

SECTION 00 31 00

AVAILABLE PROJECT INFORMATION

1.1 SUMMARY

- A. This Document describes Reference Documents and the use of data resulting from the various investigations or from available information, including, hazardous materials survey reports, and environmental assessment information.

1.2 HAZARDOUS MATERIALS REPORTS

- A. The City's environmental consultant has investigated the project site for the presence of various hazardous materials. Materials investigated may include contaminated soils and other hazardous materials. The survey findings are documented in the following:
 - 1. *Technical Memorandum Report on Field Sampling and Results of Chemical Analyses for Soil Stockpiles at University Mount East Pipeline, San Francisco, CA., dated October 13, 2017.*
- B. The Contractor shall contract and use qualified hazardous materials abatement subcontractors for the hazardous materials abatement at the site. The hazardous materials abatement information for this work is documented in the following Sections:
 - 1. *Section 02 81 10 – Environmental Management of Excavated Materials*
- C. Hazardous materials surveys and reports were obtained only for the use of the City and its consultants for planning and design. Such documentation is not part of the Contract Documents, but the technical data contained in the referenced reports on which the Bidder is entitled to rely are incorporated in the Contract Documents by reference.
- D. Digital file/s in PDF of the above reference document is included with the digital Bid Documents.

1.3 ENVIRONMENTAL REPORTS

- A. The City's environmental consultant has investigated the Project Site. The findings are documented in the following:
 - 1. *San Francisco Public Works Environmental Commitment Record, Paul Ave, Woolsey St, and Salina Avenue PR and SR ECR, dated 7-22-20.*
- B. Environmental assessment information was obtained only for the use of the City and its consultants for planning and design. Said information is not part of the Contract Documents, but the technical data or mandatory mitigation requirements contained therein on which Bidder is entitled to rely are incorporated in the Contract Documents by reference.
- C. Digital file/s in PDF of the above reference document is included with the digital Bid Documents.

1.4 USE OF DATA

- A. The foregoing Reference Documents are not part of the Contract Documents. The City does not warrant the completeness of the Reference Documents.
- B. The City makes no representation, either express or implied, that the conditions indicated in the Reference Documents are representative of those existing at the Site, or that different

conditions may not occur or materials other than or in proportions different from those indicated may not be encountered. Refer to Paragraph 3.03, Unforeseen Or Differing Conditions, of the General Conditions.

- C. Bidders shall visit the Site and familiarize themselves with existing conditions.

1.5 PRE-BID VISIT TO WORK SITE

- A. Prior to bidding, Bidders may make their own subsurface investigations to satisfy themselves as to Site conditions, but such investigations shall be performed only under the provisions of Section 00 21 13.

END OF SECTION



October 13, 2017

Mr. Jesus Almaguer
San Francisco Public Utilities Commission
Instruction Division Engineering Management Bureau
525 Golden Gate Avenue 12th Floor
San Francisco, CA 94102

Subject: Technical Memorandum Report on Field Sampling and Results of Chemical Analyses for Soil Stockpiles at University Mount East Pipeline, San Francisco, CA.

Dear Mr. Almaguer,

This Technical Memorandum Report is presented for the University Mound Pipeline project with results of soil characterization for eight (8) 2-point composite samples. Sample location map can be seen in this document. The primary objective of the sampling exercise was to characterize the chemical condition of the soils on the construction alignment for disposal to an off-site facility including permitted landfills and local recycling facilities. All samples were sent to McCampbell Analytical, Inc. of Pittsburg, California, a certified California laboratory, for chemical analyses. See chain of custody inserted in this document.

Chemical Analytical Tests

All composite samples were tested for the following waste disposal criteria.

