Recovery: 102 %*	*Limits: 80-120 %*				*Dilution: 1x*				
4-Bromofluorobenzene (Surr)			*96 %*	*79-120 %*				*"*				
LCS (23F0926-BS1)			Prepared: 06/26/23 10:10 Analyzed: 06/26/23 11:55									
5035A/8260D												
Acetone	1820	500	1000	ug/kg wet	50	2000	---	91	80-120%	---	---	
Acrylonitrile	968	50.0	100	ug/kg wet	50	1000	---	97	80-120%	---	---	
Benzene	1010	5.00	10.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Bromobenzene	948	12.5	25.0	ug/kg wet	50	1000	---	95	80-120%	---	---	
Bromochloromethane	1020	25.0	50.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
Bromodichloromethane	1120	25.0	50.0	ug/kg wet	50	1000	---	112	80-120%	---	---	
Bromoform	1130	50.0	100	ug/kg wet	50	1000	---	113	80-120%	---	---	
Bromomethane	1060	500	500	ug/kg wet	50	1000	---	106	80-120%	---	---	
2-Butanone (MEK)	1860	250	500	ug/kg wet	50	2000	---	93	80-120%	---	---	
n-Butylbenzene	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
sec-Butylbenzene	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
tert-Butylbenzene	977	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
Carbon disulfide	905	250	500	ug/kg wet	50	1000	---	90	80-120%	---	---	
Carbon tetrachloride	1200	25.0	50.0	ug/kg wet	50	1000	---	120	80-120%	---	---	
Chlorobenzene	1000	12.5	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
Chloroethane	1100	250	500	ug/kg wet	50	1000	---	110	80-120%	---	---	
Chloroform	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Chloromethane	818	125	250	ug/kg wet	50	1000	---	82	80-120%	---	---	
2-Chlorotoluene	979	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
4-Chlorotoluene	984	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
Dibromochloromethane	1260	50.0	100	ug/kg wet	50	1000	---	**126**	**80-120%**	---	---	Q-56
1,2-Dibromo-3-chloropropane	1000	125	250	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,2-Dibromoethane (EDB)	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Dibromomethane	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
1,2-Dichlorobenzene	990	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
1,3-Dichlorobenzene	998	12.5	25.0	ug/kg wet	50	1000	---	100	80-120%	---	---	
1,4-Dichlorobenzene	968	12.5	25.0	ug/kg wet	50	1000	---	97	80-120%	---	---	
Dichlorodifluoromethane	902	50.0	100	ug/kg wet	50	1000	---	90	80-120%	---	---	
1,1-Dichloroethane	1030	12.5	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	

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Darwin Thomas, Business Development Director

APEX LABORATORIES

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503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0926 - EPA 5035A							**Soil**					
LCS (23F0926-BS1)			Prepared: 06/26/23 10:10 Analyzed: 06/26/23 11:55									
1,2-Dichloroethane (EDC)	1040	12.5	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
1,1-Dichloroethene	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
cis-1,2-Dichloroethene	1040	12.5	25.0	ug/kg wet	50	1000	---	104	80-120%	---	---	
trans-1,2-Dichloroethene	1020	12.5	25.0	ug/kg wet	50	1000	---	102	80-120%	---	---	
1,2-Dichloropropane	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
1,3-Dichloropropane	1030	25.0	50.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
2,2-Dichloropropane	1060	25.0	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
1,1-Dichloropropene	1060	25.0	50.0	ug/kg wet	50	1000	---	106	80-120%	---	---	
cis-1,3-Dichloropropene	1100	25.0	50.0	ug/kg wet	50	1000	---	110	80-120%	---	---	
trans-1,3-Dichloropropene	1080	25.0	50.0	ug/kg wet	50	1000	---	108	80-120%	---	---	
Ethylbenzene	956	12.5	25.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
Hexachlorobutadiene	994	50.0	100	ug/kg wet	50	1000	---	99	80-120%	---	---	
2-Hexanone	1720	250	500	ug/kg wet	50	2000	---	86	80-120%	---	---	
Isopropylbenzene	978	25.0	50.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
4-Isopropyltoluene	1010	25.0	50.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Methylene chloride	1060	250	500	ug/kg wet	50	1000	---	106	80-120%	---	---	
4-Methyl-2-pentanone (MiBK)	1840	250	500	ug/kg wet	50	2000	---	92	80-120%	---	---	
Methyl tert-butyl ether (MTBE)	940	25.0	50.0	ug/kg wet	50	1000	---	94	80-120%	---	---	
Naphthalene	1020	50.0	100	ug/kg wet	50	1000	---	102	80-120%	---	---	
n-Propylbenzene	986	12.5	25.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
Styrene	958	25.0	50.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
1,1,1,2-Tetrachloroethane	1170	12.5	25.0	ug/kg wet	50	1000	---	117	80-120%	---	---	
1,1,2,2-Tetrachloroethane	866	25.0	50.0	ug/kg wet	50	1000	---	87	80-120%	---	---	
Tetrachloroethene (PCE)	1010	12.5	25.0	ug/kg wet	50	1000	---	101	80-120%	---	---	
Toluene	960	25.0	50.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
1,2,3-Trichlorobenzene	946	125	250	ug/kg wet	50	1000	---	95	80-120%	---	---	
1,2,4-Trichlorobenzene	923	125	250	ug/kg wet	50	1000	---	92	80-120%	---	---	
1,1,1-Trichloroethane	1110	12.5	25.0	ug/kg wet	50	1000	---	111	80-120%	---	---	
1,1,2-Trichloroethane	1030	12.5	25.0	ug/kg wet	50	1000	---	103	80-120%	---	---	
Trichloroethene (TCE)	1110	12.5	25.0	ug/kg wet	50	1000	---	111	80-120%	---	---	
Trichlorofluoromethane	1080	50.0	100	ug/kg wet	50	1000	---	108	80-120%	---	---	
1,2,3-Trichloropropane	994	25.0	50.0	ug/kg wet	50	1000	---	99	80-120%	---	---	
1,2,4-Trimethylbenzene	962	25.0	50.0	ug/kg wet	50	1000	---	96	80-120%	---	---	
1,3,5-Trimethylbenzene	995	25.0	50.0	ug/kg wet	50	1000	---	100	80-120%	---	---	

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0926 - EPA 5035A							**Soil**					
LCS (23F0926-BS1)			Prepared: 06/26/23 10:10 Analyzed: 06/26/23 11:55									
Vinyl chloride	982	12.5	25.0	ug/kg wet	50	1000	---	98	80-120%	---	---	
m,p-Xylene	1880	25.0	50.0	ug/kg wet	50	2000	---	94	80-120%	---	---	
o-Xylene	926	12.5	25.0	ug/kg wet	50	1000	---	93	80-120%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 98 %*		*Limits: 80-120 %*		*Dilution: 1x*					
Toluene-d8 (Surr)			*102 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*95 %*		*79-120 %*		*"*					
Duplicate (23F0926-DUP1)			Prepared: 06/22/23 11:11 Analyzed: 06/26/23 13:41									
QC Source Sample: Non-SDG (A3F1434-04)												
Acetone	ND	622	1240	ug/kg dry	50	---	ND	---	---	---	30%	
Acrylonitrile	ND	62.2	124	ug/kg dry	50	---	ND	---	---	---	30%	
Benzene	ND	6.22	12.4	ug/kg dry	50	---	ND	---	---	---	30%	
Bromobenzene	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
Bromochloromethane	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
Bromodichloromethane	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
Bromoform	ND	62.2	124	ug/kg dry	50	---	ND	---	---	---	30%	
Bromomethane	ND	622	622	ug/kg dry	50	---	ND	---	---	---	30%	
2-Butanone (MEK)	ND	311	622	ug/kg dry	50	---	ND	---	---	---	30%	
n-Butylbenzene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
sec-Butylbenzene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
tert-Butylbenzene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon disulfide	ND	311	622	ug/kg dry	50	---	ND	---	---	---	30%	
Carbon tetrachloride	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
Chlorobenzene	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroethane	ND	311	622	ug/kg dry	50	---	ND	---	---	---	30%	
Chloroform	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
Chloromethane	ND	156	311	ug/kg dry	50	---	ND	---	---	---	30%	
2-Chlorotoluene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
4-Chlorotoluene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromochloromethane	ND	62.2	124	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromo-3-chloropropane	ND	156	311	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
Dibromomethane	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	

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Darwin Thomas, Business Development Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: **OR100062**

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0926 - EPA 5035A							**Soil**					
Duplicate (23F0926-DUP1)			Prepared: 06/22/23 11:11		Analyzed: 06/26/23 13:41							
QC Source Sample: Non-SDG (A3F1434-04)												
1,3-Dichlorobenzene	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
Dichlorodifluoromethane	ND	62.2	124	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethane	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloroethene	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,2-Dichloroethene	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,2-Dichloroethene	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
1,2-Dichloropropane	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
1,3-Dichloropropane	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
2,2-Dichloropropane	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
1,1-Dichloropropene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
cis-1,3-Dichloropropene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
trans-1,3-Dichloropropene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
Ethylbenzene	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	62.2	124	ug/kg dry	50	---	ND	---	---	---	30%	
2-Hexanone	ND	311	622	ug/kg dry	50	---	ND	---	---	---	30%	
Isopropylbenzene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
4-Isopropyltoluene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
Methylene chloride	ND	311	622	ug/kg dry	50	---	ND	---	---	---	30%	
4-Methyl-2-pentanone (MiBK)	ND	311	622	ug/kg dry	50	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
Naphthalene	ND	62.2	124	ug/kg dry	50	---	ND	---	---	---	30%	
n-Propylbenzene	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
Styrene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1,2-Tetrachloroethane	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2,2-Tetrachloroethane	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
Tetrachloroethene (PCE)	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
Toluene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichlorobenzene	ND	156	311	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	156	311	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,1-Trichloroethane	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
1,1,2-Trichloroethane	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	

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Darwin Thomas, Business Development Director

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6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: **OR100062**

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0926 - EPA 5035A							**Soil**					
Duplicate (23F0926-DUP1)			Prepared: 06/22/23 11:11 Analyzed: 06/26/23 13:41									
QC Source Sample: Non-SDG (A3F1434-04)												
Trichloroethene (TCE)	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
Trichlorofluoromethane	ND	62.2	124	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,3-Trichloropropane	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
Vinyl chloride	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
m,p-Xylene	ND	31.1	62.2	ug/kg dry	50	---	ND	---	---	---	30%	
o-Xylene	ND	15.6	31.1	ug/kg dry	50	---	ND	---	---	---	30%	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 100 %*	*Limits: 80-120 %*			*Dilution: 1x*					
Toluene-d8 (Surr)			*101 %*	*80-120 %*			*"*					
4-Bromofluorobenzene (Surr)			*96 %*	*79-120 %*			*"*					
Matrix Spike (23F0926-MS1)			Prepared: 06/23/23 14:29 Analyzed: 06/26/23 16:14									
QC Source Sample: Non-SDG (A3F1493-01)												
5035A/8260D												
Acetone	2700	695	1390	ug/kg dry	50	2770	ND	97	36-164%	---	---	
Acrylonitrile	1440	69.5	139	ug/kg dry	50	1390	ND	104	65-134%	---	---	
Benzene	1510	6.95	13.9	ug/kg dry	50	1390	ND	109	77-121%	---	---	
Bromobenzene	1310	17.4	34.7	ug/kg dry	50	1390	ND	95	78-121%	---	---	
Bromochloromethane	1580	34.7	69.5	ug/kg dry	50	1390	ND	114	78-125%	---	---	
Bromodichloromethane	1590	34.7	69.5	ug/kg dry	50	1390	ND	115	75-127%	---	---	
Bromoform	1440	69.5	139	ug/kg dry	50	1390	ND	104	67-132%	---	---	
Bromomethane	1680	695	695	ug/kg dry	50	1390	ND	121	53-143%	---	---	
2-Butanone (MEK)	2740	347	695	ug/kg dry	50	2770	ND	99	51-148%	---	---	
n-Butylbenzene	1410	34.7	69.5	ug/kg dry	50	1390	ND	101	70-128%	---	---	
sec-Butylbenzene	1420	34.7	69.5	ug/kg dry	50	1390	ND	102	73-126%	---	---	
tert-Butylbenzene	1330	34.7	69.5	ug/kg dry	50	1390	ND	96	73-125%	---	---	
Carbon disulfide	1400	347	695	ug/kg dry	50	1390	ND	101	63-132%	---	---	
Carbon tetrachloride	1710	34.7	69.5	ug/kg dry	50	1390	ND	124	70-135%	---	---	
Chlorobenzene	1430	17.4	34.7	ug/kg dry	50	1390	ND	103	79-120%	---	---	
Chloroethane	1840	347	695	ug/kg dry	50	1390	ND	132	59-139%	---	---	
Chloroform	1480	34.7	69.5	ug/kg dry	50	1390	ND	107	78-123%	---	---	
Chloromethane	1350	174	347	ug/kg dry	50	1390	ND	98	50-136%	---	---	

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Darwin Thomas, Business Development Director

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ORELAP ID: **OR100062**

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0926 - EPA 5035A							**Soil**					
Matrix Spike (23F0926-MS1)			Prepared: 06/23/23 14:29		Analyzed: 06/26/23 16:14							
QC Source Sample: Non-SDG (A3F1493-01)												
2-Chlorotoluene	1330	34.7	69.5	ug/kg dry	50	1390	ND	96	75-122%	---	---	
4-Chlorotoluene	1360	34.7	69.5	ug/kg dry	50	1390	ND	98	72-124%	---	---	
Dibromochloromethane	1640	69.5	139	ug/kg dry	50	1390	ND	118	74-126%	---	---	Q-54a
1,2-Dibromo-3-chloropropane	1240	174	347	ug/kg dry	50	1390	ND	89	61-132%	---	---	
1,2-Dibromoethane (EDB)	1390	34.7	69.5	ug/kg dry	50	1390	ND	101	78-122%	---	---	
Dibromomethane	1500	34.7	69.5	ug/kg dry	50	1390	ND	108	78-125%	---	---	
1,2-Dichlorobenzene	1370	17.4	34.7	ug/kg dry	50	1390	ND	99	78-121%	---	---	
1,3-Dichlorobenzene	1380	17.4	34.7	ug/kg dry	50	1390	ND	100	77-121%	---	---	
1,4-Dichlorobenzene	1360	17.4	34.7	ug/kg dry	50	1390	ND	98	75-120%	---	---	
Dichlorodifluoromethane	1400	69.5	139	ug/kg dry	50	1390	ND	101	29-149%	---	---	
1,1-Dichloroethane	1540	17.4	34.7	ug/kg dry	50	1390	ND	111	76-125%	---	---	
1,2-Dichloroethane (EDC)	1520	17.4	34.7	ug/kg dry	50	1390	ND	110	73-128%	---	---	
1,1-Dichloroethene	1560	17.4	34.7	ug/kg dry	50	1390	ND	113	70-131%	---	---	
cis-1,2-Dichloroethene	1510	17.4	34.7	ug/kg dry	50	1390	ND	109	77-123%	---	---	
trans-1,2-Dichloroethene	1510	17.4	34.7	ug/kg dry	50	1390	ND	109	74-125%	---	---	
1,2-Dichloropropane	1500	17.4	34.7	ug/kg dry	50	1390	ND	108	76-123%	---	---	
1,3-Dichloropropane	1440	34.7	69.5	ug/kg dry	50	1390	ND	103	77-121%	---	---	
2,2-Dichloropropane	1430	34.7	69.5	ug/kg dry	50	1390	ND	103	67-133%	---	---	
1,1-Dichloropropene	1550	34.7	69.5	ug/kg dry	50	1390	ND	112	76-125%	---	---	
cis-1,3-Dichloropropene	1460	34.7	69.5	ug/kg dry	50	1390	ND	105	74-126%	---	---	
trans-1,3-Dichloropropene	1430	34.7	69.5	ug/kg dry	50	1390	ND	103	71-130%	---	---	
Ethylbenzene	1370	17.4	34.7	ug/kg dry	50	1390	ND	99	76-122%	---	---	
Hexachlorobutadiene	1380	69.5	139	ug/kg dry	50	1390	ND	99	61-135%	---	---	
2-Hexanone	2270	347	695	ug/kg dry	50	2770	ND	82	53-145%	---	---	
Isopropylbenzene	1370	34.7	69.5	ug/kg dry	50	1390	ND	99	68-134%	---	---	
4-Isopropyltoluene	1400	34.7	69.5	ug/kg dry	50	1390	ND	101	73-127%	---	---	
Methylene chloride	1540	347	695	ug/kg dry	50	1390	ND	111	70-128%	---	---	
4-Methyl-2-pentanone (MiBK)	2520	347	695	ug/kg dry	50	2770	ND	91	65-135%	---	---	
Methyl tert-butyl ether (MTBE)	1300	34.7	69.5	ug/kg dry	50	1390	ND	94	73-125%	---	---	
Naphthalene	1230	69.5	139	ug/kg dry	50	1390	ND	89	62-129%	---	---	
n-Propylbenzene	1400	17.4	34.7	ug/kg dry	50	1390	ND	101	73-125%	---	---	
Styrene	1350	34.7	69.5	ug/kg dry	50	1390	ND	97	76-124%	---	---	
1,1,1,2-Tetrachloroethane	1590	17.4	34.7	ug/kg dry	50	1390	ND	115	78-125%	---	---	

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Darwin Thomas, Business Development Director

APEX LABORATORIES

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503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

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 23F0926 - EPA 5035A							**Soil**					
Matrix Spike (23F0926-MS1)			Prepared: 06/23/23 14:29		Analyzed: 06/26/23 16:14							
QC Source Sample: Non-SDG (A3F1493-01)												
1,1,2,2-Tetrachloroethane	1220	34.7	69.5	ug/kg dry	50	1390	ND	88	70-124%	---	---	
Tetrachloroethene (PCE)	1440	17.4	34.7	ug/kg dry	50	1390	ND	104	73-128%	---	---	
Toluene	1380	34.7	69.5	ug/kg dry	50	1390	ND	99	77-121%	---	---	
1,2,3-Trichlorobenzene	1280	174	347	ug/kg dry	50	1390	ND	92	66-130%	---	---	
1,2,4-Trichlorobenzene	1210	174	347	ug/kg dry	50	1390	ND	87	67-129%	---	---	
1,1,1-Trichloroethane	1620	17.4	34.7	ug/kg dry	50	1390	ND	117	73-130%	---	---	
1,1,2-Trichloroethane	1440	17.4	34.7	ug/kg dry	50	1390	ND	104	78-121%	---	---	
Trichloroethene (TCE)	1600	17.4	34.7	ug/kg dry	50	1390	ND	116	77-123%	---	---	
Trichlorofluoromethane	1830	69.5	139	ug/kg dry	50	1390	ND	132	62-140%	---	---	
1,2,3-Trichloropropane	1370	34.7	69.5	ug/kg dry	50	1390	ND	99	73-125%	---	---	
1,2,4-Trimethylbenzene	1340	34.7	69.5	ug/kg dry	50	1390	ND	97	75-123%	---	---	
1,3,5-Trimethylbenzene	1400	34.7	69.5	ug/kg dry	50	1390	ND	101	73-124%	---	---	
Vinyl chloride	1580	17.4	34.7	ug/kg dry	50	1390	ND	114	56-135%	---	---	
m,p-Xylene	2680	34.7	69.5	ug/kg dry	50	2770	ND	97	77-124%	---	---	
o-Xylene	1280	17.4	34.7	ug/kg dry	50	1390	ND	93	77-123%	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 100 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*101 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*92 %*		*79-120 %*			*"*				

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ORELAP ID: OR100062

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23F1148 - EPA 3546							**Soil**					
Blank (23F1148-BLK2)			Prepared: 06/30/23 10:02		Analyzed: 06/30/23 17:26							
EPA 8270E												
Acenaphthene	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
Acenaphthylene	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
Anthracene	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
Benz(a)anthracene	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
Benzo(a)pyrene	ND	2.00	4.00	ug/kg wet	1	---	---	---	---	---	---	
Benzo(b)fluoranthene	ND	2.00	4.00	ug/kg wet	1	---	---	---	---	---	---	
Benzo(k)fluoranthene	ND	2.00	4.00	ug/kg wet	1	---	---	---	---	---	---	
Benzo(g,h,i)perylene	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
Chrysene	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
Dibenz(a,h)anthracene	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
Fluoranthene	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
Fluorene	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
1-Methylnaphthalene	ND	2.67	5.33	ug/kg wet	1	---	---	---	---	---	---	
2-Methylnaphthalene	ND	2.67	5.33	ug/kg wet	1	---	---	---	---	---	---	
Naphthalene	ND	2.67	5.33	ug/kg wet	1	---	---	---	---	---	---	
Phenanthrene	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
Pyrene	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
Carbazole	ND	2.00	4.00	ug/kg wet	1	---	---	---	---	---	---	
Dibenzofuran	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
2-Chlorophenol	ND	6.67	13.3	ug/kg wet	1	---	---	---	---	---	---	
4-Chloro-3-methylphenol	ND	13.3	26.7	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dichlorophenol	ND	6.67	13.3	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dimethylphenol	ND	6.67	13.3	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dinitrophenol	ND	33.3	66.7	ug/kg wet	1	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	ND	33.3	66.7	ug/kg wet	1	---	---	---	---	---	---	
2-Methylphenol	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
2-Nitrophenol	ND	13.3	26.7	ug/kg wet	1	---	---	---	---	---	---	
4-Nitrophenol	ND	13.3	26.7	ug/kg wet	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	13.3	26.7	ug/kg wet	1	---	---	---	---	---	---	
Phenol	ND	2.67	5.33	ug/kg wet	1	---	---	---	---	---	---	
2,3,4,6-Tetrachlorophenol	ND	6.67	13.3	ug/kg wet	1	---	---	---	---	---	---	