1. Total Petroleum Hydrocarbons-Gasoline/BTEX/MTBE (EPA Method 8015 mod/8021).
2. TPH-Diesel/Motor Oil (EPA Method 8015 with silica gel cleanup).
3. Volatile Organic Carbons VOCs (EPA Method 8260).
4. Semi-Volatile Organic Carbons SVOCs (EPA Method 8270) with organic cleanup to achieve the lowest extent possible detection limits below the current San Francisco Regional Water Quality Control's residential Environmental Screening Level (ESLs), Tier 1 (http://www.waterboards.ca.gov/rwqcb2/water_issues/programs/esl.shtml).
5. Organochlorine Pesticides (EPA Method 8081) and Polychlorinated Biphenyls (PCB's) by EPA Method 8082 with organic cleanup to achieve the lowest extent possible detection limits below the current San Francisco Regional Water Quality Control's residential Environmental Screening Level (ESLs), Tier 1 (http://www.waterboards.ca.gov/rwqcb2/water_issues/programs/esl.shtml).
6. Title 22 Metals (EPA Methods 6000/7000 Series) and soluble Total Concentration Leaching Potential (TCLP) and Soluble Threshold Limit Concentration (STLC) metals (as warranted – 10x STLC & 20x TCLP).
7. pH and Corrosivity tests.
8. Asbestos (CARB Method 435).
9. Chromium +6 (EPA Method 7199).
10. Methane (using field instruments).