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Darwin Thomas, Business Development Director

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

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23F1148 - EPA 3546							**Soil**					
Blank (23F1148-BLK2)			Prepared: 06/30/23 10:02		Analyzed: 06/30/23 17:26							
2,3,5,6-Tetrachlorophenol	ND	6.67	13.3	ug/kg wet	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	6.67	13.3	ug/kg wet	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	6.67	13.3	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	ND	20.0	40.0	ug/kg wet	1	---	---	---	---	---	---	
Butyl benzyl phthalate	ND	13.3	26.7	ug/kg wet	1	---	---	---	---	---	---	
Diethylphthalate	ND	13.3	26.7	ug/kg wet	1	---	---	---	---	---	---	
Dimethylphthalate	ND	13.3	26.7	ug/kg wet	1	---	---	---	---	---	---	
Di-n-butylphthalate	ND	13.3	26.7	ug/kg wet	1	---	---	---	---	---	---	
Di-n-octyl phthalate	ND	13.3	26.7	ug/kg wet	1	---	---	---	---	---	---	
N-Nitrosodimethylamine	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
N-Nitroso-di-n-propylamine	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
N-Nitrosodiphenylamine	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Chloroethoxy) methane	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Chloroethyl) ether	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
2,2'-Oxybis(1-Chloropropane)	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
Hexachlorocyclopentadiene	ND	6.67	13.3	ug/kg wet	1	---	---	---	---	---	---	
Hexachloroethane	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
2-Chloronaphthalene	ND	1.33	2.67	ug/kg wet	1	---	---	---	---	---	---	
1,2,4-Trichlorobenzene	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
Aniline	ND	6.67	13.3	ug/kg wet	1	---	---	---	---	---	---	
4-Chloroaniline	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
2-Nitroaniline	ND	26.7	53.3	ug/kg wet	1	---	---	---	---	---	---	
3-Nitroaniline	ND	26.7	53.3	ug/kg wet	1	---	---	---	---	---	---	
4-Nitroaniline	ND	26.7	53.3	ug/kg wet	1	---	---	---	---	---	---	
Nitrobenzene	ND	13.3	26.7	ug/kg wet	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	13.3	26.7	ug/kg wet	1	---	---	---	---	---	---	
2,6-Dinitrotoluene	ND	13.3	26.7	ug/kg wet	1	---	---	---	---	---	---	
Benzoic acid	ND	167	333	ug/kg wet	1	---	---	---	---	---	---	
Benzyl alcohol	ND	6.67	13.3	ug/kg wet	1	---	---	---	---	---	---	
Isophorone	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	

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Darwin Thomas, Business Development Director

Apex Laboratories, LLC
6700 S.W. Sandburg Street
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503-718-2323
ORELAP ID: **OR100062**

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23F1148 - EPA 3546							**Soil**					
Blank (23F1148-BLK2)			Prepared: 06/30/23 10:02 Analyzed: 06/30/23 17:26									
Azobenzene (1,2-DPH)	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
Bis(2-Ethylhexyl) adipate	ND	33.3	66.7	ug/kg wet	1	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	ND	26.7	53.3	ug/kg wet	1	---	---	---	---	---	---	Q-52
1,2-Dinitrobenzene	ND	33.3	66.7	ug/kg wet	1	---	---	---	---	---	---	
1,3-Dinitrobenzene	ND	33.3	66.7	ug/kg wet	1	---	---	---	---	---	---	
1,4-Dinitrobenzene	ND	33.3	66.7	ug/kg wet	1	---	---	---	---	---	---	
Pyridine	ND	6.67	13.3	ug/kg wet	1	---	---	---	---	---	---	
1,2-Dichlorobenzene	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
1,3-Dichlorobenzene	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
1,4-Dichlorobenzene	ND	3.33	6.67	ug/kg wet	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 81 %*	*Limits: 37-122 %*		*Dilution: 1x*						
2-Fluorobiphenyl (Surr)			*89 %*	*44-120 %*		*"*						
Phenol-d6 (Surr)			*74 %*	*33-122 %*		*"*						
p-Terphenyl-d14 (Surr)			*90 %*	*54-127 %*		*"*						
2-Fluorophenol (Surr)			*83 %*	*35-120 %*		*"*						
2,4,6-Tribromophenol (Surr)			*88 %*	*39-132 %*		*"*						
LCS (23F1148-BS2)			Prepared: 06/30/23 10:02 Analyzed: 06/30/23 18:00									**Q-18**
EPA 8270E												
Acenaphthene	543	5.32	10.7	ug/kg wet	4	533	---	102	40-123%	---	---	
Acenaphthylene	548	5.32	10.7	ug/kg wet	4	533	---	103	32-132%	---	---	
Anthracene	576	5.32	10.7	ug/kg wet	4	533	---	108	47-123%	---	---	
Benz(a)anthracene	534	5.32	10.7	ug/kg wet	4	533	---	100	49-126%	---	---	
Benzo(a)pyrene	550	8.00	16.0	ug/kg wet	4	533	---	103	45-129%	---	---	
Benzo(b)fluoranthene	570	8.00	16.0	ug/kg wet	4	533	---	107	45-132%	---	---	
Benzo(k)fluoranthene	619	8.00	16.0	ug/kg wet	4	533	---	116	47-132%	---	---	
Benzo(g,h,i)perylene	556	5.32	10.7	ug/kg wet	4	533	---	104	43-134%	---	---	
Chrysene	530	5.32	10.7	ug/kg wet	4	533	---	99	50-124%	---	---	
Dibenz(a,h)anthracene	534	5.32	10.7	ug/kg wet	4	533	---	100	45-134%	---	---	
Fluoranthene	566	5.32	10.7	ug/kg wet	4	533	---	106	50-127%	---	---	
Fluorene	535	5.32	10.7	ug/kg wet	4	533	---	100	43-125%	---	---	
Indeno(1,2,3-cd)pyrene	496	5.32	10.7	ug/kg wet	4	533	---	93	45-133%	---	---	
1-Methylnaphthalene	511	10.7	21.3	ug/kg wet	4	533	---	96	40-120%	---	---	
2-Methylnaphthalene	548	10.7	21.3	ug/kg wet	4	533	---	103	38-122%	---	---	

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Darwin Thomas, Business Development Director

APEX LABORATORIES

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503-718-2323
ORELAP ID: **OR100062**

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23F1148 - EPA 3546							**Soil**					
LCS (23F1148-BS2)			Prepared: 06/30/23 10:02		Analyzed: 06/30/23 18:00							**Q-18**
Naphthalene	531	10.7	21.3	ug/kg wet	4	533	---	99	35-123%	---	---	
Phenanthrene	544	5.32	10.7	ug/kg wet	4	533	---	102	50-121%	---	---	
Pyrene	574	5.32	10.7	ug/kg wet	4	533	---	108	47-127%	---	---	
Carbazole	542	8.00	16.0	ug/kg wet	4	533	---	102	50-123%	---	---	
Dibenzofuran	566	5.32	10.7	ug/kg wet	4	533	---	106	44-120%	---	---	
2-Chlorophenol	532	26.7	53.2	ug/kg wet	4	533	---	100	34-121%	---	---	
4-Chloro-3-methylphenol	549	53.2	107	ug/kg wet	4	533	---	103	45-122%	---	---	
2,4-Dichlorophenol	585	26.7	53.2	ug/kg wet	4	533	---	110	40-122%	---	---	
2,4-Dimethylphenol	687	26.7	53.2	ug/kg wet	4	533	---	**129**	**30-127%**	---	---	Q-29
2,4-Dinitrophenol	583	133	267	ug/kg wet	4	533	---	109	10-137%	---	---	Q-41
4,6-Dinitro-2-methylphenol	594	133	267	ug/kg wet	4	533	---	111	29-132%	---	---	
2-Methylphenol	536	13.3	26.7	ug/kg wet	4	533	---	100	32-122%	---	---	
3+4-Methylphenol(s)	545	13.3	26.7	ug/kg wet	4	533	---	102	34-120%	---	---	
2-Nitrophenol	583	53.2	107	ug/kg wet	4	533	---	109	36-123%	---	---	
4-Nitrophenol	570	53.2	107	ug/kg wet	4	533	---	107	30-132%	---	---	
Pentachlorophenol (PCP)	525	53.2	107	ug/kg wet	4	533	---	98	25-133%	---	---	
Phenol	527	10.7	21.3	ug/kg wet	4	533	---	99	34-121%	---	---	
2,3,4,6-Tetrachlorophenol	541	26.7	53.2	ug/kg wet	4	533	---	101	44-125%	---	---	
2,3,5,6-Tetrachlorophenol	553	26.7	53.2	ug/kg wet	4	533	---	104	40-120%	---	---	
2,4,5-Trichlorophenol	613	26.7	53.2	ug/kg wet	4	533	---	115	41-124%	---	---	
2,4,6-Trichlorophenol	560	26.7	53.2	ug/kg wet	4	533	---	105	39-126%	---	---	
Bis(2-ethylhexyl)phthalate	538	80.0	160	ug/kg wet	4	533	---	101	51-133%	---	---	
Butyl benzyl phthalate	555	53.2	107	ug/kg wet	4	533	---	104	48-132%	---	---	
Diethylphthalate	560	53.2	107	ug/kg wet	4	533	---	105	50-124%	---	---	
Dimethylphthalate	550	53.2	107	ug/kg wet	4	533	---	103	48-124%	---	---	
Di-n-butylphthalate	593	53.2	107	ug/kg wet	4	533	---	111	51-128%	---	---	
Di-n-octyl phthalate	549	53.2	107	ug/kg wet	4	533	---	103	45-140%	---	---	
N-Nitrosodimethylamine	437	13.3	26.7	ug/kg wet	4	533	---	82	23-120%	---	---	
N-Nitroso-di-n-propylamine	484	13.3	26.7	ug/kg wet	4	533	---	91	36-120%	---	---	
N-Nitrosodiphenylamine	551	13.3	26.7	ug/kg wet	4	533	---	103	38-127%	---	---	
Bis(2-Chloroethoxy) methane	548	13.3	26.7	ug/kg wet	4	533	---	103	36-121%	---	---	
Bis(2-Chloroethyl) ether	445	13.3	26.7	ug/kg wet	4	533	---	83	31-120%	---	---	
2,2'-Oxybis(1-Chloropropane)	504	13.3	26.7	ug/kg wet	4	533	---	94	39-120%	---	---	
Hexachlorobenzene	514	5.32	10.7	ug/kg wet	4	533	---	96	45-122%	---	---	

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ORELAP ID: **OR100062**

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23F1148 - EPA 3546							**Soil**					
LCS (23F1148-BS2)			Prepared: 06/30/23 10:02		Analyzed: 06/30/23 18:00							**Q-18**
Hexachlorobutadiene	514	13.3	26.7	ug/kg wet	4	533	---	96	32-123%	---	---	
Hexachlorocyclopentadiene	637	26.7	53.2	ug/kg wet	4	533	---	119	10-140%	---	---	
Hexachloroethane	511	13.3	26.7	ug/kg wet	4	533	---	96	28-120%	---	---	
2-Chloronaphthalene	609	5.32	10.7	ug/kg wet	4	533	---	114	41-120%	---	---	Q-41
1,2,4-Trichlorobenzene	527	13.3	26.7	ug/kg wet	4	533	---	99	34-120%	---	---	
4-Bromophenyl phenyl ether	569	13.3	26.7	ug/kg wet	4	533	---	107	46-124%	---	---	
4-Chlorophenyl phenyl ether	552	13.3	26.7	ug/kg wet	4	533	---	103	45-121%	---	---	
Aniline	421	26.7	53.2	ug/kg wet	4	533	---	79	10-120%	---	---	
4-Chloroaniline	418	13.3	26.7	ug/kg wet	4	533	---	78	17-120%	---	---	
2-Nitroaniline	558	107	213	ug/kg wet	4	533	---	105	44-127%	---	---	
3-Nitroaniline	500	107	213	ug/kg wet	4	533	---	94	33-120%	---	---	
4-Nitroaniline	525	107	213	ug/kg wet	4	533	---	98	51-125%	---	---	
Nitrobenzene	498	53.2	107	ug/kg wet	4	533	---	93	34-122%	---	---	
2,4-Dinitrotoluene	565	53.2	107	ug/kg wet	4	533	---	106	48-126%	---	---	
2,6-Dinitrotoluene	565	53.2	107	ug/kg wet	4	533	---	106	46-124%	---	---	
Benzoic acid	785	668	668	ug/kg wet	4	1070	---	74	10-140%	---	---	
Benzyl alcohol	505	26.7	53.2	ug/kg wet	4	533	---	95	29-122%	---	---	
Isophorone	505	13.3	26.7	ug/kg wet	4	533	---	95	30-122%	---	---	
Azobenzene (1,2-DPH)	590	13.3	26.7	ug/kg wet	4	533	---	111	39-125%	---	---	
Bis(2-Ethylhexyl) adipate	561	133	267	ug/kg wet	4	533	---	105	61-121%	---	---	
3,3'-Dichlorobenzidine	2220	107	213	ug/kg wet	4	1070	---	**208**	**22-121%**	---	---	Q-29, Q-31, Q-52
1,2-Dinitrobenzene	559	133	267	ug/kg wet	4	533	---	105	44-120%	---	---	
1,3-Dinitrobenzene	548	133	267	ug/kg wet	4	533	---	103	43-127%	---	---	
1,4-Dinitrobenzene	569	133	267	ug/kg wet	4	533	---	107	37-132%	---	---	
Pyridine	391	26.7	53.2	ug/kg wet	4	533	---	73	10-120%	---	---	
1,2-Dichlorobenzene	502	13.3	26.7	ug/kg wet	4	533	---	94	33-120%	---	---	
1,3-Dichlorobenzene	503	13.3	26.7	ug/kg wet	4	533	---	94	30-120%	---	---	
1,4-Dichlorobenzene	491	13.3	26.7	ug/kg wet	4	533	---	92	31-120%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 82 %*		*Limits: 37-122 %*			*Dilution: 4x*				
2-Fluorobiphenyl (Surr)			*104 %*		*44-120 %*			*"*				
Phenol-d6 (Surr)			*93 %*		*33-122 %*			*"*				
p-Terphenyl-d14 (Surr)			*100 %*		*54-127 %*			*"*				
2-Fluorophenol (Surr)			*82 %*		*35-120 %*			*"*				
2,4,6-Tribromophenol (Surr)			*97 %*		*39-132 %*			*"*				

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ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23F1148 - EPA 3546							**Soil**					
Duplicate (23F1148-DUP2)			Prepared: 06/30/23 10:02		Analyzed: 06/30/23 19:08							
QC Source Sample: Non-SDG (A3F1413-01)												
Acenaphthene	**32600**	3870	7770	ug/kg dry	2000	---	33800	---	---	4	30%	
Acenaphthylene	**32400**	3870	7770	ug/kg dry	2000	---	60800	---	---	**61**	**30%**	Q-17
Anthracene	**92100**	3870	7770	ug/kg dry	2000	---	115000	---	---	22	30%	
Benz(a)anthracene	**89900**	3870	7770	ug/kg dry	2000	---	108000	---	---	19	30%	
Benzo(a)pyrene	**132000**	5820	11600	ug/kg dry	2000	---	150000	---	---	13	30%	
Benzo(b)fluoranthene	**110000**	5820	11600	ug/kg dry	2000	---	130000	---	---	16	30%	
Benzo(k)fluoranthene	**44700**	5820	11600	ug/kg dry	2000	---	53000	---	---	17	30%	M-05
Benzo(g,h,i)perylene	**97400**	3870	7770	ug/kg dry	2000	---	110000	---	---	12	30%	
Chrysene	**127000**	3870	7770	ug/kg dry	2000	---	148000	---	---	15	30%	
Dibenz(a,h)anthracene	**10000**	3870	7770	ug/kg dry	2000	---	11800	---	---	16	30%	
Fluoranthene	**339000**	3870	7770	ug/kg dry	2000	---	393000	---	---	15	30%	
Fluorene	**72100**	3870	7770	ug/kg dry	2000	---	95800	---	---	28	30%	
Indeno(1,2,3-cd)pyrene	**76400**	3870	7770	ug/kg dry	2000	---	91400	---	---	18	30%	
1-Methylnaphthalene	**48900**	7770	15500	ug/kg dry	2000	---	57800	---	---	17	30%	
2-Methylnaphthalene	**87000**	7770	15500	ug/kg dry	2000	---	108000	---	---	22	30%	
Naphthalene	**944000**	7770	15500	ug/kg dry	2000	---	1390000	---	---	**38**	**30%**	Q-17
Phenanthrene	**524000**	3870	7770	ug/kg dry	2000	---	636000	---	---	19	30%	
Pyrene	**377000**	3870	7770	ug/kg dry	2000	---	433000	---	---	14	30%	
Carbazole	**26200**	5820	11600	ug/kg dry	2000	---	35300	---	---	30	30%	
Dibenzofuran	**13000**	3870	7770	ug/kg dry	2000	---	16400	---	---	23	30%	
2-Chlorophenol	ND	19400	38700	ug/kg dry	2000	---	ND	---	---	---	30%	
4-Chloro-3-methylphenol	ND	38700	77700	ug/kg dry	2000	---	ND	---	---	---	30%	
2,4-Dichlorophenol	ND	19400	38700	ug/kg dry	2000	---	ND	---	---	---	30%	
2,4-Dimethylphenol	ND	19400	38700	ug/kg dry	2000	---	ND	---	---	---	30%	
2,4-Dinitrophenol	ND	96900	194000	ug/kg dry	2000	---	ND	---	---	---	30%	
4,6-Dinitro-2-methylphenol	ND	96900	194000	ug/kg dry	2000	---	ND	---	---	---	30%	
2-Methylphenol	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
3+4-Methylphenol(s)	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
2-Nitrophenol	ND	38700	77700	ug/kg dry	2000	---	ND	---	---	---	30%	
4-Nitrophenol	ND	38700	77700	ug/kg dry	2000	---	ND	---	---	---	30%	
Pentachlorophenol (PCP)	ND	38700	77700	ug/kg dry	2000	---	ND	---	---	---	30%	
Phenol	ND	7770	15500	ug/kg dry	2000	---	ND	---	---	---	30%	

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Darwin Thomas, Business Development Director

Apex Laboratories, LLC
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503-718-2323
ORELAP ID: **OR100062**

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23F1148 - EPA 3546							**Soil**					
Duplicate (23F1148-DUP2)				Prepared: 06/30/23 10:02		Analyzed: 06/30/23 19:08						
QC Source Sample: Non-SDG (A3F1413-01)												
2,3,4,6-Tetrachlorophenol	ND	19400	38700	ug/kg dry	2000	---	ND	---	---	---	30%	
2,3,5,6-Tetrachlorophenol	ND	19400	38700	ug/kg dry	2000	---	ND	---	---	---	30%	
2,4,5-Trichlorophenol	ND	19400	38700	ug/kg dry	2000	---	ND	---	---	---	30%	
2,4,6-Trichlorophenol	ND	19400	38700	ug/kg dry	2000	---	ND	---	---	---	30%	
Bis(2-ethylhexyl)phthalate	ND	58200	116000	ug/kg dry	2000	---	ND	---	---	---	30%	
Butyl benzyl phthalate	ND	38700	77700	ug/kg dry	2000	---	ND	---	---	---	30%	
Diethylphthalate	ND	38700	77700	ug/kg dry	2000	---	ND	---	---	---	30%	
Dimethylphthalate	ND	38700	77700	ug/kg dry	2000	---	ND	---	---	---	30%	
Di-n-butylphthalate	ND	38700	77700	ug/kg dry	2000	---	ND	---	---	---	30%	
Di-n-octyl phthalate	ND	38700	77700	ug/kg dry	2000	---	ND	---	---	---	30%	
N-Nitrosodimethylamine	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
N-Nitroso-di-n-propylamine	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
N-Nitrosodiphenylamine	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
Bis(2-Chloroethoxy) methane	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
Bis(2-Chloroethyl) ether	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
2,2'-Oxybis(1-Chloropropane)	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
Hexachlorobenzene	ND	3870	7770	ug/kg dry	2000	---	ND	---	---	---	30%	
Hexachlorobutadiene	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
Hexachlorocyclopentadiene	ND	19400	38700	ug/kg dry	2000	---	ND	---	---	---	30%	
Hexachloroethane	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
2-Chloronaphthalene	ND	3870	7770	ug/kg dry	2000	---	ND	---	---	---	30%	
1,2,4-Trichlorobenzene	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
4-Bromophenyl phenyl ether	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
4-Chlorophenyl phenyl ether	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
Aniline	ND	19400	38700	ug/kg dry	2000	---	ND	---	---	---	30%	
4-Chloroaniline	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
2-Nitroaniline	ND	77700	155000	ug/kg dry	2000	---	ND	---	---	---	30%	
3-Nitroaniline	ND	77700	155000	ug/kg dry	2000	---	ND	---	---	---	30%	
4-Nitroaniline	ND	77700	155000	ug/kg dry	2000	---	ND	---	---	---	30%	
Nitrobenzene	ND	38700	77700	ug/kg dry	2000	---	ND	---	---	---	30%	
2,4-Dinitrotoluene	ND	38700	77700	ug/kg dry	2000	---	ND	---	---	---	30%	
2,6-Dinitrotoluene	ND	38700	77700	ug/kg dry	2000	---	ND	---	---	---	30%	
Benzoic acid	ND	486000	969000	ug/kg dry	2000	---	ND	---	---	---	30%	

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

Semivolatile Organic Compounds by EPA 8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23F1148 - EPA 3546							**Soil**					
Duplicate (23F1148-DUP2)			Prepared: 06/30/23 10:02 Analyzed: 06/30/23 19:08									
QC Source Sample: Non-SDG (A3F1413-01)												
Benzyl alcohol	ND	19400	38700	ug/kg dry	2000	---	ND	---	---	---	30%	
Isophorone	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
Azobenzene (1,2-DPH)	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
Bis(2-Ethylhexyl) adipate	ND	96900	194000	ug/kg dry	2000	---	ND	---	---	---	30%	
3,3'-Dichlorobenzidine	ND	77700	155000	ug/kg dry	2000	---	ND	---	---	---	30%	Q-52
1,2-Dinitrobenzene	ND	96900	194000	ug/kg dry	2000	---	ND	---	---	---	30%	
1,3-Dinitrobenzene	ND	96900	194000	ug/kg dry	2000	---	ND	---	---	---	30%	
1,4-Dinitrobenzene	ND	96900	194000	ug/kg dry	2000	---	ND	---	---	---	30%	
Pyridine	ND	19400	38700	ug/kg dry	2000	---	ND	---	---	---	30%	
1,2-Dichlorobenzene	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
1,3-Dichlorobenzene	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
1,4-Dichlorobenzene	ND	9690	19400	ug/kg dry	2000	---	ND	---	---	---	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: %*		*Limits: 37-122 %*		*Dilution: 2000x*					*S-01*
2-Fluorobiphenyl (Surr)			*66 %*		*44-120 %*		*"*					*S-05*
Phenol-d6 (Surr)			*%*		*33-122 %*		*"*					*S-01*
p-Terphenyl-d14 (Surr)			*72 %*		*54-127 %*		*"*					*S-05*
2-Fluorophenol (Surr)			*293 %*		*35-120 %*		*"*					*S-05*
2,4,6-Tribromophenol (Surr)			*%*		*39-132 %*		*"*					*S-01*

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Semivolatile Organic Compounds by EPA 1311/8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23G0128 - EPA 1311/3510C (BNA Extraction)							**Soil**					
Blank (23G0128-BLK1)			Prepared: 07/06/23 11:20 Analyzed: 07/06/23 21:59									**TCLP**
1311/8270E												
2-Methylphenol	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
3+4-Methylphenol(s)	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
Pentachlorophenol (PCP)	ND	---	0.0100	mg/L	1	---	---	---	---	---	---	
2,4,5-Trichlorophenol	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
2,4,6-Trichlorophenol	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
Hexachlorobenzene	ND	---	0.00200	mg/L	1	---	---	---	---	---	---	
Hexachlorobutadiene	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
Hexachloroethane	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
Nitrobenzene	ND	---	0.00500	mg/L	1	---	---	---	---	---	---	
2,4-Dinitrotoluene	ND	---	0.00200	mg/L	1	---	---	---	---	---	---	
Pyridine	ND	---	0.0100	mg/L	1	---	---	---	---	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 80 %*		*Limits: 44-120 %*			*Dilution: 1x*				
2-Fluorobiphenyl (Surr)			*69 %*		*44-120 %*			*"*				
Phenol-d6 (Surr)			*24 %*		*10-133 %*			*"*				
p-Terphenyl-d14 (Surr)			*85 %*		*50-134 %*			*"*				
2-Fluorophenol (Surr)			*41 %*		*19-120 %*			*"*				
2,4,6-Tribromophenol (Surr)			*82 %*		*43-140 %*			*"*				
LCS (23G0128-BS1)			Prepared: 07/06/23 11:20 Analyzed: 07/06/23 22:33									
1311/8270E												
2-Methylphenol	0.0282	---	0.0200	mg/L	4	0.0400	---	71	30-120%	---	---	
3+4-Methylphenol(s)	0.0268	---	0.0200	mg/L	4	0.0400	---	67	29-120%	---	---	
Pentachlorophenol (PCP)	0.0358	---	0.0200	mg/L	4	0.0400	---	89	35-138%	---	---	
2,4,5-Trichlorophenol	0.0380	---	0.0200	mg/L	4	0.0400	---	95	53-123%	---	---	
2,4,6-Trichlorophenol	0.0353	---	0.0200	mg/L	4	0.0400	---	88	50-125%	---	---	
Hexachlorobenzene	0.0329	---	0.00800	mg/L	4	0.0400	---	82	53-125%	---	---	
Hexachlorobutadiene	0.0129	---	0.0100	mg/L	4	0.0400	---	32	22-124%	---	---	
Hexachloroethane	0.0130	---	0.0100	mg/L	4	0.0400	---	32	21-120%	---	---	
Nitrobenzene	0.0313	---	0.0200	mg/L	4	0.0400	---	78	45-121%	---	---	
2,4-Dinitrotoluene	0.0373	---	0.00800	mg/L	4	0.0400	---	93	57-128%	---	---	
Pyridine	0.0183	---	0.00400	mg/L	4	0.0400	---	46	10-120%	---	---	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 82 %*		*Limits: 44-120 %*			*Dilution: 4x*				
2-Fluorobiphenyl (Surr)			*85 %*		*44-120 %*			*"*				

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ORELAP ID: **OR100062**

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Semivolatile Organic Compounds by EPA 1311/8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23G0128 - EPA 1311/3510C (BNA Extraction)							**Soil**					
LCS (23G0128-BS1)			Prepared: 07/06/23 11:20 Analyzed: 07/06/23 22:33									
Surr: Phenol-d6 (Surr)			*Recovery: 31 %*	*Limits: 10-133 %*			*Dilution: 4x*					
p-Terphenyl-d14 (Surr)			*99 %*	*50-134 %*			*"*					
2-Fluorophenol (Surr)			*46 %*	*19-120 %*			*"*					
2,4,6-Tribromophenol (Surr)			*94 %*	*43-140 %*			*"*					
LCS Dup (23G0128-BSD1)			Prepared: 07/06/23 11:20 Analyzed: 07/06/23 23:05									**Q-19**
1311/8270E												
2-Methylphenol	0.0293	---	0.0200	mg/L	4	0.0400	---	73	30-120%	4	30%	
3+4-Methylphenol(s)	0.0295	---	0.0200	mg/L	4	0.0400	---	74	29-120%	10	30%	
Pentachlorophenol (PCP)	0.0396	---	0.0200	mg/L	4	0.0400	---	99	35-138%	10	30%	
2,4,5-Trichlorophenol	0.0405	---	0.0200	mg/L	4	0.0400	---	101	53-123%	6	30%	
2,4,6-Trichlorophenol	0.0364	---	0.0200	mg/L	4	0.0400	---	91	50-125%	3	30%	
Hexachlorobenzene	0.0338	---	0.00800	mg/L	4	0.0400	---	85	53-125%	3	30%	
Hexachlorobutadiene	0.00916	---	0.00400	mg/L	4	0.0400	---	23	22-124%	**34**	**30%**	Q-24
Hexachloroethane	0.00966	---	0.00400	mg/L	4	0.0400	---	24	21-120%	29	30%	
Nitrobenzene	0.0325	---	0.0200	mg/L	4	0.0400	---	81	45-121%	4	30%	
2,4-Dinitrotoluene	0.0398	---	0.00800	mg/L	4	0.0400	---	100	57-128%	6	30%	
Pyridine	0.0194	---	0.00400	mg/L	4	0.0400	---	49	10-120%	6	30%	
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 87 %*	*Limits: 44-120 %*			*Dilution: 4x*					
2-Fluorobiphenyl (Surr)			*87 %*	*44-120 %*			*"*					
Phenol-d6 (Surr)			*34 %*	*10-133 %*			*"*					
p-Terphenyl-d14 (Surr)			*101 %*	*50-134 %*			*"*					
2-Fluorophenol (Surr)			*51 %*	*19-120 %*			*"*					
2,4,6-Tribromophenol (Surr)			*101 %*	*43-140 %*			*"*					
Matrix Spike (23G0128-MS1)			Prepared: 07/06/23 12:53 Analyzed: 07/07/23 10:37									
QC Source Sample: Non-SDG (A3F1635-01RE1)												
1311/8270E												
2-Methylphenol	0.0553	---	0.0500	mg/L	5	0.0800	ND	69	30-120%	---	---	
3+4-Methylphenol(s)	0.0526	---	0.0500	mg/L	5	0.0800	ND	66	29-120%	---	---	
Pentachlorophenol (PCP)	ND	---	0.100	mg/L	5	0.0800	ND	69	35-138%	---	---	
2,4,5-Trichlorophenol	0.0805	---	0.0500	mg/L	5	0.0800	ND	101	53-123%	---	---	
2,4,6-Trichlorophenol	0.0707	---	0.0500	mg/L	5	0.0800	ND	88	50-125%	---	---	
Hexachlorobenzene	0.0744	---	0.0200	mg/L	5	0.0800	ND	93	53-125%	---	---	

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ORELAP ID: **OR100062**

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

TCLP Semivolatile Organic Compounds by EPA 1311/8270E

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23G0128 - EPA 1311/3510C (BNA Extraction)							**Soil**					
Matrix Spike (23G0128-MS1)			Prepared: 07/06/23 12:53		Analyzed: 07/07/23 10:37							
QC Source Sample: Non-SDG (A3F1635-01RE1)												
Hexachlorobutadiene	ND	---	0.0500	mg/L	5	0.0800	ND		**22-124%**	---	---	Q-11
Hexachloroethane	ND	---	0.0500	mg/L	5	0.0800	ND		**21-120%**	---	---	Q-11
Nitrobenzene	0.0591	---	0.0500	mg/L	5	0.0800	ND	74	45-121%	---	---	
2,4-Dinitrotoluene	0.0816	---	0.0200	mg/L	5	0.0800	ND	102	57-128%	---	---	
Pyridine	ND	---	0.100	mg/L	5	0.0800	ND		**10-120%**	---	---	Q-11
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 78 %*		*Limits: 44-120 %*		*Dilution: 5x*					
2-Fluorobiphenyl (Surr)			*74 %*		*44-120 %*		*"*					
Phenol-d6 (Surr)			*31 %*		*10-133 %*		*"*					
p-Terphenyl-d14 (Surr)			*102 %*		*50-134 %*		*"*					
2-Fluorophenol (Surr)			*45 %*		*19-120 %*		*"*					
2,4,6-Tribromophenol (Surr)			*117 %*		*43-140 %*		*"*					*Q-41*
Matrix Spike Dup (23G0128-MSD1)			Prepared: 07/06/23 12:53		Analyzed: 07/07/23 11:11							
QC Source Sample: Non-SDG (A3F1635-01RE1)												
2-Methylphenol	0.0901	---	0.0794	mg/L	5	0.127	ND	71	30-120%	**48**	**30%**	Q-24
3+4-Methylphenol(s)	0.0870	---	0.0794	mg/L	5	0.127	ND	68	29-120%	**49**	**30%**	Q-24
Pentachlorophenol (PCP)	ND	---	0.159	mg/L	5	0.127	ND	73	35-138%	**51**	**30%**	Q-24
2,4,5-Trichlorophenol	0.137	---	0.0794	mg/L	5	0.127	ND	108	53-123%	**52**	**30%**	Q-24
2,4,6-Trichlorophenol	0.122	---	0.0794	mg/L	5	0.127	ND	96	50-125%	**53**	**30%**	Q-24
Hexachlorobenzene	0.125	---	0.0317	mg/L	5	0.127	ND	98	53-125%	**50**	**30%**	Q-24
Hexachlorobutadiene	ND	---	0.0794	mg/L	5	0.127	ND		**22-124%**		30%	Q-11
Hexachloroethane	ND	---	0.0794	mg/L	5	0.127	ND		**21-120%**		30%	Q-11
Nitrobenzene	0.100	---	0.0794	mg/L	5	0.127	ND	79	45-121%	**51**	**30%**	Q-24
2,4-Dinitrotoluene	0.137	---	0.0317	mg/L	5	0.127	ND	108	57-128%	**50**	**30%**	Q-24
Pyridine	ND	---	0.159	mg/L	5	0.127	ND		**10-120%**		30%	Q-11
Surr: Nitrobenzene-d5 (Surr)			*Recovery: 84 %*		*Limits: 44-120 %*		*Dilution: 5x*					
2-Fluorobiphenyl (Surr)			*82 %*		*44-120 %*		*"*					
Phenol-d6 (Surr)			*34 %*		*10-133 %*		*"*					
p-Terphenyl-d14 (Surr)			*106 %*		*50-134 %*		*"*					
2-Fluorophenol (Surr)			*51 %*		*19-120 %*		*"*					
2,4,6-Tribromophenol (Surr)			*121 %*		*43-140 %*		*"*					*Q-41*

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Darwin Thomas, Business Development Director

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503-718-2323
ORELAP ID: OR100062

ANALYTICAL REPORT

Anchor QEA, LLC	Project: Gasco Data Gaps	
6720 SW Macadam Ave. Suite 125	Project Number: 000029-02.84 (03.003D)	Report ID:
Portland, OR 97219	Project Manager: Ben Uhl	A3F1416 - 07 11 23 1310

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23G0050 - EPA 3051A							Soil					
Blank (23G0050-BLK1)			Prepared: 07/05/23 06:44	Analyzed: 07/05/23 20:01								
EPA 6020B												
Arsenic	ND	0.500	1.00	mg/kg wet	10	---	---	---	---	---	---	
Barium	ND	0.500	1.00	mg/kg wet	10	---	---	---	---	---	---	
Cadmium	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
Chromium	ND	0.500	1.00	mg/kg wet	10	---	---	---	---	---	---	
Lead	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
Mercury	ND	0.0400	0.0800	mg/kg wet	10	---	---	---	---	---	---	
Selenium	ND	0.500	1.00	mg/kg wet	10	---	---	---	---	---	---	
Silver	ND	0.100	0.200	mg/kg wet	10	---	---	---	---	---	---	
LCS (23G0050-BS1)			Prepared: 07/05/23 06:44	Analyzed: 07/05/23 20:06								
EPA 6020B												
Arsenic	48.7	0.500	1.00	mg/kg wet	10	50.0	---	97	80-120%	---	---	
Barium	52.1	0.500	1.00	mg/kg wet	10	50.0	---	104	80-120%	---	---	
Cadmium	48.7	0.100	0.200	mg/kg wet	10	50.0	---	97	80-120%	---	---	
Chromium	49.1	0.500	1.00	mg/kg wet	10	50.0	---	98	80-120%	---	---	
Lead	50.5	0.100	0.200	mg/kg wet	10	50.0	---	101	80-120%	---	---	
Mercury	0.970	0.0400	0.0800	mg/kg wet	10	1.00	---	97	80-120%	---	---	
Selenium	24.3	0.500	1.00	mg/kg wet	10	25.0	---	97	80-120%	---	---	
Silver	23.3	0.100	0.200	mg/kg wet	10	25.0	---	93	80-120%	---	---	
Duplicate (23G0050-DUP1)			Prepared: 07/05/23 06:44	Analyzed: 07/05/23 22:02								
QC Source Sample: Non-SDG (A3F1508-01)												
Arsenic	**5.68**	0.566	1.13	mg/kg dry	10	---	6.31	---	---	11	20%	
Barium	**132**	0.566	1.13	mg/kg dry	10	---	136	---	---	3	20%	
Cadmium	**0.125**	0.113	0.226	mg/kg dry	10	---	0.138	---	---	10	20%	J
Chromium	**17.6**	0.566	1.13	mg/kg dry	10	---	18.5	---	---	5	20%	
Lead	**18.4**	0.113	0.226	mg/kg dry	10	---	14.0	---	---	**27**	**20%**	Q-17
Mercury	ND	0.0453	0.0905	mg/kg dry	10	---	ND	---	---	---	20%	
Selenium	ND	0.566	1.13	mg/kg dry	10	---	ND	---	---	---	20%	
Silver	ND	0.113	0.226	mg/kg dry	10	---	ND	---	---	---	20%	
Matrix Spike (23G0050-MS1)			Prepared: 07/05/23 06:44	Analyzed: 07/05/23 22:07								

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ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

Total Metals by EPA 6020B (ICPMS)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23G0050 - EPA 3051A							**Soil**					
Matrix Spike (23G0050-MS1)			Prepared: 07/05/23 06:44		Analyzed: 07/05/23 22:07							
QC Source Sample: Non-SDG (A3F1508-01)												
EPA 6020B												
Arsenic	59.3	0.567	1.13	mg/kg dry	10	56.7	6.31	93	75-125%	---	---	
Barium	193	0.567	1.13	mg/kg dry	10	56.7	136	102	75-125%	---	---	
Cadmium	52.4	0.113	0.227	mg/kg dry	10	56.7	0.138	92	75-125%	---	---	
Chromium	71.9	0.567	1.13	mg/kg dry	10	56.7	18.5	94	75-125%	---	---	
Lead	67.3	0.113	0.227	mg/kg dry	10	56.7	14.0	94	75-125%	---	---	
Mercury	1.06	0.0453	0.0907	mg/kg dry	10	1.13	ND	93	75-125%	---	---	
Selenium	25.4	0.567	1.13	mg/kg dry	10	28.3	ND	89	75-125%	---	---	
Silver	25.1	0.113	0.227	mg/kg dry	10	28.3	ND	88	75-125%	---	---	

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ANALYTICAL REPORT

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Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

Soluble Cyanide by Flow Analysis (Non-Aqueous/Water Leach)

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23G0071 - DI Leach							**Solid**					
Blank (23G0071-BLK1)			Prepared: 07/05/23 10:22		Analyzed: 07/05/23 15:50							
EPA 9013M/9012B												
Total Cyanide	ND	0.100	0.100	mg/kg wet	1	---	---	---	---	---	---	
LCS (23G0071-BS1)			Prepared: 07/05/23 10:22		Analyzed: 07/05/23 15:52							
EPA 9013M/9012B												
Total Cyanide	3.68	0.100	0.100	mg/kg wet	1	4.00	---	92	76-120%	---	---	
Duplicate (23G0071-DUP2)			Prepared: 07/05/23 10:22		Analyzed: 07/05/23 16:52							
QC Source Sample: 2023-DG-IDW-062123 (A3F1416-01RE1)												
EPA 9013M/9012B												
Total Cyanide	**184**	2.99	2.99	mg/kg dry	25	---	146	---	---	**23**	**20%**	Q-02, Q-16
Matrix Spike (23G0071-MS2)			Prepared: 07/05/23 10:22		Analyzed: 07/05/23 16:54							
QC Source Sample: 2023-DG-IDW-062123 (A3F1416-01RE1)												
EPA 9013M/9012B												
Total Cyanide	192	2.99	2.99	mg/kg dry	25	4.78	146	**968**	**76-120%**	---	---	Q-02, Q-16

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QUALITY CONTROL (QC) SAMPLE RESULTS

Solid and Moisture Determinations

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23F0915 - Total Solids (SM2540G/PSEP) - 2022								Soil				
Duplicate (23F0915-DUP1)			Prepared: 06/26/23 09:46		Analyzed: 06/26/23 09:46							
QC Source Sample: Non-SDG (A3F1272-02)												
Total Solids	**37.6**	1.00	1.00	%	1	---	37.7	---	---	0.159	10%	
Duplicate (23F0915-DUP2)			Prepared: 06/26/23 09:46		Analyzed: 06/26/23 09:46							
QC Source Sample: Non-SDG (A3F1272-07)												
Total Solids	**31.5**	1.00	1.00	%	1	---	31.6	---	---	0.127	10%	
Duplicate (23F0915-DUP3)			Prepared: 06/26/23 09:46		Analyzed: 06/26/23 09:46							
QC Source Sample: Non-SDG (A3F1298-06)												
Total Solids	**44.2**	1.00	1.00	%	1	---	44.6	---	---	0.900	10%	