SITE ASSESSMENT AND REMEDIATION | 30 VAN NESS AVE | SAN FRANCISCO, CA 94102

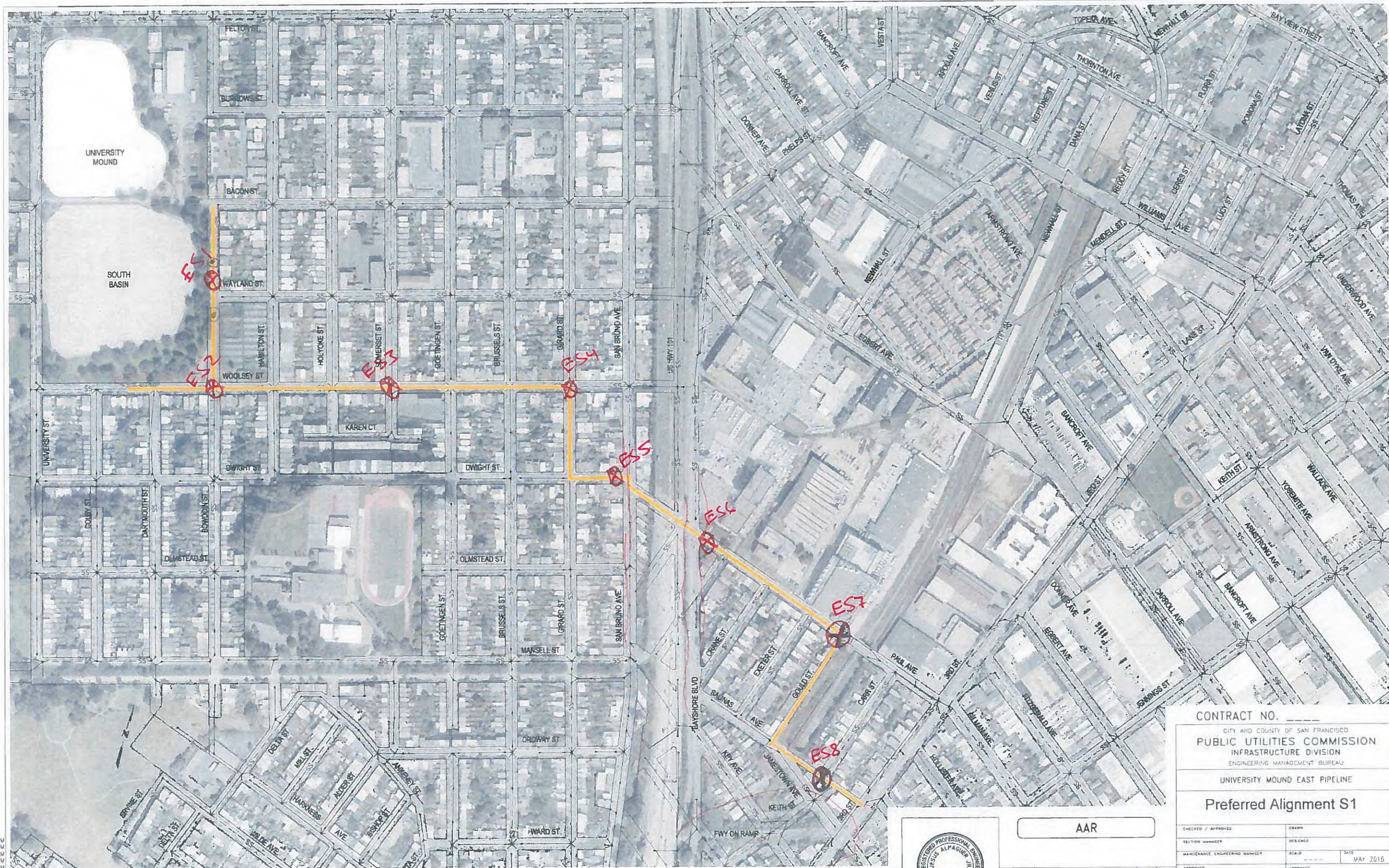
Results and Conclusion

Result summary of chemical analyses performed on the soil samples collected at the site taken August 11, 2017 detected levels of TPHs, BTEX, MTBE, VOCs, SVOCs, Pesticides and PCBs were found at levels below the detection limit. Title 22 Metals and Asbestos also detected under the detection limit with the exception of Chromium. Soluble chromium analysis under WET extraction was below the respective STCL of 5 mg/L and 5mg/L for TCLP. Materials may be reused on site if engineering criteria is met. Surplus material shall be classified, transported and disposed of as Class II/III Non-Hazardous Waste.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeremy Lobo".

Jeremy Lobo
Environmental Assistant
City and County of San Francisco – Public Works
30 Van Ness Avenue, San Francisco, CA 94102
Cell: 415-694-3328
Work: 415-558-4571



Plot Extents
Scale: 1"=100'
Border: 22.34
Color: No.
RED 0.70MM
YELLOW 0.20MM
GREEN 0.25MM
CYAN 0.40MM
BLUE 0.50MM
MAGENTA 0.20MM
WHITE 0.35MM
GRAY 0.15MM
9 0.15MM
10 1.00MM
100 0.50MM
210 0.50MM

Preferred Alignment S1

FOR THE SOLE USE OF THE DOCUMENT
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PERMISSION OF THE SFPUC.

ELEVATION
DATUM



AAR

NO	DATE	DESCRIPTION	BY	APPD
REVISIONS				

CONTRACT NO. _____			
CITY AND COUNTY OF SAN FRANCISCO			
PUBLIC UTILITIES COMMISSION			
INFRASTRUCTURE DIVISION			
ENGINEERING MANAGEMENT BUREAU			
UNIVERSITY MOUND EAST PIPELINE			
Preferred Alignment S1			
CHECKED / APPROVED	DRAWN		
DESIGN MANAGER	DESIGNED		
MAINTENANCE ENGINEERING MANAGER	SCALE	DATE	
APPROVED		MAY 2016	
MANAGER, ENGINEERING MANAGEMENT BUREAU	MANAGER, WATER SUPPLY AND TREATMENT DIVISION		
PLAN NO. C1-00	DRAWING FILE NO. E-##	REVISED NO. 0	



SITE ASSESSMENT AND REMEDIATION | 30 VAN NESS AVE | SAN FRANCISCO, CA 94102

Analytical Reports



McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1708536

Report Created for: AGS, Inc.