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Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23F0881 - DI Leach							**Soil**					
Duplicate (23F0881-DUP1)			Prepared: 06/23/23 12:07			Analyzed: 06/23/23 13:26						
QC Source Sample: Non-SDG (A3F1413-01)												
Soil/Solid pH (measured in H2O)	**6.2**			pH Units	1	---	6.3	---	---	0.8	5%	pH_S
pH Temperature (deg C)	**22.9**			pH Units	1	---	22.7	---	---	0.9	30%	pH_S
Reference (23F0881-SRM1)			Prepared: 06/23/23 12:07			Analyzed: 06/23/23 13:22						
EPA 9045D												
Soil/Solid pH (measured in H2O)	6.0			pH Units	1	6.00		100	98.33-101.33%	---	---	
pH Temperature (deg C)	21.9			pH Units	1	20.0		110	50-200%	---	---	
Reference (23F0881-SRM2)			Prepared: 06/23/23 12:07			Analyzed: 06/23/23 13:30						
EPA 9045D												
Soil/Solid pH (measured in H2O)	7.9			pH Units	1	8.00		99	99-101%	---	---	
pH Temperature (deg C)	21.9			pH Units	1	20.0		110	50-200%	---	---	
Reference (23F0881-SRM3)			Prepared: 06/23/23 12:07			Analyzed: 06/23/23 15:54						
EPA 9045D												
Soil/Solid pH (measured in H2O)	6.0			pH Units	1	6.00		100	98.33-101.33%	---	---	
pH Temperature (deg C)	22.2			pH Units	1	20.0		111	50-200%	---	---	
Reference (23F0881-SRM4)			Prepared: 06/23/23 12:07			Analyzed: 06/23/23 15:59						
EPA 9045D												
Soil/Solid pH (measured in H2O)	8.0			pH Units	1	8.00		100	99-101%	---	---	
pH Temperature (deg C)	22.2			pH Units	1	20.0		111	50-200%	---	---	

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ANALYTICAL REPORT

Anchor QEA, LLC	Project:	Gasco Data Gaps
6720 SW Macadam Ave. Suite 125	Project Number:	000029-02.84 (03.003D)
Portland, OR 97219	Project Manager:	Ben Uhl

Report ID:
A3F1416 - 07 11 23 1310

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23F1084 - Flashpoint							Soil					
LCS (23F1084-BS1)			Prepared: 06/29/23 08:16		Analyzed: 06/29/23 11:22							
EPA 1010M												
Flash Point (Ignitability)	141			degF	1	145	---	97	95-105%	---	---	

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Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALITY CONTROL (QC) SAMPLE RESULTS

Conventional Chemistry Parameters

Analyte	Result	Detection Limit	Reporting Limit	Units	Dilution	Spike Amount	Source Result	% REC	% REC Limits	RPD	RPD Limit	Notes
Batch 23G0096 - Paint Filter							**Sediment**					
Duplicate (23G0096-DUP1)			Prepared: 07/05/23 16:21		Analyzed: 07/05/23 16:26							
QC Source Sample: Non-SDG (A3F1413-01)												
Free Liquid	ND	---	0.00	mL	1	---	ND	---	---	---	20%	

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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 23F0915 - Total Solids (SM2540G/PSEP) - 2022							**Soil**					
Duplicate (23F0915-DUP1)			Prepared: 06/26/23 09:46		Analyzed: 06/26/23 09:46							
QC Source Sample: Non-SDG (A3F1272-02)												
% Solids	**37.6**	---	1.00	%	1	---	37.7	---	---	0.2	10%	
Duplicate (23F0915-DUP2)			Prepared: 06/26/23 09:46		Analyzed: 06/26/23 09:46							
QC Source Sample: Non-SDG (A3F1272-07)												
% Solids	**31.5**	---	1.00	%	1	---	31.6	---	---	0.1	10%	
Duplicate (23F0915-DUP3)			Prepared: 06/26/23 09:46		Analyzed: 06/26/23 09:46							
QC Source Sample: Non-SDG (A3F1298-06)												
% Solids	**44.2**	---	1.00	%	1	---	44.6	---	---	0.9	10%	

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

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SAMPLE PREPARATION INFORMATION

Diesel and/or Oil Hydrocarbons by NWTPH-Dx

Prep: EPA 3546 (Fuels)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 23G0046							
A3F1416-01	SO	NWTPH-Dx	06/21/23 13:15	07/05/23 05:34	10.25g/5mL	10g/5mL	0.98

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
Batch: 23F0856							
A3F1416-01	SO	NWTPH-Gx (MS)	06/21/23 13:15	06/21/23 13:15	5.46g/5mL	5g/5mL	0.92

Volatile Organic Compounds by EPA 8260D

Prep: EPA 5035A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 23F0856							
A3F1416-01	SO	5035A/8260D	06/21/23 13:15	06/21/23 13:15	5.46g/5mL	5g/5mL	0.92
Batch: 23F0926							
A3F1416-01RE1	SO	5035A/8260D	06/21/23 13:15	06/21/23 13:15	5.46g/5mL	5g/5mL	0.92

Semivolatile Organic Compounds by EPA 8270E

Prep: EPA 3546

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 23F1148							
A3F1416-01	SO	EPA 8270E	06/21/23 13:15	06/30/23 10:03	15.79g/2mL	15g/2mL	0.95

TCLP Semivolatile Organic Compounds by EPA 1311/8270E

Prep: EPA 1311/3510C (BNA Extraction)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 23G0128							
A3F1416-01RE1	SO	1311/8270E	06/21/23 13:15	07/06/23 11:20	200mL/2mL	200mL/2mL	1.00

Total Metals by EPA 6020B (ICPMS)

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SAMPLE PREPARATION INFORMATION

Total Metals by EPA 6020B (ICPMS)

Prep: EPA 3051A

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 23G0050							
A3F1416-01RE1	SO	EPA 6020B	06/21/23 13:15	07/05/23 06:44	0.493g/50mL	0.5g/50mL	1.01

Soluble Cyanide by Flow Analysis (Non-Aqueous/Water Leach)

Prep: DI Leach

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 23G0071							
A3F1416-01RE1	SO	EPA 9013M/9012B	06/21/23 13:15	07/05/23 10:22	2.5011g/50mL	2.5g/50mL	1.00

Solid and Moisture Determinations

Prep: Total Solids (SM2540G/PSEP) - 2022

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 23F0915							
A3F1416-01	SO	SM 2540 G	06/21/23 13:15	06/26/23 09:46			NA

Conventional Chemistry Parameters

Prep: DI Leach

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 23F0881							
A3F1416-01	SO	EPA 9045D	06/21/23 13:15	06/23/23 12:07	20.0054g/20mL	20g/20mL	NA

Prep: Flashpoint

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 23F1084							
A3F1416-01	SO	EPA 1010M	06/21/23 13:15	06/29/23 08:16			NA

Prep: Paint Filter

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 23G0096							
A3F1416-01	SO	EPA 9095B	06/21/23 13:15	07/05/23 16:38			NA

TCLP Extraction by EPA 1311

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SAMPLE PREPARATION INFORMATION

TCLP Extraction by EPA 1311

Prep: EPA 1311 (TCLP)

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 23F1091							
A3F1416-01	SO	EPA 1311	06/21/23 13:15	06/29/23 18:03	100g/2000.2g	100g/2000g	NA

Apex Laboratories

Darwin Thomas, Business Development Director

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

ANALYTICAL REPORT

Anchor QEA, LLC	Project: **Gasco Data Gaps**	
6720 SW Macadam Ave. Suite 125	Project Number: **000029-02.84 (03.003D)**	**Report ID:**
Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

QUALIFIER DEFINITIONS

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

Apex Laboratories

F-17	No fuel pattern detected. The Diesel result represents carbon range C10 to C25, and the Oil result represents >C25 to C40.
J	Estimated Result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
M-05	Estimated results. Peak separation for structural isomers is insufficient for accurate quantification.
pH_S	Method recommends preparation 'as soon as possible'. See Sample Preparation Information section of report for details. Consult regulator or permit manager to determine the usability of data for intended purpose.
Q-01	Spike recovery and/or RPD is outside acceptance limits.
Q-02	Spike recovery is outside of established control limits due to matrix interference.
Q-04	Spike recovery and/or RPD is outside control limits due to a non-homogeneous sample matrix.
Q-11	Spike recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.
Q-16	Reanalysis of an original Batch QC sample.
Q-17	RPD between original and duplicate sample is outside of established control limits.
Q-18	Matrix Spike results for this extraction batch are not reported due to the high dilution necessary for analysis of the source 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-24	The RPD for this spike and spike duplicate is above established control limits. Recoveries for both the spike and spike duplicate are within control limits.
Q-29	Recovery for Lab Control Spike (LCS) is above the upper control limit. Data may be biased high.
Q-31	Estimated Results. Recovery of Continuing Calibration Verification sample below lower control limit for this analyte. Results are likely biased low.
Q-41	Estimated Results. Recovery of Continuing Calibration Verification sample above upper control limit for this analyte. Results are likely biased high.
Q-52	Due to known erratic recoveries, the result and reporting levels for this analyte are reported as Estimated Values. This analyte may not have passed all QC requirements for this method.
Q-54	Daily Continuing Calibration Verification recovery for this analyte failed the +/-20% criteria listed in EPA method 8260/8270 by +12%. 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 +6%. 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 -1%. 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.

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Q-56	Daily CCV/LCS recovery for this analyte was above the +/-20% criteria listed in EPA 8260
S-01	Surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference.
S-05	Surrogate recovery is estimated due to sample dilution required for high analyte concentration and/or matrix interference.
TCLP	This batch QC sample was prepared with TCLP or SPLP fluid from preparation batch 23F1091.

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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'.

Results for Volatiles analyses on soils and sediments that are reported on a “dry weight” basis include the water miscible solvent (WMS) correction referenced in the EPA 8000 Method guidance documents. Solid and Liquid samples reported on an “As Received” basis do not have the WMS correction applied, as dry weight was not performed.

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).

Apex Laboratories

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REPORTING NOTES AND CONVENTIONS (Cont.):

Blanks:

Standard practice is to evaluate the results from Blank QC Samples down to a level equal to ½ the Reporting Limit (RL).

-For Blank hits falling between ½ 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.

-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, if results are not reported to the MDL.

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.

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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

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 provded by the client or sampler, and fall outside of Apex Laboratories' Scope of Accreditation.

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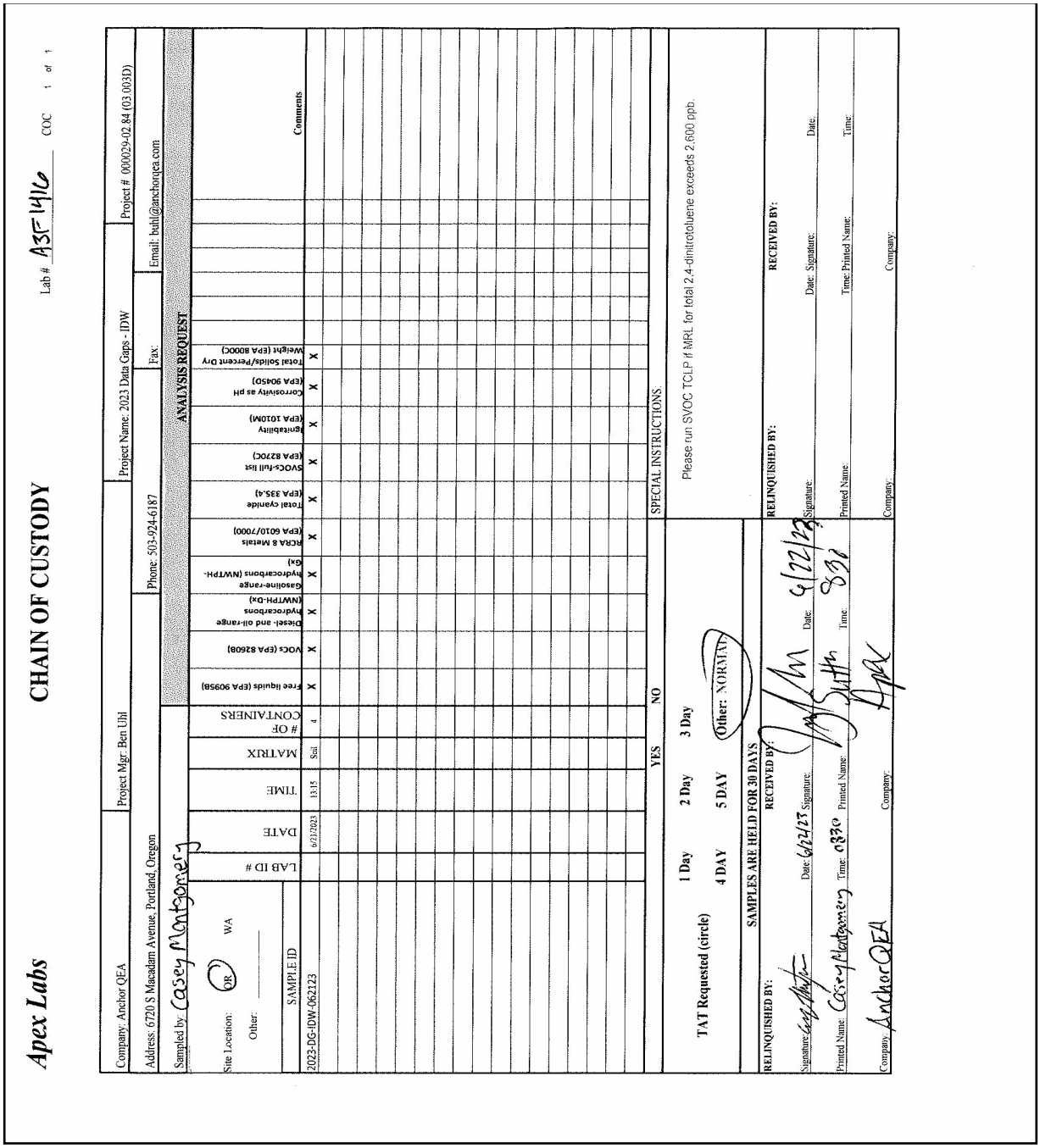

Apex Labs — **CHAIN OF CUSTODY** — Lab # A3F1416 — COC 1 of 1

Company: Anchor QEA | Project Mgr: Ben Uhl | Project Name: 2023 Data Gaps - IDW | Project # 000029-02.84 (03.003D)
Address: 6720 S Macadam Avenue, Portland, Oregon | Phone: 503-924-6187 | Fax: | Email: buhl@anchorqea.com
Sampled by: Casey Montgomery

Site Location: OR / WA — Other: ____

SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Free liquids (EPA 9095B)	VOCs (EPA 8260B)	Diesel- and oil-range hydrocarbons (NWTPH-Dx)	Gasoline-range hydrocarbons (NWTPH-Gx)	RCRA 8 Metals (EPA 6010/7000)	Total cyanide (EPA 335.4)	SVOCs-full list (EPA 8270C)	Reactability (EPA 1010M)	Corrosivity as pH (EPA 9045D)	Total Solids/Percent Dry Weight (EPA 8000C)	Comments
2023-DG-IDW-062123		6/21/2023	13:15	Soil	4	X	X	X	X	X	X	X	X	X	X	

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS: Please run SVOC TCLP if MRL for total 2,4-dinitrotoluene exceeds 2,600 ppb.

TAT Requested (circle): 1 Day | 2 Day | 3 Day | 4 DAY | 5 DAY | Other: NORMAL

SAMPLES ARE HELD FOR 30 DAYS: YES / NO

RELINQUISHED BY: Signature: Casey Montgomery — Date: 6/22/23 — Printed Name: Casey Montgomery — Time: 0830 — Company: AnchorQEA

RECEIVED BY: Signature: — Date: 6/22/23 — Printed Name: — Time: 830 — Company:

RELINQUISHED BY: Signature: — Date: — Printed Name: — Time: — Company:

RECEIVED BY: Signature: — Date: — Printed Name: — Time: — Company:

Apex Laboratories

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Portland, OR 97219	Project Manager: **Ben Uhl**	**A3F1416 - 07 11 23 1310**

APEX LABS COOLER RECEIPT FORM

Client: Anchor QEA Element WO#: A3F1416

Project/Project #: 2023 Data Gaps - IDW 000029-02.84(03.003D)

Delivery Info:

Date/time received: 6/22/23 @ 830 By: JS

Delivered by: Apex X Client ESS FedEx UPS Radio Morgan SDS Evergreen Other

Cooler Inspection Date/time inspected: 6/22/23 @ 910 By: JS

Chain of Custody included? Yes X No

Signed/dated by client? Yes X No

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (°C)	3.5						
Custody seals? (Y/N)	N						
Received on ice? (Y/N)	Y						
Temp. blanks? (Y/N)	Y						
Ice type: (Gel/Real/Other)	real						
Condition (In/Out):	In						

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

Green dots applied to out of temperature samples? Yes/(No)

Out of temperature samples form initiated? Yes/(No)

Sample Inspection: Date/time inspected: 6/22/23 @ 13:03 By: KAM

All samples intact? Yes X No Comments:

Bottle labels/COCs agree? Yes X No Comments:

COC/container discrepancies form initiated? Yes No X

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

Do VOA vials have visible headspace? Yes No NA X

Comments

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

Comments:

Additional information:

Labeled by: KAM Witness: JS Cooler Inspected by: KAM

Form Y-003 R-00

Apex Laboratories

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Attachment C
Voluntary Agreement No. WMCVC-NWR-94-13, August 8, 1994, as Amended by the First Addendum, Dated July 19, 2006, and the Second Addendum, Dated October 11, 2016

VOLUNTARY AGREEMENT FOR REMEDIAL INVESTIGATION/FEASIBILITY STUDY

DEQ NO. WMCVC-NWR-94-13

BETWEEN: Northwest Natural Gas Company

AND: Oregon Department of Environmental Quality (DEQ)

EFFECTIVE DATE: 8/8/94

Pursuant to ORS 465.260(2) and (4), the Director, Oregon Department of Environmental Quality (DEQ), enters this Agreement with the Northwest Natural Gas Company (NWNG). This Agreement contains the following provisions:

I. RECITALS

A. NWNG is a "person" under ORS 465.200(13).

B. The NWNG site is a "facility" under ORS 465.200(6). The NWNG site occupies approximately 47 acres at 7540 N.W. St. Helens Road, Portland, Oregon and is the location of a former oil gasification plant. A vicinity map and a site map are included in Attachment A to this Agreement.

C. From 1913 until 1956, NWNG, then known as the Portland Gas and Coke Company (GASCO) operated an oil gasification plant on the present property owned by NWNG. An adjoining approximately 73 acre portion of the property was sold by NWNG in 1962 and is currently the site of the Wacker Siltronics Corporation manufacturing facility. The former GASCO facility produced oil gas and lampblack briquettes. Other materials produced by the plant for sale included light oils, tar and electrode grade coke. Wastes generated at the facility included tar, wastewater containing dissolved and suspended hydrocarbons, and spent oxide. Many of these wastes were disposed of in on-site tar ponds. In 1971 the largest remaining tar pond was estimated to contain 6 million gallons of tar and tar/water emulsion. This tar pond was subsequently filled in with spent oxide material and rubble and spread out over the southeastern portion of the site. NWNG currently operates a liquified natural gas (LNG) plant at the site and leases portions of the former GASCO facility to Pacific Northern Oil Company (Pacific Northern) and Koppers Industries, Incorporated (Koppers).

D. Investigations conducted to date indicate that petroleum hydrocarbons, volatile aromatic hydrocarbons and polycyclic aromatic hydrocarbons (PAHs) are present in subsurface soils and groundwater on the NWNG property. A total PAH concentration of 926 mg/l was detected in a 1984 sample collected from a monitoring well installed on the property leased from NWNG by Koppers. Ethylbenzene and xylene were detected in the same monitoring well at 380 mg/l and 2600 mg/l respectively. Analysis of a 1984 sediment sample collected from the NWNG LNG containment basin detected 300 mg/kg of total PAHs. Analysis of a 1993 water sample collected from the NWNG LNG containment basin detected 8.3 mg/l of benzene and 1.4 mg/l of total PAHs.

The substances described in this section are "hazardous substances" under ORS 465.200(9). The presence of hazardous substances in soil and groundwater at the facility constitutes a "release" or "threat of release" into the environment under ORS 465.200(14).

E. NWNG requested DEQ oversight of its investigation and cleanup activities and executed a voluntary Letter Agreement with DEQ on January 3, 1994. NWNG provided a $5,000 advance deposit to cover initial DEQ oversight costs.

F. DEQ considers the activities required by this Agreement to be necessary to protect public health, safety, and welfare and the environment.

II. AGREEMENT

The parties agree as follows:

A. Work

1. Remedial Investigation and Feasibility Study.

NWNG shall perform a remedial investigation and feasibility study (RI/FS) satisfying OAR 340-122-070 and OAR 340-122-080, the terms and schedule of a DEQ-approved work plan developed by NWNG, and applicable elements of the general Scope of Work contained in Attachment B to this Agreement. NWNG may specify, in the proposed work plan, elements of the Scope of Work that NWNG considers inapplicable or unnecessary to the RI/FS for the facility. NWNG may propose to perform the work in phases or operable units.

2. Review

DEQ shall provide review, approvals/disapprovals, and oversight in accordance with the schedule set forth in the Scope of Work, or as soon as thereafter practicable in the event staff resources or workload prevent compliance with the schedule. Any DEQ delay shall correspondingly extend NWNG's schedule for a related deliverable or activity.

3. Additional Measures

NWNG may elect at any time during the term of this Agreement to undertake measures other than those required under this Agreement necessary to address a release or threatened release of hazardous substances at the facility which is the subject of this Agreement. Such other measures shall be subject to prior approval by DEQ, which approval shall be granted if DEQ determines that the additional measures will not compromise the validity of the RI/FS and will not threaten human health or the environment.

B. Public Participation

Upon execution of this Agreement, DEQ will provide public notice of this Agreement through issuance of a press release, at a minimum to a local newspaper of general circulation, describing the measures required under this Agreement. Copies of the Agreement will be made available to the public. DEQ shall provide NWNG a draft of such press release and consider any comments by NWNG on the draft press release, before publication.

C. DEQ Access and Oversight

1. DEQ shall use its best efforts, but not be obligated, to provide reasonable advance notice before entering the

facility. NWNG shall allow DEQ to enter and move freely about all portions of the facility at all reasonable times for the purposes, among other things, of inspecting records relating to work under this Agreement; observing NWNG's progress in implementing this Agreement; conducting such tests and taking such samples as DEQ deems necessary; verifying data submitted to DEQ by NWNG; and, using camera, sound recording, or other recording equipment for purposes relating to work under this Agreement.

2. NWNG shall permit DEQ to inspect and copy all records, files, photographs, documents, and data relating to work under this Agreement, except that NWNG shall not be required to permit DEQ inspection or copying of items subject to attorney-client or attorney work product privilege. DEQ shall use its best efforts, but not be obligated, to provide reasonable advance notice before records inspection and copying requests.

3. Attorney-client and work product privileges may not be asserted with respect to any records required under Section II.G.1 and II.G.2 of this Agreement. NWNG shall identify to DEQ, by addressor-addressee, date, general subject matter, and distribution, any document, record, or item withheld from DEQ on the basis of attorney-client or attorney work product privilege. DEQ reserves its rights under law to obtain documents DEQ asserts are improperly withheld by NWNG.

D. Project Managers

1. To the extent possible, all reports, notices, and other communications required under or relating to this Agreement shall be directed to:

DEQ Project Manager:	NWNG Project Manager:
Eric Blischke Department of Environmental Quality Northwest Region 2020 S.W. Fourth Avenue, Suite 400 Portland, OR 97201 (503) 229-6802	Sandra Hart Northwest Natural Gas Company 220 S.W. Second Avenue Portland, OR 97209 (503) 226-4211

2. NWNG's and DEQ's Project Managers shall be available and have the authority to make day-to-day decisions necessary to complete the scope of work under this Agreement.

E. Notice and Samples

NWNG shall make every reasonable attempt to notify DEQ of any excavation, drilling, or sampling to be conducted under this Agreement at least five (5) working days before such activity but in no event less than twenty-four (24) hours before such activity. Upon DEQ's verbal request, NWNG shall make available to DEQ a

split or duplicate of any sample taken pursuant to this Agreement. DEQ shall make every effort to complete analysis of any split or duplicate sample on a schedule consistent with NWNG's schedule for related activities.

F. Quality Assurance

NWNG shall conduct all sampling, sample transport, and sample analysis in accordance with the Quality Assurance/ Quality Control (QA/QC) provisions approved by DEQ as part of the work plan. All plans prepared and work conducted as part of this Agreement shall be consistent with DEQ's "Quality Assurance Policy No. 760.00". NWNG shall ensure that each laboratory used by NWNG for analysis performs such analyses in accordance with such provisions.

G. Records

1. In addition to those technical reports and documents specifically required under this Agreement, NWNG shall provide to DEQ within ten (10) days of DEQ's written request copies of existing documents relating to work required under this Agreement, including QA/QC memoranda and audits, final plans, final reports, task memoranda, field notes, and laboratory analytical data that have undergone data quality validation.

2. If DEQ determines that review of raw data or preliminary laboratory reports is necessary in order to ensure protection of public health, safety, and welfare and the environment, that information will be provided by NWNG immediately upon DEQ's written request. When such information is requested, DEQ will fully inform NWNG of the reasons making the request necessary.

3. Except for preliminary drafts which have been superseded, NWNG and DEQ shall preserve all records and documents in possession or control of NWNG and DEQ, respectively, or their employees, agents, or contractors that relate in any way to activities under this Agreement for at least five (5) years after termination under Section II.R. of this Agreement; provided that after such 5-year period, NWNG and DEQ shall provide the other sixty (60) days notice before destruction or other disposal of such records and make them available for inspection and copying.

4. NWNG may assert a claim of confidentiality regarding any documents or records submitted to or copied by DEQ pursuant to this Agreement. DEQ shall treat documents and records for which a claim of confidentiality has been made in accordance with ORS 192.410 through 192.505. If NWNG does not make a claim of confidentiality at the time the documents or records are submitted to or copied by DEQ, the documents or records may be made available to the public without notice to NWNG.

H. **Progress Reports**

During each month of this Agreement, NWNG shall deliver to DEQ on or before the tenth (10th) day of each month two (2) copies of a progress report containing the following items. DEQ anticipates that the progress report will not exceed 2 pages in length.

1. Actions taken under this Agreement during the previous month;

2. Actions scheduled to be taken in the next month;

3. Sampling, test results, and any other data generated by NWNG during the previous month; and

4. A description of any problems experienced during the previous month and the actions taken to resolve them.

I. **Other Applicable Laws**

All actions under this Agreement shall be performed in accordance with all applicable federal, state, and local laws and regulations; except that, in accordance with ORS 465.315(2), DEQ in its discretion may exempt the on-site portion of any removal or remedial action from applicable requirements of ORS 466.005 to 466.385, ORS Chapter 459, or ORS Chapter 468 (1989).

J. **Reimbursement of DEQ Oversight Costs**

1. DEQ shall submit to NWNG a monthly statement of costs actually and reasonably incurred after issuance of this Agreement by DEQ or the State of Oregon in connection with any activities related to the facility or oversight of NWNG's implementation of this Agreement. Each invoice will include a summary of costs billed to date. DEQ will also include a direct labor summary showing the person charging the time, the number of hours and the nature of the work performed.

2. DEQ or State of Oregon oversight costs payable by NWNG shall include both direct and indirect costs. Direct costs include site-specific expenses, DEQ contractor costs, and DEQ legal costs. Indirect costs are those general management and support costs of the DEQ and of the Waste Management and Cleanup Division allocable to DEQ oversight of this Agreement and not charged as direct, site-specific costs. Indirect costs are based on a percentage of direct personal services costs. DEQ shall maintain work logs, payroll records, receipts and other documents to document work performed and expenses incurred under this Agreement and, upon request, shall make such records available to Respondent for inspection during the time of this Agreement and for at least one year thereafter.

3. Within thirty (30) days of receipt of the monthly statement, NWNG shall pay the amount of costs billed by check made payable to the "State of Oregon, Hazardous Substance Remedial Action Fund".

K. Force Majeure

1. If any event occurs that is beyond NWNG's reasonable control and that causes or might cause a delay or deviation in performance of the requirements of this Agreement, NWNG shall promptly notify DEQ's Project Manager verbally of the cause of the delay or deviation and its anticipated duration, the measures that have been or will be taken to prevent or minimize the delay or deviation, and the timetable by which NWNG proposes to carry out such measures. NWNG shall confirm in writing this information within five (5) working days of the verbal notification.

2. If NWNG demonstrates to DEQ's satisfaction that the delay or deviation has been or will be caused by circumstances beyond the control and despite the due diligence of NWNG, DEQ shall extend times for performance of related activities under this Agreement as appropriate. Circumstances or events beyond NWNG's control might include but are not limited to acts of God, unforeseen strikes or work stoppages, fire, explosion, riot, sabotage, or war. Increased cost of performance or changed business or economic circumstances shall be presumed not to be circumstances beyond NWNG's control.

L. Prior Approval

Where DEQ review and approval is required for any plan or activity under this Agreement, NWNG shall not proceed to implement the plan or activity until DEQ approval is received. Any DEQ delay in granting or denying approval shall correspondingly extend the time for completion by NWNG. Prior approval shall not be required in emergencies or in instances where NWNG believes a delay in undertaking a particular action will threaten human health, safety or the environment; provided NWNG shall notify DEQ immediately after the emergency or activity and evaluate its impact on the RI/FS.

M. Dispute Resolution

In the event of disagreement between NWNG and DEQ regarding implementation of this Agreement, NWNG and DEQ shall, in the following order: 1) make a good faith effort to resolve the dispute between Project Managers; 2) if necessary, refer the dispute for resolution by the immediate supervisors of the Project Managers; and 3) if necessary, provide each other their respective positions in writing and refer the dispute for resolution by DEQ's Administrator of the Waste Management and Cleanup Division or the appropriate Region Administrator and NWNG's Chief Executive

Officer. DEQ's final decision after such dialogue shall be enforceable under this Agreement. If NWNG refuses or fails to follow DEQ's final decision, the parties shall be entitled to such rights and remedies, including but not limited to, judicial review and subject to such limitation as provided by applicable law.

N. Enforcement of Agreement and Reservation of Rights

1. In the event of NWNG's failure to comply with this Agreement (including any failure to reimburse oversight costs), DEQ may enforce this Agreement under ORS 465.260(5) or may terminate this Agreement after thirty (30) days written notice to NWNG.

2. In the event of DEQ's failure to provide oversight in accordance with this Agreement, NWNG may terminate this Agreement after thirty (30) days written notice to DEQ. Costs incurred or obligated by DEQ before the effective date of any termination of this Agreement shall be owed under the Agreement notwithstanding such termination.

3. NWNG does not admit any liability or violation of law by virtue of entering this Agreement.

4. Nothing in this Agreement shall prevent NWNG from exercising any rights of contribution or indemnification NWNG might have against any person regarding activities under this Agreement; provided, NWNG waives any right it might have under ORS 465.260(7) to seek reimbursement from the Hazardous Substance Remedial Action Fund for costs incurred under this Agreement.

5. NWNG agrees not to litigate, in any proceeding brought by DEQ to enforce this Agreement, any issue other than NWNG's compliance with this Agreement.

O. Hold Harmless

1. NWNG shall save and hold harmless the State of Oregon and its commissions, agencies, officers, employees, contractors, and agents, and indemnify the foregoing, from and against any and all claims arising from acts or omissions related to this Agreement of NWNG or its officers, employees, contractors, agents, receivers, trustees, or assigns. The State of Oregon shall notify NWNG of any such claims or actions as soon as practicable after receiving notice that such a claim or action is threatened or has been filed. NWNG shall have the right to participate fully at its own expense in the defense or settlement of such claims, including the right to promptly receive related correspondence with the claimant and the opportunity to participate in related meetings and telephone conferences with the claimant. The state will confer with NWNG regarding litigation and settlement strategy and, to the extent practicable, will allow NWNG to review ad comment on

pleadings and settlement documents before they are filed with the court or sent to the claimant. NWNG shall have no obligations under this subsection with respect to any claim settled or otherwise compromised without NWNG's having been provided the opportunity to participate in accordance with this subsection. Subject to Article XI, Section 7 of the Oregon constitution and the Oregon Tort Claims Act, DEQ and the State of Oregon shall be responsible for the acts and omissions of their own employees and agents, except for DEQ acts approving or omissions constituting approval of NWNG's activities under this Agreement. DEQ shall not be considered a party to any contract made by NWNG or its agents in carrying out activities under this Agreement.

2. To the extent permitted by Article XI, Section 7, or the Oregon Constitution and by the Oregon Tort Claims Act, the State of Oregon shall save and hold harmless NWNG and its officers, employees, contractors, and agents, and indemnify the foregoing, from and against any and all claims arising from acts or omissions related to this Agreement of the State of Oregon or its commissions, agencies, officers, employees, contractors, or agents (except for acts approving or omissions constituting approval of any activity of NWNG under this Agreement). NWNG shall not be considered a party to any contract made by DEQ or its agents in carrying out activities under this Agreement.

P. Parties Bound

This Agreement shall be binding on the parties and their respective successors, agents, and assigns. The undersigned representative of each party certifies that he or she is fully authorized to execute and bind such party to this Agreement. No change in ownership or corporate or partnership status relating to the facility shall in any way alter NWNG's obligations under this Agreement, unless otherwise approved in writing by DEQ.

Q. Modification

DEQ and NWNG may modify this Agreement by mutual written agreement.

R. Duration and Termination

Upon completion of work under this Agreement, NWNG shall submit to DEQ a written notice of completion. This Agreement shall be deemed satisfied and terminated upon payment of all oversight cost owed and upon DEQ's issuance of a letter acknowledging satisfactory completion of activities in accordance with this Agreement. Such letter shall be issued within sixty (60) days of receipt of notice of completion and payment of outstanding DEQ oversight costs, or as soon thereafter as is reasonably practicable.

NORTHWEST NATURAL GAS COMPANY

By: _____ Date: _____
(Name)

Sr V. P.
(Title)

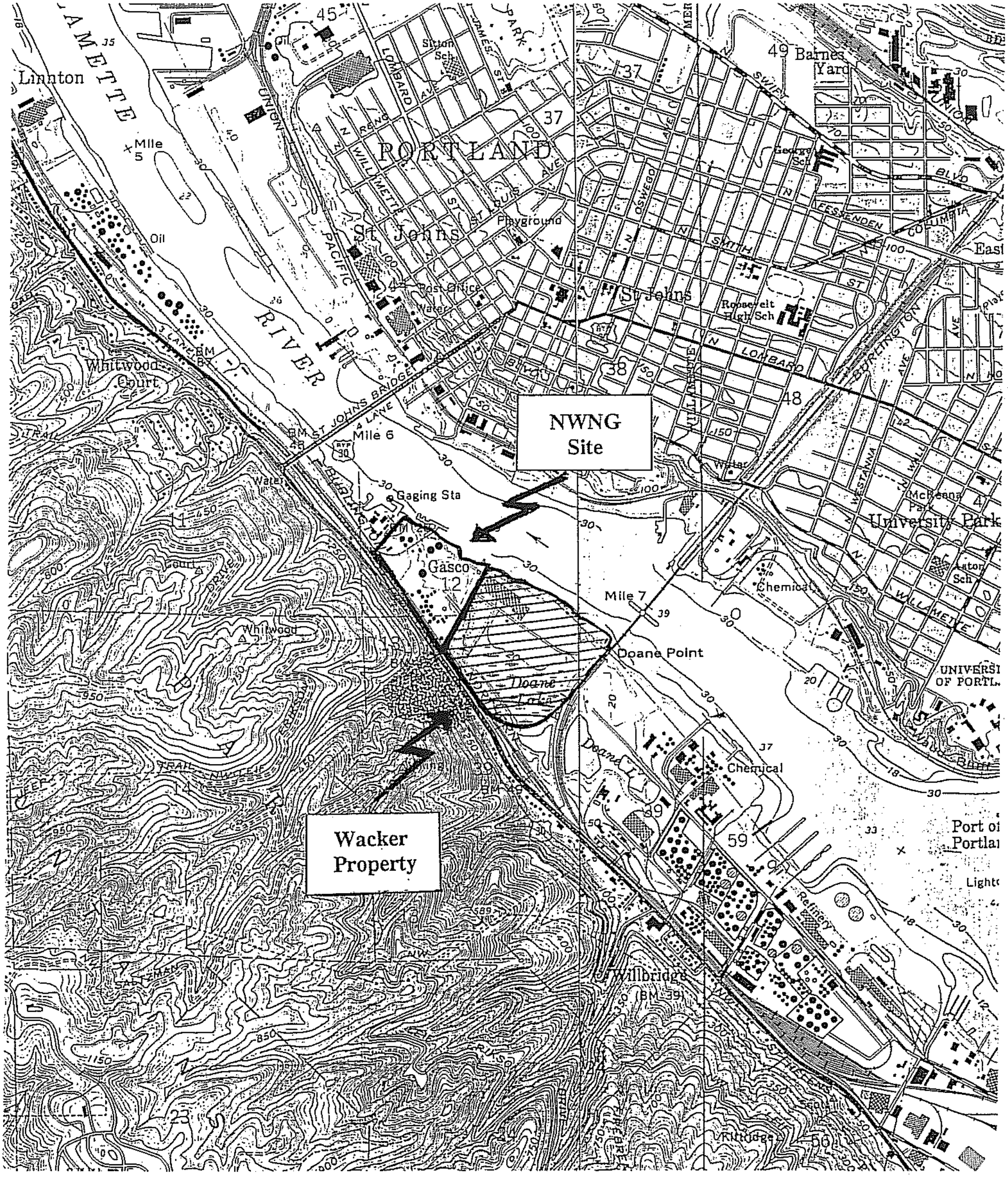
STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY

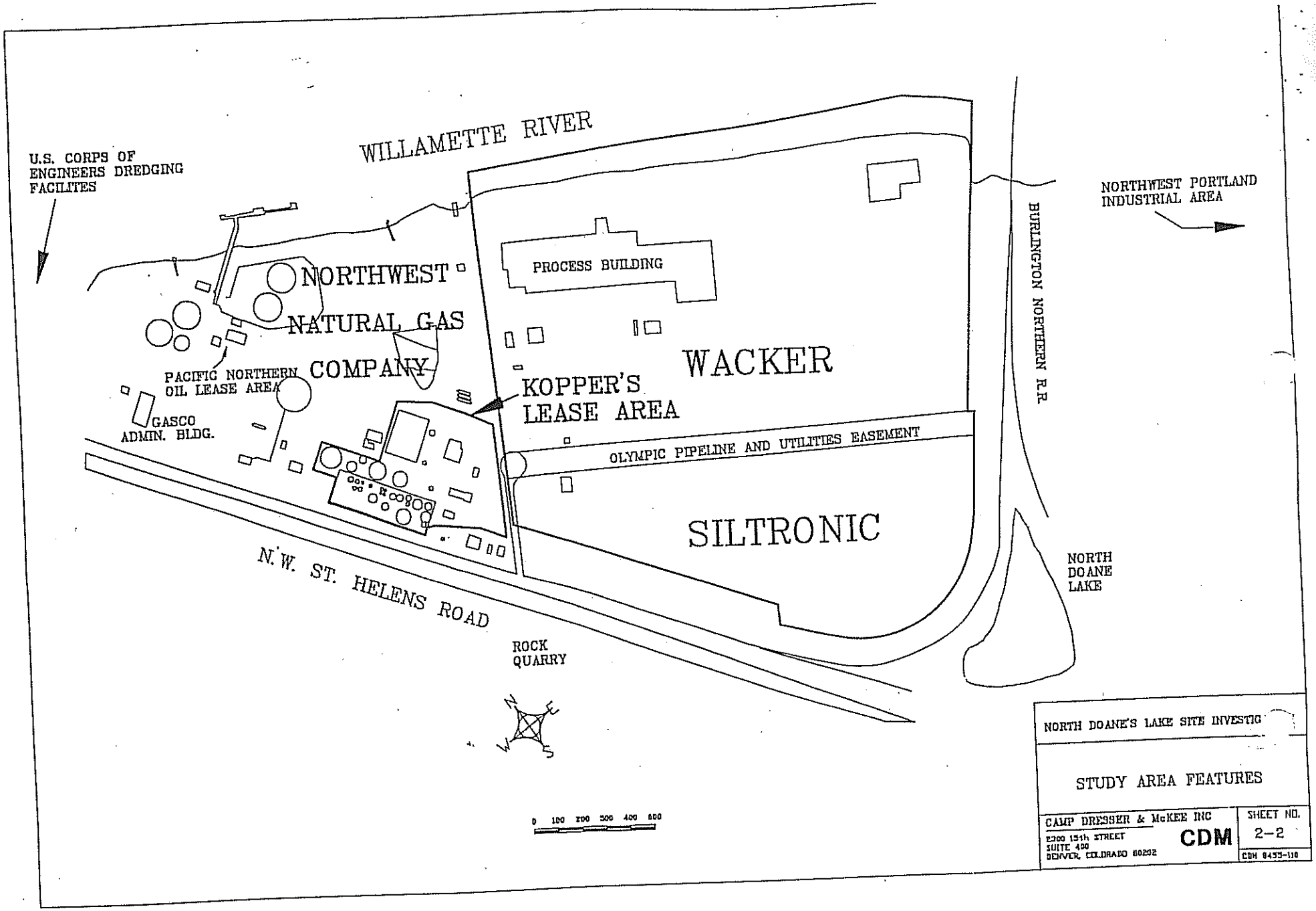
By: _____ Date: AUG 8 1994
(Name)

_____
(Title)

ATTACHMENT A

VICINITY AND SITE MAPS


NWNG
Site
Wacker
Property
PORTLAND
St Johns
WILLAMETTE
RIVER
Linnton
Whitwood Court
Gasco
Doane Point
Doane Lake
Mile 6
Mile 7
Gaging Sta
Chemical
Refinery
Willbridge
University Park
Roosevelt High Sch
ST JOHNS BRIDGE
Post Office
Barnes Yard
Port of Portland


WILLAMETTE RIVER
U.S. CORPS OF ENGINEERS DREDGING FACILITES
NORTHWEST PORTLAND INDUSTRIAL AREA
BURLINGTON NORTHERN R.R.
PROCESS BUILDING
NORTHWEST NATURAL GAS COMPANY
WACKER
PACIFIC NORTHERN OIL LEASE AREA
KOPPER'S LEASE AREA
GASCO ADMIN. BLDG.
OLYMPIC PIPELINE AND UTILITIES EASEMENT
SILTRONIC
NORTH DOANE LAKE
N.W. ST. HELENS ROAD
ROCK QUARRY
N
E
W
S
0 100 200 300 400 600
NORTH DOANE'S LAKE SITE INVESTIG
STUDY AREA FEATURES
CAMP DRESSER & McKEE INC
2300 15th STREET
SUITE 400
DENVER, COLORADO 80202
CDM
SHEET NO.
2-2
CDM 8455-110

ATTACHMENT B

SCOPE OF WORK

ATTACHMENT B

VOLUNTARY CLEANUP PROGRAM
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
SCOPE OF WORK

I. OBJECTIVES AND SCHEDULE

A. OBJECTIVES

1. Work performed under this Agreement shall complement and incorporate existing site information with the following specific objectives:

   i. Determine the magnitude, nature and extent of contamination at the Northwest Natural Gas Company (NWNG) site located at 7540 N.W. St. Helens Road. The investigation and cleanup, if required, shall include properties leased to Pacific Northern Oil Company and Koppers Industries, Incorporated. The investigation shall focus on, but not be limited to, petroleum related contaminants such as volatile aromatic compounds and polycyclic aromatic hydrocarbons (PAHs) and inorganic contaminants such as metals, cyanide and hydrogen sulfide.