5 Freelon Street
San Francisco, CA 94107

Project Contact: Michelle Shriro

Project P.O.:

Project Name: University Mound East Pipeline; AGS 14-027/24

Project Received: 08/11/2017

Analytical Report reviewed & approved for release on 08/22/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: AGS, Inc.
Project: University Mound East Pipeline; AGS 14-027/24
WorkOrder: 1708536

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Glossary of Terms & Qualifier Definitions

Client: AGS, Inc.
Project: University Mound East Pipeline; AGS 14-027/24
WorkOrder: 1708536

Analytical Qualifiers

S	Surrogate spike recovery outside accepted recovery limits
a1	Sample diluted due to matrix interference
c2	Surrogate recovery outside of the control limits due to matrix interference.
e2	Diesel range compounds are significant; no recognizable pattern
e7	Oil range compounds are significant
k10	CARB 435 Exception 1 - No asbestos detected

Quality Control Qualifiers

F10	MS/MSD outside control limits. Physical or chemical interferences exist due to sample matrix.
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Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3060A

Date Prepared: 8/14/17

Analytical Method: SW7199

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Hexavalent chromium by Alkaline Digestion and IC Analysis

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-1 #1 (1'-1'6") & ES-1 #2 (3'6"-4')	1708536-001A	Soil	08/09/2017 10:02	IC2	143680

Analytes	Result	MDL	RL	DF	Date Analyzed
Hexavalent chromium	0.38	0.10	0.20	1	08/15/2017 14:10

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-4 #1 (1'-1'6") & ES-4 #2 (4'-4'6")	1708536-002A	Soil	08/09/2017 12:16	IC2	143680

Analytes	Result	MDL	RL	DF	Date Analyzed
Hexavalent chromium	0.32	0.10	0.20	1	08/15/2017 14:28

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-3 #1 (1'-1'6") & ES-3 #2 (4'-4'6")	1708536-003A	Soil	08/09/2017 13:32	IC2	143680

Analytes	Result	MDL	RL	DF	Date Analyzed
Hexavalent chromium	0.25	0.10	0.20	1	08/15/2017 14:43

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-2 #1 (20"-24") & ES-2 #2 (4'-4'6")	1708536-004A	Soil	08/10/2017 08:35	IC2	143680

Analytes	Result	MDL	RL	DF	Date Analyzed
Hexavalent chromium	0.36	0.10	0.20	1	08/15/2017 15:02

Analyst(s): AO

(Cont.)



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3060A

Date Prepared: 8/14/17

Analytical Method: SW7199

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Hexavalent chromium by Alkaline Digestion and IC Analysis

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-5 #1 (20"-23") & ES-5 #2 (23"-26")	1708536-005A	Soil	08/10/2017 10:06	IC2	143680

Analytes	Result	MDL	RL	DF	Date Analyzed
Hexavalent chromium	0.42	0.10	0.20	1	08/15/2017 15:20

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-6 #1 (20"-24") & ES-6 #2 (4'3"-4'6")	1708536-006A	Soil	08/10/2017 11:11	IC2	143680

Analytes	Result	MDL	RL	DF	Date Analyzed
Hexavalent chromium	0.30	0.10	0.20	1	08/15/2017 15:38

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-7 #1 (20"-23") & ES-7 #2 (4'-4'6")	1708536-007A	Soil	08/10/2017 11:48	IC2	143680

Analytes	Result	MDL	RL	DF	Date Analyzed
Hexavalent chromium	0.22	0.10	0.20	1	08/15/2017 16:33

Analyst(s): AO

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-8 #1 (20"-23") & ES-8 #2 (4'-4'6")	1708536-008A	Soil	08/10/2017 12:42	IC2	143680

Analytes	Result	MDL	RL	DF	Date Analyzed
Hexavalent chromium	0.48	0.10	0.20	1	08/15/2017 16:15