2. Work performed under this Agreement shall complement and incorporate existing site information with the following overall objectives:

   i. Identify the hazardous substances which have been released to the environment,

   ii. Determine the full nature and extent of hazardous substances in affected media on and off-site,

   iii. Determine the distribution of hazardous substance concentrations,

   iv. Determine the direction and rate of migration of hazardous substances,

   v. Identify migration pathways,

   vi. Identify the environmental impact and risk to human health and/or the environment,

   vii. Develop the information necessary to select a remedial action.

B. SCHEDULE

The Remedial Investigation/Feasibility Study (RI/FS) described in this Scope of Work may be completed in phases if that approach will better enable NWNG to meet the objectives listed above. All work under this Agreement will proceed in accordance with the schedule below, which assumes a phased approach and is measured in calendar days:

RI/FS Proposal	Provide to DEQ within 30 days of issuance of this agreement.
Meeting to discuss RI/FS Proposal	Between DEQ and NWNG within 15 days of DEQ's receipt of the RI/FS proposal; DEQ and NWNG will meet, if necessary, to review the proposal, concur on the RI/FS approach, and discuss the content and format of deliverables.
DEQ approval of RI/FS Proposal	To NWNG within 10 days of meeting or within 15 days of receipt of RI/FS Proposal if meeting not held.
Draft RI/FS Work Plan	To DEQ within 45 days of receipt of DEQ's approval of the RI/FS Proposal; the Draft RI/FS Work Plan shall include the draft Sampling and Analysis Plan (SAP), Health and Safety Plan (HASP), Quality Assurance Project Plan (QAPP), Endangerment Assessment Work Plan (EAWP) and Feasibility Study Work Plan (FSWP).
DEQ review and comments	To NWNG within 30 days of receipt of the Draft RI/FS Work Plan.
Revised Draft RI/FS Work Plan	To DEQ within 15 days of receipt of DEQ comments; the revised RI/FS Work Plan shall include a revised SAP, HASP, QAPP, EAWP and FSWP as necessary, addressing DEQ comments.
DEQ review and approval	To NWNG within 15 days of receipt of an approvable RI/FS Work Plan.
Implementation of RI	Within 15 days of receipt of DEQ approval; NWNG shall complete work according to the schedule specified in the approved Work Plan.
RI Letter Report	To DEQ within 30 days of completion of RI and receipt of laboratory data. Data shall be validated and any unusable data identified. Shall include a recommendation whether additional phases are required; format to be mutually agreed upon by DEQ and NWNG.
DEQ review and comments	To NWNG within 15 days of receipt.
Subsequent Phase Work Plan Addenda	If it is mutually determined by DEQ and NWNG that additional phases are required, NWNG shall submit a **Work Plan Addendum** according to a format and schedule agreed upon between the parties prior to starting each phase of the Remedial Investigation, the Endangerment Assessment and the Feasibility Study.
DEQ review and comment	To NWNG within 21 days of receipt of each Work Plan Addendum.

Subsequent Phase RI Letter Reports	Within 30 days of completion of subsequent phases of the RI work, NWNG shall issue additional Phase __ RI Letter Reports which summarize the RI work to date and include a recommendation whether additional phases are required.
DEQ review and comment	To NWNG within 15 days of receipt of the Letter report for each phase of the RI.
Draft RI Report Outline	To DEQ within 30 days of receipt of DEQ's comments on the final phase of the RI work and receipt of all laboratory data; the outline will provide a table of contents and a list of figures and tables.
DEQ Review and Comment	To NWNG within 15 days of receipt.
Draft RI Report	To DEQ within 60 days of receipt of DEQ's comments; the draft RI report will include a draft Endangerment Assessment, summarize all RI work to date and respond to all DEQ comments to-date.
DEQ review and comments	To NWNG within 45 days of receipt of the Draft RI Report.
Final RI Report	To DEQ within 30 days of receipt of DEQ comments.
Review and approval	To NWNG within 30 days of receipt of an approvable RI Report.
Draft FS Report	To DEQ within 60 days of DEQ approval of the Final RI Report
DEQ review and comments	To NWNG within 45 days of receipt of the Draft FS report
Final FS Report	To DEQ within 30 days of receipt of DEQ's comments
DEQ review and approval	To NWNG within 30 days of receipt of an approvable FS Report

II. RI/FS PROPOSAL

The RI/FS Proposal will be a brief discussion of NWNG's proposed approach to the RI/FS, addressing soil, groundwater, surface water, sediments, and air. The proposal will provide the framework for the RI/FS Work Plan and will include the following, assuming a phased approach:

A. A summary of site-specific issues and a review of the results of previously completed work;

B. A general description of each proposed phase, including the goals and objectives of each;

C. Phase I sample locations, depths, proposed analytical methods, and the rationale for each (include map); and

D. The estimated schedule for implementation of Phase I and subsequent phases if necessary.

III. REMEDIAL INVESTIGATION WORK PLAN

The RI Work Plan shall be based on the Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, OSWER Directive 9355.3-01, 1988, and developed in accordance with OAR 340-122-080.

The Work Plan shall include, but not be limited to the following items:

A. PROJECT MANAGEMENT PLAN

1. A proposed schedule for submittals and implementation of all proposed activities.

2. A description of the personnel involved in the project, including their qualifications to do the proposed work.

B. SITE DESCRIPTION

A description of facility operations shall include, but not be limited to, the following:

1. A list of chemical products used on-site currently and historically.

2. The estimated volume of waste disposed of on-site and/or discharged off-site.

3. Time and volume of known spills.

4. A description of past and present waste treatment/disposal practices and areas.

5. The location of past and present raw material and finished product storage areas.

6. The approximate time periods for past operational, treatment, storage, disposal, and/or discharge practices where hazardous substances were involved relative to this investigation.

C. SITE CHARACTERIZATION PLAN

1. **Soils**

Objective: To identify releases of hazardous substances to soils and to assess the nature and extent of soil contamination.

Scope: The plan shall address all areas which could potentially have received spills, leaks from tanks or piping, been used for waste treatment, storage, or disposal, or have been affected by contaminated surface water or storm water runoff, and all other areas where soil contamination is known or suspected, to the extent necessary for DEQ to select a remedy for the site.

Procedures: The sampling program shall supplement previous soil

sampling at the facility. At a minimum, the plan shall include, but not be limited to, the following:

a. The proposed location of soil borings including;

i. Depth of borings

ii. Sampling interval

iii. Sample collection methods

iv. Analytical parameters

v. Method to determine background concentrations for each parameter

vi. Rationale for each of the above

b. Provisions for describing soil boring samples, to include:

i. The soil type according to the ASTM D 2487-85, Classification of Soils for Engineering Purposes, and

ii. Soil color, structure, texture, mineral composition, moisture, and percent recovery according to ASTM D 2488-84, Description and Identification of Soils (Visual-Manual Procedures)

iii. Other relevant characteristics such as visual identification of contamination, odor, and detection of vapors by use of field screening instruments such as HNU, OVA or other equivalent type equipment, and as described by a qualified geologist or geotechnical engineer.

2. Groundwater

Objective: To identify releases of hazardous substances and characterize the lateral and vertical extent of these releases to groundwater

Scope: The plan shall supplement previous investigations at the facility and shall identify releases of hazardous substances to groundwater, and shall also characterize the vertical and lateral extent of groundwater contamination, both on-site and migrating off-site to the extent necessary for DEQ to select a remedy for the site.

Procedures: The sampling program shall supplement previous groundwater sampling at the facility. At a minimum, the plan shall include, but not be limited to, the following:

a. Well installation plan to include:

i. Proposed well locations.

ii. Proposed well depths.

iii. Length of proposed screened intervals.

iv. Proposed drilling methods.

v. Proposed construction materials and installation methods.

vi. Proposed well development and completion methods.

vii. Proposed sample collection methods

viii. Proposed analytical parameters

ix. Proposed method to determine background concentrations of each parameter

x. Proposed schedule for sampling all monitoring wells

b. Hydrologic characterization proposal to include:

i. Provisions to collect and describe formation materials during drilling. NWNG may consider obtaining continuous cores and using borehole geophysics to supplement coring.

ii. A plan to characterize the hydrogeology including a description of:

(a) stratigraphy
(b) structural geology
(c) depositional history
(d) regional ground-water flow patterns

iii. A plan to describe the hydrogeologic properties of affected hydrogeologic units found at the site, and additional units as necessary to complete the RI/FS, including:

(a) hydraulic conductivity
(b) porosity
(c) lithology
(d) hydraulic interconnections between saturated zones

iv. Plans to identify the following for each affected aquifer, and additional aquifers as necessary to complete the RI/FS:

(a) A description of ground-water flow direction.
(b) Identification of vertical and horizontal gradient(s).
(c) Interpretation of the flow system including the rate (horizontal and vertical) of groundwater flow, and including seasonal variations.

v. A plan to describe surface and subsurface features, characteristics, and interrelationships with a potential to influence groundwater flow patterns at the site, including:

(a) Identification of pumping groundwater wells, past and present.
(b) Influences of rivers, streams, and ditches.
(c) Influences of ponds and lakes.
(d) Identification of areas of recharge/discharge.

c. A plan to conduct a well inventory to identify all active and inactive water wells within a one-mile radius of the facility, to include, as necessary:

i. Identification of all wells listed with the Oregon Water Resources Department and field confirmation of their location

ii. A door-to-door field survey to identify wells for which no logs are on file

iii. For all located wells, to the extent practicable, identify:

(a) Owner
(b) Address
(c) Map location
(d) Driller
(e) Date drilled
(f) Depth
(g) Casing and screen material, depths and intervals
(h) Seal types, depths and intervals
(i) Static water levels
(j) Approximate land surface elevation
(k) Reported water quality and use of well

iv. A plan to sample those private wells identified above which, based on the available hydrogeological information, may be at greatest risk of contamination.

3. Surface Water and Sediments

Objective: The Work Plan shall include a plan to identify and evaluate releases of hazardous substances to surface water, including their sediments.

Scope: The plan shall supplement previous investigations at the facility and shall identify all past, existing, and potential impacts to surface waters from the identified release to the extent necessary for DEQ to select a remedy for the site.

Procedures: The sampling program shall supplement previous surface water and sediment sampling at the facility. At a minimum, the plan shall include but not be limited to,

the following:

a. A delineation of past and present surface drainage patterns at the site.

b. Proposed sampling points in past and current surface drainages.

c. Proposed sample collection methodology.

d. Proposed analytical parameters

e. Proposed method for determining background values for all parameters.

f. A rationale for each of the above.

4. Air

Objective: To identify and characterize the release of hazardous substances to the air from unregulated sources at the facility.

Scope: The air assessment plan shall supplement previous investigations at the facility and shall be designed to determine if unregulated air emissions from the site threaten human health or the environment.

Procedures: The sampling plan shall supplement previous air sampling at the facility. At a minimum, the plan shall include, but not be limited to, the following:

a. Proposed sample locations

b. Proposed analytical parameters

c. Proposed sample collection methods

d. Methodology for determining background values for each parameter

e. Rationale for each of the above

D. **SAMPLING AND ANALYSIS PLAN (SAP)**

Objective: To adequately document all sampling and analysis procedures.

Scope: The SAP shall be sufficiently detailed to function as a manual for field staff. In preparation of the SAP, the following guidance documents shall be utilized: Data Quality Objectives for Remedial Response Activities, EPA/540/G-87/004 (OSWER Directive 9355.0-7B), March, 1987; Test Methods for Evaluating Solid Waste, SW-846; and A Compendium of Superfund Field Operations Methods, EPA/540/P-87/001 (OSWER Directive 9355.0-14), December, 1987. The SAP shall address all topics listed in Policy #760.000, Quality Assurance Policy.

Procedures: The Work Plan shall include a SAP for all sampling activities. The SAP shall include, at a minimum:

1. Proposed analytical parameters and rationale.

2. Description of sample collection methods, sampling equipment, and sample handling procedures.

3. Quality assurance and quality control procedures for both field and lab procedures, including a data quality objectives plan.

4. Chain of custody procedures.

5. Analytical methods for each parameter.

6. A methodology for determining background concentrations for all detected contaminants.

7. A methodology for determining statistically significant increases in concentrations for the sampling parameters.

E. HEALTH AND SAFETY PLAN (HASP)

The Health and Safety Plan shall:

1. Describe the known hazards and risks.

2. Identifying levels of protective clothing and equipment to be worn.

3. Describe decontamination procedures.

4. Identify any special requirements or training needs.

5. Provide a contingency plan for emergencies.

An existing Health and Safety Plan can be included by reference, if it adequately includes the above items.

F. ENDANGERMENT ASSESSMENT WORK PLAN

The Endangerment Assessment portion of the Work Plan shall be developed based on the *Risk Assessment Guidance for Superfund - Human Health Evaluation Manual Part A*, United States Environmental Protection Agency, Interim Final, July 1989, (RAGS-HHEM); *Risk Assessment Guidance for Superfund Volume II - Environmental Evaluation Manual* (EEM), United States Environmental Protection Agency, Interim Final, March 1989; *EPA Region 10, Supplemental Risk Assessment Guidance for Superfund*, United States Environmental Protection Agency, August 1991, (SRAGS); and, *Human Health Evaluation Manual, Supplemental Guidance:"Standard Default Exposure Factors"*, United States Environmental Protection Agency, March 1991,(HHE-SG).

1. Human Health Evaluation

Objective: The human health evaluation (HHE) is an analysis of the potential adverse health effects caused by hazardous substance release(s) from a site in the absence of any actions to control or mitigate these releases (i.e., under an assumption of no action). It is used to document the magnitude of the potential risk at a site and to evaluate the cause(s) of that risk. It is also

used to support risk management decisions, and to set remediation goals, if necessary.

Scope: This section shall describe the different tasks involved in preparing the HHE portion of the endangerment assessment. A suggested outline for the human health evaluation is given in Exhibit 9-1 of the RAGS-HHEM. The Work Plan should use this outline as a framework for discussing the methodologies and assumptions to be used in assessing the potential human health risks at the site.

The HHE shall include an estimate of the reasonable maximum exposure (RME) expected to occur under both current and future land use conditions. Guidance on quantifying the RME is given in Chapter 6 of the RAGS-HHEM, SRAGS, and HHE-SG. Quantifying the potential risks associated with the RME shall be the overall goal of the Endangerment Assessment.

The Work Plan should include, but not be limited to the following:

a. A conceptual site model for the site. This model should be an iterative flow chart based on available site information showing contaminant sources, release mechanisms, transport routes and media, potential receptors, and other important information as appropriate. Iterations of this model shall be carried through the work plan and the endangerment assessment as additional information is generated. Exhibit 4-1 of the RAGS-HHEM presents an example of a conceptual site model.

b. The exposure parameters for the RME based on both current and future land use scenarios.

c. A list of all chemicals identified at the site (by media).

d. The analytical methods used during the site investigation, and the method detection limits that were used for all analytes. In addition, an explanation of how non-detect values and qualified data will be used to estimate exposure point concentrations should be provided.

e. The rationale for selecting chemicals that will be carried through the HHE.

f. A discussion of how the fate and transport of site-related chemicals will be evaluated. In addition, a description of the fate and transport model that will be used to estimate the potential infiltration (or contribution) of chemicals in soil to ground water should be included.

g. A summary table of the chemicals found, and their respective critical toxicity values (reference doses - RfDs), slope factors, and other relevant critical toxicity factors) and citations for these values; data on absorption factors that will be used (e.g., dermal absorption factors) should also be included.

h. The exposure points and exposure point concentrations to be used in the HHE (and/or how they will be estimated). A description of the model(s) that will be to estimate exposure point concentrations should be provided, if necessary.

i. An explanation of how the uncertainty analysis will be conducted.

2. **Environmental Evaluation**

Objective: The environmental evaluation (EE) provides an assessment of the potential threat to ecological populations, communities or ecosystems in the absence of any remedial action. It can provide a basis for determining whether or not remedial action is necessary, and can also be used to support risk management decisions.

Scope: The EE and the HHE are parallel activities used in the evaluation of hazardous substance sites. Much of the data and analyses relating to the nature, fate, and transport of a site's contaminants can be used for both evaluations. Available data (from the HHE or previous investigations) can be utilized, whenever appropriate, and additional data should be generated whenever necessary in order to conduct the ecological assessment.

The EE shall follow the organization presented in Chapter 6 of the EEM, as applicable. The Work Plan shall discuss the different tasks involved in evaluating whether or not the potential ecological impacts of the contaminants at a site warrant remedial action.

The Work Plan should include, but not be limited to the following:

a. A list of all chemicals identified at the site (by media). The HHE can be referenced, if appropriate.

b. The rationale for selecting chemicals that will be carried through the EE.

c. A description of the site and study area. A description of how the EE will account for the ecosystems and populations potentially exposed to chemicals at the site (e.g., a description of the habitat and lists of species either collected or observed), and how they will be evaluated should be included.

d. A discussion of how the fate and transport of site-related chemicals will be evaluated (through both physical and biological means). The HHE can be referenced, if and/or where appropriate.

e. The exposure points and exposure point concentrations that will be used in the EE (and/or how they will be estimated). A discussion of actual or potential exposure pathways (and the media involved) should also be included.

f. A description of how the potential environmental impacts or threats will be characterized. This should include

a description of the ecological endpoints that will be considered measurements of potential impact or probability of potential impact (e.g., Water Quality Criteria).

g. An explanation of how the uncertainty analysis will be conducted.

G. FEASIBILITY STUDY WORK PLAN

The Feasibility Study portion of the Work Plan shall be developed in accordance with OAR 340-122-080 and Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, OSWER Directive 9355.3-01, 1988. The Feasibility Study shall develop an appropriate range of alternatives which meet the standards listed in OAR 340-122-040, and 340-122-090. The Feasibility Study shall be developed in parallel with Remedial Investigation activities.

Objective: To present an outline of the Feasibility Study process and identify potential remedial alternatives in order to obtain sufficient analytical data during the RI.

Scope: The purpose of the Feasibility Study is to develop and evaluate remedial alternatives for each contaminated medium, and recommend remedial actions to be taken at the facility

Procedures: A Work Plan shall be submitted which will include, but not be limited to the following:

1. A description of any interim remediation activities which have been implemented to date and the relationship of the interim measures to the ultimate corrective action.

2. The remedial action objectives.

3. A discussion of how volumes or areas of media to which response actions may be applied will be identified.

4. A discussion of how screening criteria will be developed to identify and select treatment technologies and process options.

5. A description of how process options will be evaluated.

6. The criteria for and selection of remedial action alternatives.

7. A preliminary screening of remedial technologies and alternatives based on available data.

H. MAPS

The Work Plan shall include maps of the facility which clearly show:

1. Site topography and surface drainage.

2. On-site structures, including tanks, sumps, catch basins, utilities, and pipelines.

3. The location of past spills, disposal areas, and all other waste and product management areas.

4. All pertinent structures adjacent to or nearby the site such as drainage ditches, pipelines, roadways, wells and utility corridors.

5. The location of all existing and proposed surface soil sample points, soil borings, monitoring wells, surface drainage, sediment, surface water, and air sample points.

6. The locations of hydrogeologic cross-sections.

7. The drawing date, orientation, and scale.

IV. REPORTS

A. **MONTHLY REPORTS:** Monthly reports shall be submitted to DEQ by the 10th day of the month following the reporting period. These reports shall include, but shall not be limited to, the following:

1. Activities that occurred during the past month.

2. Description of data results collected during the past month.

3. Description of any problems or difficulties experienced during the past month.

4. Description of activities planned for the coming month.

B. **LETTER REPORTS:** Letter Reports are to be submitted to DEQ within 30 days following the completion of each phase of the remedial investigation. These reports shall include, but shall not be limited to, the following:

1. Introduction.

2. Summary of work completed to date.

3. A presentation of all data collected during the investigation.

4. Conclusions and recommendations.

C. **REMEDIAL INVESTIGATION REPORT:** The results of the Remedial Investigation shall be submitted to the DEQ as draft and final report in accordance with the following format:

1. Executive Summary

2. Introduction

   a. Purpose

   b. Report Organization

3. Site Background

   a. Site Description

      i. Location

ii. Physical features such as building, roads, utilities, wells, etc., include map

iii. Site History

b. Facility Operations

i. Past production processes, waste identification, location of hazardous materials handling and storage areas

ii. Location, time, volume of releases of hazardous substances, include map

iii. Past and present waste treatment/disposal practices and areas

c. Site Setting

i. Regional land use and history

ii. Geology

iii. Hydrogeology

iv. Surface water

v. Climatology

d. Previous Investigations

i. Summary of previous investigations

ii. List of reports referenced

4. Study Area Investigation

a. Soil

i. A map and description of the location of soil borings or surface samples including depth of borings, sampling interval, sampling methods, analytical parameters, analytical methods, as well as quality assurance and quality control procedures

ii. Description of soil samples; all boring and lithologic logs

iii. A map showing the locations of hydrogeologic cross-sections

iv. An evaluation and analysis of all data submitted; use tabular and graphic presentation; include discussion of data limitations

b. Groundwater

i. The well installation plan including well locations (provide map), well depth, length of

screened intervals, drilling methods, construction materials, and installation methods, well development and completion methods

ii. All boring and lithologic logs; including well construction diagrams with surveyed location, elevation of top of casing, size and depth of well, screened interval

iii. A characterization of the hydrogeology including a description of formation materials, the hydrogeology, and hydrogeologic properties of each pertinent aquifer

iv. A description of the hydraulic influence from groundwater wells, and surface water bodies

v. All areas of recharge/discharge

vi. Results of the well inventory to identify all active and inactive water wells within a one-mile radius of the facility

vii. Results and data analysis including data limitations; tabular and graphic presentations

c. Surface Water and Sediments

i. A map with all relevant surface water bodies within 2 miles of the site

ii. A map with past and present surface drainage patterns and the stormwater collection system

iii. A map with all sample locations

iv. Results and data analysis including data limitations; tabular and graphic presentations

d. Air

i. A wind rose and discussion of predominant wind direction

ii. A map indicating all sample locations and elevations of sample points

iii. Results and data analysis including data limitations; tabular and graphic presentations

5. Summary and Conclusions

a. A discussion of the nature and extent of contamination; discuss the data limitations

b. A discussion of the fate and transport of the contaminants of concern

c. Recommendations for further action

As part of the Remedial Investigation Report to DEQ, NWNG may incorporate existing data, reports or information, including data from any investigation activity conducted prior to the effective date of this Agreement, to the extent that such data is consistent with the procedures and quality assurance/quality control criteria approved by DEQ.

C. **ENDANGERMENT ASSESSMENT REPORT:** The results of the Endangerment Assessment shall include the Human Health Evaluation and the Environmental Evaluation and shall follow the report formats described in the references cited in IV.F. of this Scope of Work. Any data limitations shall be noted in the report. If information is presented in sections of the RI Report, these may be referenced.

D. **FEASIBILITY STUDY REPORT:** The results of the Feasibility Study shall be submitted to DEQ in a report which, at a minimum, includes a full evaluation of remedial action alternatives, giving a workable number of options which each appear to adequately address site problems and remedial action objectives. These alternatives shall include a no action option, at least one option which will achieve background, and at least one option which will achieve protection of public health, safety, and welfare and the environment. The report shall present the following for each alternative:

1. Description of the remedial action alternative, estimated cost, and rationale for selection.

2. Performance expectation (i.e., reductions in contaminant concentration levels), reliability, and ability to implement.

3. Design criteria and rationale.

4. General operation and maintenance requirements.

5. Monitoring program to assure both short-term and long-term performance of the alternative.

6. Financial assurance mechanism to assure performance.

7. Estimated time for implementation.

8. Evaluation of the short-term and long-term effectiveness and risks of the alternative.

9. Recommendation and justification of the remedial action selected from the developed alternatives.

10. A schedule for implementation of the proposed remedial action.

RECEIVED

AUG 08 2006

Schwabe, Williamson & Wyatt

FIRST ADDENDUM
TO
VOLUNTARY AGREEMENT
FOR
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
DEQ NO. WMCVC-NWR-94-13

The Oregon Department of Environmental Quality (DEQ) and NW Natural (NWN) agree to amend Voluntary Agreement No. WMCVC-NWR-94-13 dated August 8, 1994 (Agreement), as follows. All other terms of the Agreement remain in effect and apply to this First Addendum.

1. Recital I.B is amended, to read:

"The NWN Site is a "facility" within the meaning of ORS 465.200(13). The NWN Site includes property located at 7540 N.W. St. Helens Road, Portland, Oregon, currently owned by NWN (NWN Property), as well as adjacent property located at 7200 N.W. Front Avenue, Portland, Oregon, currently owned by Siltronic Corporation (Siltronic Property), to the extent the Siltronic Property is the location of or otherwise affected by wastes associated with manufactured gas process (MGP) operations on the NWN Site. This facility is generally referred to in this First Addendum as the "NWN Site". The general location of the NWN Site is shown on Attachment AA to the First Addendum."

2. Recital I.C is amended, to add:

"Waste management areas extended onto the northern portion of what is now the Siltronic Property, in areas of low elevation prone to flooding. The tar ponds at the NWN Property were periodically excavated and redeposited onto what is now the Siltronic Property. MGP operations ceased in 1956. NWN's predecessor sold the Siltronic Property to Victor Rosenfeld and H.A. Anderson in 1962. Thereafter, wastes associated with the MGP operations within the northern Siltronic Property area may have been redistributed across portions of the Siltronic Property when that property was filled between 1966 and 1975. Wastes within tar ponds on the NWN Property were used as fill or redistributed on the NWN Property when the eastern corner of the NWN Property was filled during the 1972/1973 time-frame."

3. Recital I.D is amended, to add:

"Investigations conducted to date on the Siltronic Property indicate that MGP waste (e.g., tar and oil, lampblack, and spent oxide) are present in subsurface soil and groundwater across the Siltronic Property, with the primary accumulation located on the northern portion of the property in the area of the former Gasco waste effluent ponds and the adjacent lowland. Dense nonaqueous phase liquid (DNAPL) in the vicinity of the former waste effluent ponds has been observed in four groundwater

monitoring wells on the Siltronic Property. Observed thicknesses ranged from two feet in monitoring well WS-10-27 to 12.5 feet in monitoring well WS-15-85. Approximately three to four feet of DNAPL is present in monitoring wells located adjacent to the Willamette River (WS-11-125 and WS-14-125). The location of the referenced monitoring wells is identified on Attachment BB to the First Addendum. Up to 25,000 ug/L benzene, 495,000 ug/L naphthalene, and 4,441 ug/L cyanide have been detected in groundwater at the Siltronic Property. Concentrations in soil have been detected up to: 35,432 mg/kg total PAH; 230 mg/kg dibenzofuran; 218 mg/kg benzene; and 15,000 mg/kg cyanide.

Investigations at the Siltronic Property have further identified elevated concentrations of chlorinated solvents in soil and groundwater. The chlorinated solvent contamination is being addressed by Siltronic Corporation and is outside the scope of this Agreement."

4. A new Recital I.G is added, reading:

"The NWN Site is located within or adjacent to the Portland Harbor Superfund Site, which site was placed on the federal National Priorities List by the U.S. Environmental Protection Agency (EPA) in December 2000. By memorandum of understanding, EPA is the lead agency for implementing investigation and cleanup of in-water sediments contamination in the Willamette River in the Portland Harbor Superfund Site, and DEQ is the lead agency for implementing investigations and source control at upland facilities. This Agreement as amended is consistent with DEQ's responsibilities at the Portland Harbor Superfund Site. Evaluation of the portions of the NWN Site located on the Siltronic Property as a potential source of contaminants to the Portland Harbor Superfund Site is also the subject of DEQ Order No. ECVC-NWR-00-27 issued by DEQ to NWN and Wacker Siltronic Corporation on October 4, 2000. DEQ separately issued Order No. VC-NWR-03-16 to Wacker Siltronic Corporation on February 5, 2004. This Agreement as amended does not supersede or affect obligations imposed under DEQ Orders No. ECVC-NWR-00-27 and VC-NWR-03-16."

5. A new Recital I. H is added, reading:

"By entering into this First Addendum, NWN does not admit liability or responsibility for conditions that may be present at the NWN Site, including hazardous substance releases at or to the Siltronic Property resulting from or exacerbated by the acts or omissions of parties other than NWN."

6. Section II.A.2 is deleted, and replaced with:

"2. DEQ Review and Approval

(a) Where DEQ review and approval is required for any plan or activity under the Agreement as amended, NWN may not proceed to implement the plan or activity until

DEQ approval is received. Any DEQ delay in granting or denying approval correspondingly extends the time for completion by NWN. For purposes of the Agreement as amended, "day" means calendar day unless otherwise specified.

(b) After review of any plan, report, or other item required to be submitted for DEQ approval under the Agreement as amended, DEQ shall in writing: (1) approve the deliverable in whole or in part; or (2) disapprove the deliverable in whole or in part and notify NWN of deficiencies and/or request modifications to cure the deficiencies.

(c) DEQ approvals, rejections, modifications, or identification of deficiencies shall be given as soon as practicable and state DEQ's reasons with reasonable specificity.

(d) In the event of DEQ disapproval or request for modification, NWN shall correct the deficiencies and resubmit the revised report or other item for approval within 30 days of receipt of the DEQ notice or within such other time as specified in the DEQ notice.

(e) In the event a deficiency identified by DEQ is not addressed by NWN in the revised deliverable, DEQ may modify the deliverable to cure the deficiency.

(f) In the event of approval or modification of the deliverable by DEQ, NWN shall implement the action required by the plan, report, or other item, as so approved or modified, or, as to any DEQ modifications, invoke dispute resolution under Section II.M of the Agreement."

7. Section II.A.3 is deleted, and replaced with:

"3. Additional Measures

(a) NWN may elect at any time during the term of the Agreement as amended to undertake measures, beyond those required under the Agreement and the SOW, necessary to address the release or threatened release of hazardous substances at the facility. Such additional measures (including but not limited to engineering or institutional controls and other removal or remedial measures) are subject to prior approval by DEQ, which approval shall be granted if DEQ determines that the additional measures will not compromise the validity of the RI/FS, will not threaten human health or the environment, and will comply with applicable laws.

(b) DEQ may determine that, in addition to work specified in the SOW or an approved work plan, additional work is necessary to complete the RI/FS in satisfaction of the SOW and OAR Chapter 340 Division 122, or is necessary to address unanticipated threats to human health or the environment. DEQ may require that such additional work be incorporated into the applicable work plan by modification or be performed in accordance with a DEQ-specified schedule. NWN shall modify the work plan or implement the additional work in accordance with DEQ's directions and schedule, or invoke dispute resolution under Section II.M of the Agreement within 14 days of receipt of DEQ's directions."

8. A new Section II.A.4 is added, reading:

"4. Source Control Measures

For any unpermitted discharge or release of hazardous substances at the NWN Property to the Willamette River or river sediments identified in the remedial investigation, NWN shall identify and evaluate source control measures in accordance with the SOW and the terms and schedule of a DEQ-approved work plan. DEQ will review and approve source control measures pursuant to OAR 340-122-0070 and in consultation with EPA. Upon DEQ approval of a source control measure, NWN shall develop a source control work plan in accordance with DEQ's directions and, upon DEQ approval, implement the work plan."

9. Section II. D is amended to update the current DEQ and NWN project managers:

DEQ Project Manager
[To Be Determined]
Department of Environmental Quality
Northwest Region
2020 SW Fourth Avenue, Suite 400
Portland, Oregon 97201

NW Natural Project Manager
Robert J. Wyatt
NW Natural
220 N.W. Second Avenue
Portland, Oregon 97209
(503) 226-4211 Ext. 5425

10. Section II.N.3. is amended, to add:

"Except as expressly provided in this Agreement, NWN reserves all rights, claims, and defenses relating to the NWN Site."

11. A new Section II.S is added, reading:

"S. Stipulated Penalties

1. Subject to Sections II.K and M, upon any violation by NWN of any requirement of this Agreement as amended, and upon NWN's receipt from DEQ of written notice of violation, NWN shall pay the stipulated penalties set forth in the following schedule:

(a) Up to $5,000 for the first week of violation or delay and up to $ 2,500 per day of violation or delay thereafter, for failure to provide access or records in accordance with Section II.C or G.

(b) Up to $ 2,500 for the first week of violation or delay and up to $ 1,000 per day of violation or delay thereafter, for:

(i) failure to submit a final work plan, addressing DEQ's comments on the draft work plan or incorporating DEQ modifications to the work plan, in accordance with the SOW's schedule and terms;

(ii) failure to perform work in accordance with an approved work plan's schedule and terms;

(iii) failure to perform additional work required by DEQ under Section II.A.3; or

(iv) failure to submit a final report, addressing DEQ's comments on the draft report or incorporating DEQ modifications to the report, in accordance with an approved work plan's schedule and terms.

(c) Up to $500 for the first week of violation or delay and up to $500 per day of violation or delay thereafter, for:

(i) failure to submit a draft work plan in accordance with the SOW's schedule and terms;

(ii) failure to submit progress reports in accordance with Section II.H; or

(iii) any other violation of the Agreement as amended, SOW, or an approved work plan.

2. Within 30 days of receipt of DEQ's written notice of violation, NWN either shall pay the amount of such stipulated penalty assessed, by check made payable to the "State of Oregon, Hazardous Substance Remedial Action Fund", or request a contested case regarding the penalty assessment in accordance with Section II.T.3. NWN shall pay simple interest of 9% per annum on the unpaid balance of any stipulated penalties, which interest shall begin to accrue at the end of the 30-day payment period. Any unpaid amounts that are not the subject of a pending contested case, or that have been determined owing after a contested case, are a liquidated debt collectible under ORS 293.250 and other applicable law.

3. In assessing a penalty under this subsection, the Director may consider the factors set forth in OAR 340-12-045. NWN may request a contested case hearing regarding the penalty assessment in accordance with OAR Chapter 340 Division 11. The scope of any such hearing must be consistent with the stipulations set forth in Section 2 of the Agreement, must be limited to the occurrence or non-occurrence of the alleged violation, and may not review the amount of the penalty assessed. Penalties may not accrue pending any contested case regarding the alleged violation. Violations arising out of the same facts or circumstances or based on the same deadline are considered as one violation per day."

12. The Scope of Work (Attachment B to the Agreement) is amended in Section I.A.1.i., by revising the first sentence to read:

"Determine the magnitude, nature, and extent of apparent MGP waste-related contamination at the NW Natural (NWN) Site."

13. The Scope of Work is amended in Section I.A.2, by adding the following objective:

"viii. Identify hot spots of contamination, if any, at the facility."

14. The Scope of Work is amended in Section I.B, by adding:

"This schedule is applicable to the RI/FS for the portion of the NWN Site on the Siltronic Property. NWN shall compile and evaluate existing data on MGP-related constituents and provide to DEQ an outline of data needs to complete the remedial investigation for the portion of the NWN Site on the Siltronic Property including an RI proposal and schedule for the RI, within 120 days of execution of the First Addendum."

15. The Scope of Work is amended in Section I.B, by adding:

"NWN shall provide DEQ with a work plan to identify and evaluate source control measures at the NWN Property. The work described in the work plan shall be consistent with the source control approach described in the December 2005 Portland Harbor Joint Source Control Strategy".

16. For deliverables submitted after the date of execution of this First Addendum, the Scope of Work is amended in Section III.F, by deleting the entire section and replacing it with:

"F. Endangerment Assessment Work Plan

1. HUMAN HEALTH RISK ASSESSMENT PLAN

Objective: To evaluate the collective demographic, geographic, physical, chemical, and biological factors at the site, for the purposes of characterizing current and reasonably likely future risks to human health as a result of a threatened or actual release(s) of a hazardous substance. To document the magnitude of the potential risk at the site; support risk management decisions; and establish remedial action goals, if necessary.

Scope: The Human Health Risk Assessment shall evaluate risk in the context of current and reasonably likely future land and water uses, and in the absence of any actions to control or mitigate these risks (i.e., under an assumption of no action). The human health risk assessment portion of the work plan shall be developed based on the requirements specified in OAR 340-122-0084; DEQ guidance; and, as appropriate, the Risk Assessment Guidance for Superfund - Human Health Evaluation Manual Part A, United States Environmental Protection Agency (EPA), Interim Final, July 1989, (RAGS-HHEM); Human Health Evaluation Manual, Supplemental Guidance:

"Standard Default Exposure Factors", EPA, March 1991,(HHE-SG); and the Exposure Factors Handbook, EPA, 1996. A suggested outline for the human health evaluation is given in Exhibit 9-1 of the RAGS-HHEM. The work plan shall use this outline as a framework for discussing the methodologies and assumptions to be used in assessing the potential human health risks at the site.

Procedure: The work plan shall describe the different tasks involved in preparing the Human Health Risk Assessment. The Human Health Risk Assessment can be completed using either deterministic or probabilistic methodologies. If probabilistic methodologies are to be used, NWN shall discuss risk protocol with DEQ before the commencement of a probabilistic risk assessment. If deterministic methodologies will be used, then the Human Health Risk Assessment shall include an estimate of both the central tendency exposure (CTE) and the reasonable maximum exposure (RME) expected to occur under both current and future land use conditions. In general, RME exposures shall be based on the 90th percentile exposure case. Additional guidance on quantifying the RME is given in Chapter 6 of the RAGS-HHEM, SRAGS, and HHE-SG. Quantifying the potential risks associated with the RME shall be the overall goal of the risk assessment.

2. ECOLOGICAL RISK ASSESSMENT PLAN

Objective: To evaluate the collective demographic, geographic, physical, chemical, and biological factors at the site, for the purposes of characterizing current and reasonably likely future risks to the environment as a result of a threatened or actual release(s) of a hazardous substance; document the magnitude of the potential risk at a site; support risk management decisions; and establish remedial action goals, if necessary.

Scope: The Ecological Risk Assessment shall evaluate risk in the context of current and reasonably likely future land and water uses in the absence of any actions to control or mitigate these risks (i.e., under an assumption of no action). The Ecological Risk Assessment shall use a tiered approach (with four levels) to produce a focused and cost-effective assessment of risk. The Ecological Risk Assessment Work Plan shall be developed based on the requirements specified in OAR 340-122-0084; DEQ guidance; and, as appropriate, Proposed Guidelines for Ecological Risk Assessment, EPA, September 1996; Framework for Ecological Risk Assessment, EPA, February 1992; and Risk Assessment Guidance for Superfund, Volume II, Environmental Evaluation Manual, Interim Final, EPA, March 1989 (RAGS-EEM).

Procedure: The plan shall describe the different tasks involved in preparing the ecological risk assessment. Ecological risk assessments may include a Level I Scoping plan; a Level II Screening plan; and a Level III Baseline plan or Level IV Field Baseline plan. The Level III and Level IV baseline plans shall include an exposure analysis, an ecological response analysis, a risk characterization and an uncertainty analysis as required by OAR 340-122-0084(3). The ecological risk assessment can be completed using either deterministic or probabilistic methodologies. If probabilistic methodologies are to be used, NWN shall discuss risk protocol with DEQ before the

commencement of a probabilistic risk assessment. If deterministic methodologies are to be used, then the ecological risk assessment shall include an estimate of both the central tendency exposure (CTE) and the reasonable maximum exposure (RME) expected to occur. Estimating the potential risks associated with the RME shall be the overall goal of the risk assessment."