Analyst(s): AO



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-1 #1 (1'-1'6") & ES-1 #2 (3'6"-4')	1708536-001A	Soil	08/09/2017 10:02	GC17	143626
Analytes	Result	MDL	RL	DF	Date Analyzed
Acenaphthene	ND	0.14	0.25	1	08/15/2017 13:09
Acenaphthylene	ND	0.14	0.25	1	08/15/2017 13:09
Acetochlor	ND	0.25	0.25	1	08/15/2017 13:09
Anthracene	ND	0.14	0.25	1	08/15/2017 13:09
Benzidine	ND	0.23	1.3	1	08/15/2017 13:09
Benzo (a) anthracene	ND	0.050	0.050	1	08/15/2017 13:09
Benzo (a) pyrene	ND	0.0025	0.0025	1	08/15/2017 13:09
Benzo (b) fluoranthene	ND	0.012	0.012	1	08/15/2017 13:09
Benzo (g,h,i) perylene	ND	0.15	0.25	1	08/15/2017 13:09
Benzo (k) fluoranthene	ND	0.16	0.25	1	08/15/2017 13:09
Benzyl Alcohol	ND	0.51	1.3	1	08/15/2017 13:09
1,1-Biphenyl	ND	0.15	0.25	1	08/15/2017 13:09
Bis (2-chloroethoxy) Methane	ND	0.14	0.25	1	08/15/2017 13:09
Bis (2-chloroethyl) Ether	ND	0.0012	0.0012	1	08/15/2017 13:09
Bis (2-chloroisopropyl) Ether	ND	0.0012	0.0012	1	08/15/2017 13:09
Bis (2-ethylhexyl) Adipate	ND	0.25	0.25	1	08/15/2017 13:09
Bis (2-ethylhexyl) Phthalate	ND	0.13	0.25	1	08/15/2017 13:09
4-Bromophenyl Phenyl Ether	ND	0.16	0.25	1	08/15/2017 13:09
Butylbenzyl Phthalate	ND	0.13	0.25	1	08/15/2017 13:09
4-Chloroaniline	ND	0.0012	0.0012	1	08/15/2017 13:09
4-Chloro-3-methylphenol	ND	0.12	0.25	1	08/15/2017 13:09
2-Chloronaphthalene	ND	0.16	0.25	1	08/15/2017 13:09
2-Chlorophenol	0.0058	0.0050	0.0050	1	08/15/2017 13:09
4-Chlorophenyl Phenyl Ether	ND	0.15	0.25	1	08/15/2017 13:09
Chrysene	ND	0.14	0.25	1	08/15/2017 13:09
Dibenzo (a,h) anthracene	ND	0.0025	0.0025	1	08/15/2017 13:09
Dibenzofuran	ND	0.13	0.25	1	08/15/2017 13:09
Di-n-butyl Phthalate	ND	0.13	0.25	1	08/15/2017 13:09
1,2-Dichlorobenzene	ND	0.12	0.25	1	08/15/2017 13:09
1,3-Dichlorobenzene	ND	0.14	0.25	1	08/15/2017 13:09
1,4-Dichlorobenzene	ND	0.025	0.025	1	08/15/2017 13:09
3,3-Dichlorobenzidine	ND	0.0050	0.0050	1	08/15/2017 13:09
2,4-Dichlorophenol	ND	0.0025	0.0025	1	08/15/2017 13:09
Diethyl Phthalate	ND	0.0025	0.0025	1	08/15/2017 13:09
2,4-Dimethylphenol	ND	0.025	0.025	1	08/15/2017 13:09
Dimethyl Phthalate	ND	0.0025	0.0025	1	08/15/2017 13:09
4,6-Dinitro-2-methylphenol	ND	0.13	1.3	1	08/15/2017 13:09