STIPULATED, AGREED, AND APPROVED FOR ISSUANCE:

NW Natural

By: Sandra K. Hart (Signature) Date: 1-13-06

Sandra K. Hart
(Name)

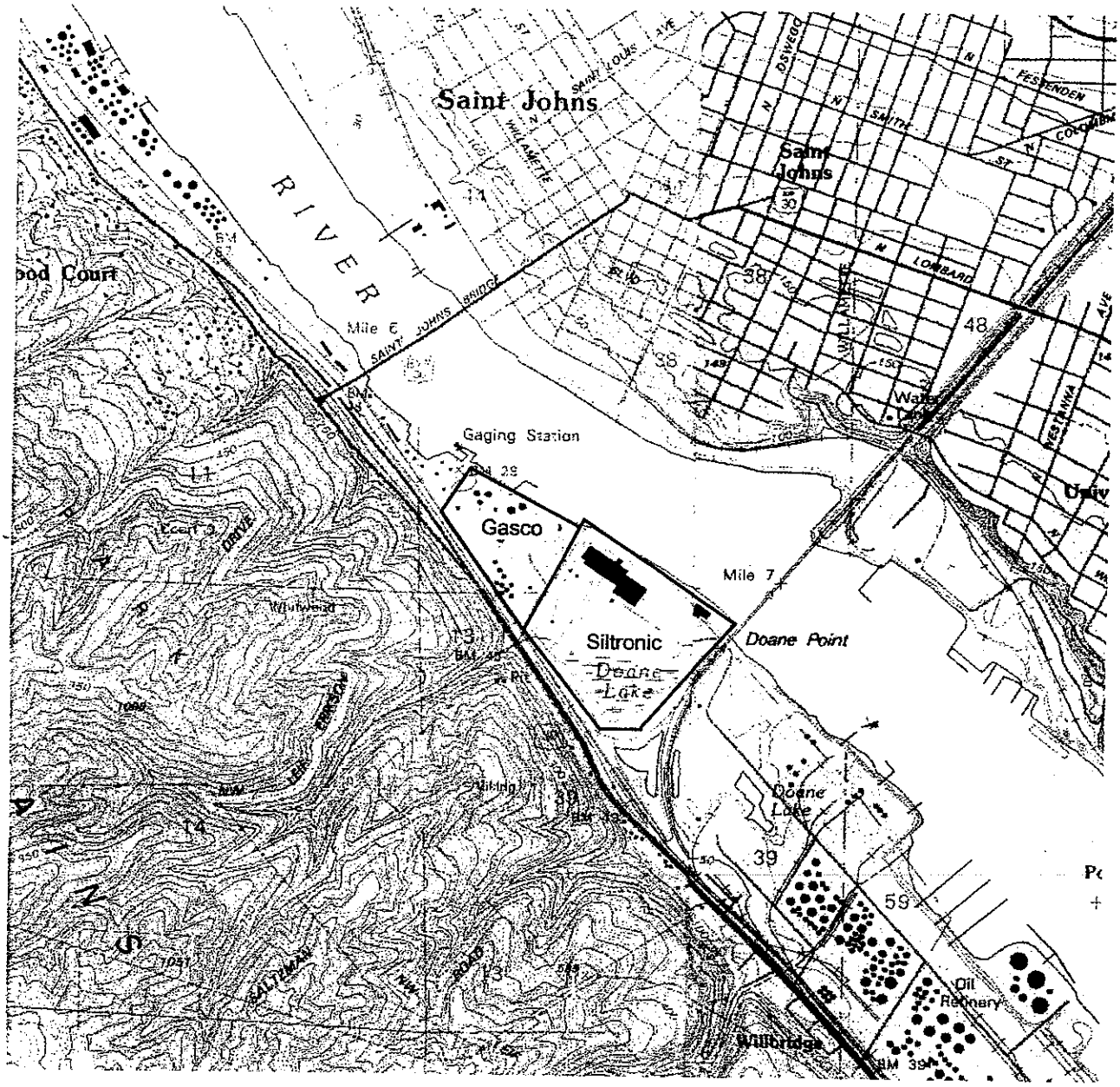
Director Risk Environment & Land
(Title)

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

By: Dick Pedersen (Signature) Date: 7/19/06

Dick Pedersen
(Name)

Regional Admin. Stator
(Title)



Note: Base Map from Linnton (1990) and Portland (1990), Oregon, USGS 7.5-Minute Quadrangles

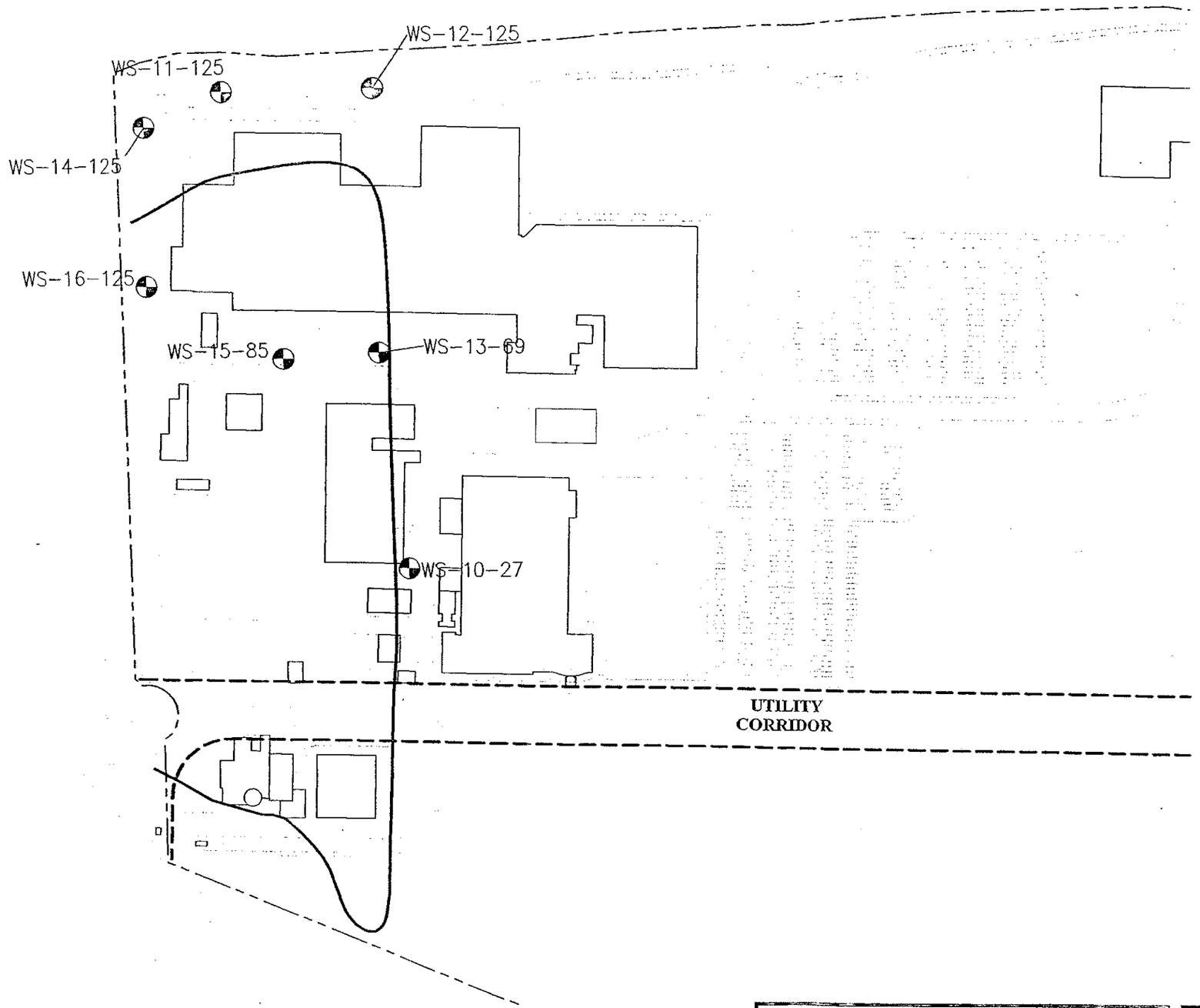
Attachment AA

NW Natural Site Location Map

Site Includes

NW Natural Gasco Facility
7540 N.W. St. Helens Road

Siltronic Corporation Property
7200 N.W. Front Avenue
Portland, Oregon



LEGEND:
- PROPERTY BOUNDARY
- MONITORING WELL LOCATION
- FORMER WASTE DISPOSAL LAGOON
- OLYMPIC PIPELINE RIGHT OF WAY

PLANT NORTH

TRUE NORTH

0 200 400

FEET

Vancouver: (360) 694-2691
Portland: (971) 544-2139

MAUL FOSTER ALONGI INC.

DATE	09/29/05
DWN.	DLG
APPR.	JGP
REVIS.	
PROJECT NO.	8128.01.08

Attachment BB
Monitoring Well Location Map
Siltronic Corporation Property

File: G:\8128.01 SILTRONIC CORPORATION\08_MGP DNAPL\FIG 02_FORMER DISPOSAL AND MW.DWG Last edited: OCT. 04, 2005 @ 4:50 p.m. by: dglaus Xrefs:

LAYOUT: 1

SECOND ADDENDUM
TO
VOLUNTARY AGREEMENT
FOR
REMEDIAL INVESTIGATION/FEASIBILITY STUDY
DEQ NO. WMCVC-NWR-94-13

The Oregon Department of Environmental Quality (DEQ) and NW Natural (NWN) agree to amend Voluntary Agreement No. WMCVC-NWR-94-13 dated August 8, 1994, as amended August 8, 2006 (Agreement), as follows. All other terms of the Agreement remain in effect and apply to this Second Addendum.

1. Recital I.B is amended, to read:

   "The NWN Site is a "facility" within the meaning of ORS 465.200(13). The NWN Site includes property located at 7540 N.W. St. Helens Road, Portland, Oregon, currently owned by NWN (NWN Property), as well as adjacent property located at 7200 N.W. Front Avenue, Portland, Oregon and currently owned by Siltronic Corporation (Siltronic Property, or Siltronic Site). This facility is generally referred to in this Second Addendum as the "NWN Site". The general location of the NWN Site is shown on Attachment AA to the First Addendum."

2. Recital I.C is amended, to read:

   "From 1913 until 1956, NWN, then known as the Portland Gas and Coke Company (GASCO) owned and operated an oil manufactured gas plant (MGP) on the NWN Property. GASCO's property included approximately 40-acres of adjoining property known as the "Allen Tract" that is currently the northern portion of the Siltronic Property. The GASCO MGP produced oil gas. Byproducts of the GASCO MGP operation included lampblack briquettes, light oils, tars and electrode grade coke. Wastes generated at the facility included tar, lampblack, wastewater containing dissolved and suspended hydrocarbons, and spent oxide. These wastes were disposed of on the NWN Property in piles and "tar ponds."

   Spent oxide piles and tar ponds also extended onto the northern portion of the Allen Tract in areas of low elevation prone to flooding. The tar ponds at the NWN Property were periodically excavated and redeposited onto portions of the Allen Tract. GASCO MGP operations ceased in 1956. GASCO sold the Allen Tract to Mr. Victor Rosenfeld, Mr. H.A. Anderson, and Mr. Gilbert Schnitzer in 1962. Thereafter, wastes associated with the GASCO MGP operations within the Allen Tract were redistributed across portions of the current Siltronic Site when that property was filled between 1966 and 1975. Wastes within tar ponds on the NWN Property were used as fill or redistributed on the NWN Property when the southeastern corner of the NWN Property was filled during the 1972/1973 time-frame.

NWN currently operates a liquefied natural gas (LNG) plant on the NWN Property and currently leases portions of the former GASCO MGP to Pacific Terminal Services, Inc. and Koppers Industries Incorporated (Koppers)."

3. The second paragraph of Recital I.D, as shown in Addendum #1 to the agreement, is replaced by:

   "In addition to contamination associated with historic MGP operations, investigations completed by Siltronic within the former Allen Tract have identified soil and groundwater contamination due to releases of chlorinated solvents from their former operations. Trichloroethene (TCE) was used by Siltronic for manufacturing purposes and that use ceased in 1988. Historic releases of TCE occurred in the northern Siltronic Site from a former solvent underground storage tank system and from an unknown source beneath the Central Facilities Building. Site investigations confirm that releases of TCE and its breakdown products and TCE DNAPL are commingled with MGP contamination and DNAPL in the Allen Tract. Furthermore, investigations by Rhone Poulenc of the Siltronic Site have detected hazardous substances (e.g., pesticides) in groundwater."

4. Recital I.G is amended to read:

   "The NWN Site is located within or adjacent to the Portland Harbor Superfund Site, which site was placed on the federal National Priorities List by the U.S. Environmental Protection Agency (EPA) in December 2000. By memorandum of understanding, EPA is the lead agency for implementing investigation and cleanup of in-water sediments contamination in the Willamette River in the Portland Harbor Superfund Site, and DEQ is the lead agency for implementing investigations and source control at upland facilities. This Agreement as amended is consistent with DEQ's responsibilities at the Portland Harbor Superfund Site. Evaluation of the portions of the NWN Site located on the Siltronic Property as a potential source of contaminants to the Portland Harbor Superfund Site is also the subject of DEQ Order No. ECVC-NWR-00-27 (i.e., the "Joint Order) issued by DEQ to NWN and Wacker Siltronic Corporation on October 4, 2000. In situations where potential conflicts arise between this Agreement and the Joint Order, this Agreement takes precedence.

5. A new Recital I.I is added, reading:

   "On November 20, 2015, DEQ determined that, in order to expedite remedial action planning of the most contaminated portions of the Siltronic Site, NWN will be responsible for completing integrated RI/FS work for the area of the Siltronic Site historically used by GASCO for MGP operations.

   The Former Gasco MGP Operable Unit (i.e., "Gasco OU") within the NWN Site is defined to include the NWN Property, the approximately 40-acre portion of the current Siltronic Property formerly known as the Allen Tract, and the adjacent area of Doane Creek extending west to St. Helens Road from the southern boundary of the former Allen Tract. The location of the Gasco OU is shown on Attachment CC to

this Second Addendum. The Gasco OU does not include groundwater contamination not originating on the NWN Property or the Siltronic Property or the segment of Doane Creek extending beyond the southern Allen Tract boundary..

This Agreement defines the work NWN will perform within the Gasco OU. Except as expressly provided herein, nothing in this Agreement requires NWN to perform work beyond the boundaries of the Gasco OU. As used in this agreement, the "site" refers to the Gasco OU."

6. Section II.A.1 is deleted, and replaced with:

"1. Remedial Investigation and Feasibility Study

(a) NWN shall complete a remedial investigation and feasibility study (RI/FS) for the Gasco OU satisfying OAR 340-122-080, the terms and schedule of DEQ approved work plans, and applicable elements of the general Scope of Work contained in Attachment B to this Agreement. NWN may propose in draft work plans, elements of the Scope of Work that NWN considers inapplicable or unnecessary to the RI/FS for the facility.

(b) As described in DEQ's November 20, 2015 letter to NWN and Siltronic, NWN will complete an RI and human health and ecological risk assessment (HERA) for the Gasco OU. The RI and HERA for the portion of the Gasco OU beyond the NWN Property will be completed as an addendum to the approved *Remedial Investigation Report, NW Natural – Gasco Facility* (April 11, 2011) and *Human Health and Ecological Assessment Report – NW Natural Gasco Site* (December 2014 [as revised by DEQ's letter dated May 22, 2015]) for the NWN Property. The results of the RI and HERA will be integrated into a single FS for the Gasco OU.

(c) NWN will submit to DEQ electronic data and backup laboratory reports for investigations on the Siltronic Property beyond the boundaries of the Gasco OU completed subsequent NWN's submittal of the *Remedial Investigation Data Summary Report, Historical Manufactured Gas Plant Activities, Siltronic Corporation Property* (March 31, 2011)."

7. Section II.A.2(f) is amended to read:

"(f) In the event of approval or modification of the following deliverables by DEQ, NWN shall implement the action required by the deliverable, as so approved or modified, or, as to any DEQ conditions of approval or modification, invoke dispute resolution within 14-days under Section II.M of the Agreement:

- RI/HERA Addendum report
- FS Work Plan
- FS Report
- Other deliverables identified in advance and included as 'Independent Deliverables' on the Project Schedule established under Section 1.B."

8. Section II.A.4 is amended to read:

"4. Source Control Measures

(a) For any unpermitted discharge or release of hazardous substances from the Gasco OU to the Willamette River or river sediments identified in the RI, NWN shall identify and evaluate source control measures in accordance with the SOW and the terms and schedule of a DEQ-approved work plan. DEQ will review and approve source control measures pursuant to OAR 340-122-0070 and in consultation with EPA. Upon DEQ approval of a source control measure, NWN shall develop a source control work plan in accordance with DEQ's directions and, upon DEQ approval, implement the work plan.

(b) NWN shall continue operation of the hydraulic containment and control system for the Gasco OU as an interim source control measure.

(c) NWN shall complete the ongoing source control evaluation for Doane Creek. Nothing in this Agreement or in DEQ Order No. ECVC-NWR-00-27 shall obligate NWN to implement source control measures for Doane Creek."

9. Section II. D is amended to update the current DEQ and NWN project managers:

DEQ Project Manager	NW Natural Project Manager
Dana Bayuk	Robert J. Wyatt
Department of Environmental Quality	NW Natural
Northwest Region	220 N.W. Second Avenue
700 NE Multnomah Street	Portland, Oregon 97209
Portland, Oregon 97232	(503) 226-4211 Ext. 5425

10. The Scope of Work (Attachment B to the Agreement) is amended in Section I.A.1.i. by revising the first sentence to:

"Determine the magnitude, nature, and extent of contamination at the Gasco OU."

11. The Scope of Work is amended by revising the last paragraph of Section I.B. to:

"NWN shall propose for DEQ approval a schedule for the Gasco OU RI/FS (the "Project Schedule"). The Project Schedule may be modified by agreement of the parties.

STIPULATED, AGREED, AND APPROVED FOR ISSUANCE:

NW Natural

By: _____ Date: 7 October 2016
(Signature)

Thomas Imeson
(Name)

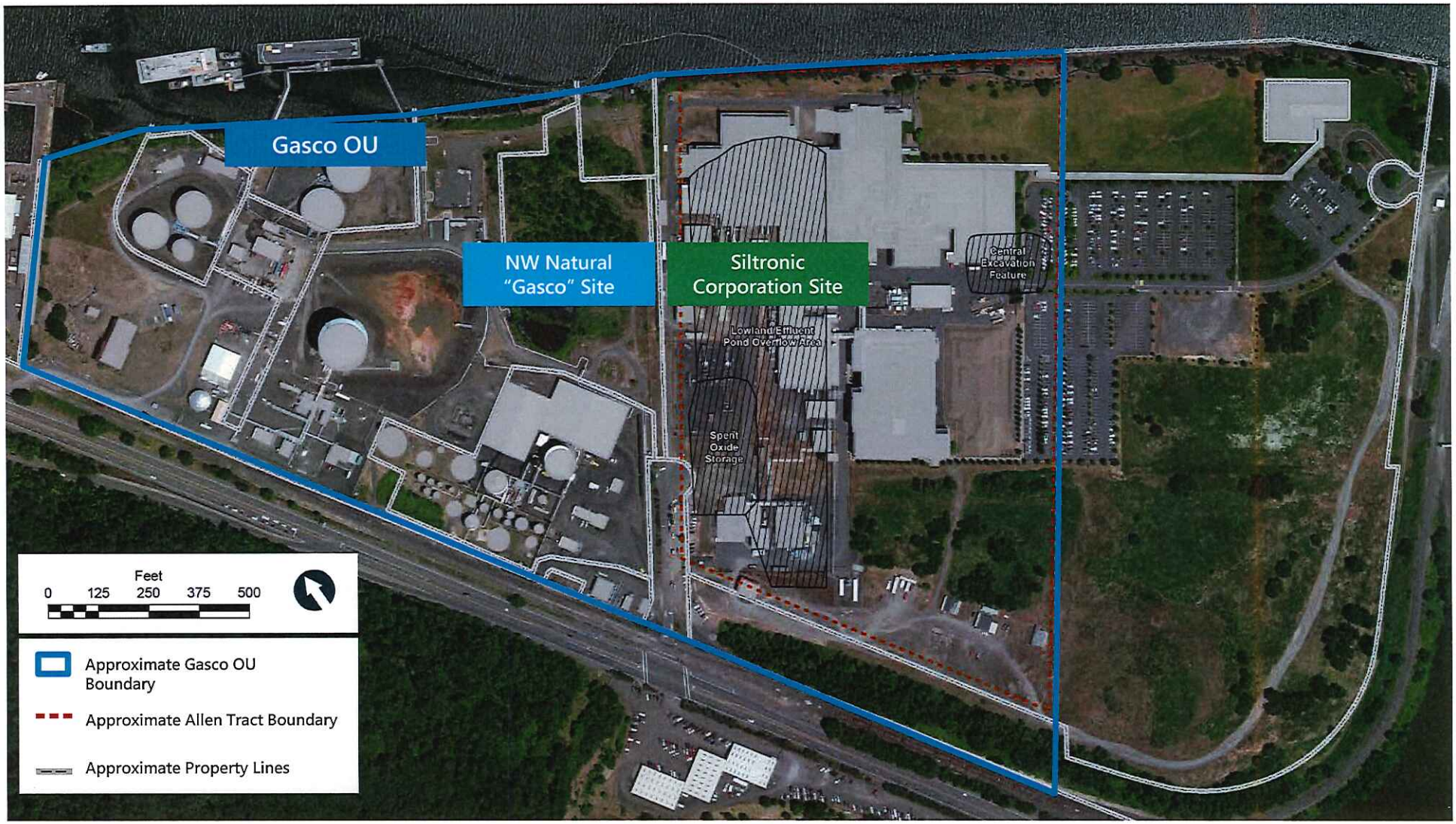
Vice President
(Title)

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

By: _____ Date: 11 October 2016
(Signature)

Nina DeConcini
(Name)

NW Region Administrator
(Title)



ATTACHMENT CC

Former Gasco Manufactured Gas Plant Operable Unit (Gasco OU)

DEQ No. WMCVC-NWR-94-13

ATTACHMENT CC

Former Gasco Manufactured Gas Plant Operable Unit (Gasco OU)

DEQ No. WMCVC-NWR-94-13