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-1 #1 (1'-1'6") & ES-1 #2 (3'6"-4')	1708536-001A	Soil	08/09/2017 10:02	GC17	143626
<u>Analytes</u>	<u>Result</u>	<u>MDL</u>	<u>RL</u>	<u>DE</u>	<u>Date Analyzed</u>
2,4-Dinitrophenol	ND	0.62	0.62	1	08/15/2017 13:09
2,4-Dinitrotoluene	ND	0.025	0.025	1	08/15/2017 13:09
2,6-Dinitrotoluene	ND	0.14	0.25	1	08/15/2017 13:09
Di-n-octyl Phthalate	ND	0.14	0.50	1	08/15/2017 13:09
1,2-Diphenylhydrazine	ND	0.16	0.25	1	08/15/2017 13:09
Fluoranthene	ND	0.13	0.25	1	08/15/2017 13:09
Fluorene	ND	0.14	0.25	1	08/15/2017 13:09
Hexachlorobenzene	ND	0.025	0.025	1	08/15/2017 13:09
Hexachlorobutadiene	ND	0.025	0.025	1	08/15/2017 13:09
Hexachlorocyclopentadiene	ND	0.73	1.3	1	08/15/2017 13:09
Hexachloroethane	ND	0.14	0.25	1	08/15/2017 13:09
Indeno (1,2,3-cd) pyrene	ND	0.012	0.012	1	08/15/2017 13:09
Isophorone	ND	0.12	0.25	1	08/15/2017 13:09
2-Methylnaphthalene	ND	0.025	0.025	1	08/15/2017 13:09
2-Methylphenol (o-Cresol)	ND	0.14	0.25	1	08/15/2017 13:09
3 & 4-Methylphenol (m,p-Cresol)	ND	0.12	0.25	1	08/15/2017 13:09
Naphthalene	ND	0.0025	0.0025	1	08/15/2017 13:09
2-Nitroaniline	ND	0.62	1.3	1	08/15/2017 13:09
3-Nitroaniline	ND	0.59	1.3	1	08/15/2017 13:09
4-Nitroaniline	ND	0.55	1.3	1	08/15/2017 13:09
Nitrobenzene	ND	0.14	0.25	1	08/15/2017 13:09
2-Nitrophenol	ND	0.64	1.3	1	08/15/2017 13:09
4-Nitrophenol	ND	0.41	1.3	1	08/15/2017 13:09
N-Nitrosodiphenylamine	ND	0.16	0.25	1	08/15/2017 13:09
N-Nitrosodi-n-propylamine	ND	0.012	0.012	1	08/15/2017 13:09
Pentachlorophenol	ND	0.32	1.3	1	08/15/2017 13:09
Phenanthrene	ND	0.14	0.25	1	08/15/2017 13:09
Phenol	0.018	0.0050	0.0050	1	08/15/2017 13:09
Pyrene	ND	0.13	0.25	1	08/15/2017 13:09
Pyridine	ND	0.25	0.25	1	08/15/2017 13:09
1,2,4-Trichlorobenzene	ND	0.14	0.25	1	08/15/2017 13:09
2,4,5-Trichlorophenol	ND	0.012	0.012	1	08/15/2017 13:09
2,4,6-Trichlorophenol	ND	0.012	0.012	1	08/15/2017 13:09

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-1 #1 (1'-1'6") & ES-1 #2 (3'6"-4')	1708536-001A	Soil	08/09/2017 10:02	GC17	143626

Analytes	Result	MDL	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorophenol	110		30-130		08/15/2017 13:09
Phenol-d5	111		30-130		08/15/2017 13:09
Nitrobenzene-d5	118		30-130		08/15/2017 13:09
2-Fluorobiphenyl	102		30-130		08/15/2017 13:09
2,4,6-Tribromophenol	37		16-130		08/15/2017 13:09
4-Terphenyl-d14	127		30-130		08/15/2017 13:09

Analyst(s): REB



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-4 #1 (1'-1'6") & ES-4 #2 (4'-4'6")	1708536-002A	Soil	08/09/2017 12:16	GC17	143626
Analytes	Result	MDL	RL	DF	Date Analyzed
Acenaphthene	ND	0.28	0.50	2	08/15/2017 13:37
Acenaphthylene	ND	0.28	0.50	2	08/15/2017 13:37
Acetochlor	ND	0.50	0.50	2	08/15/2017 13:37
Anthracene	ND	0.28	0.50	2	08/15/2017 13:37
Benzidine	ND	0.46	2.6	2	08/15/2017 13:37
Benzo (a) anthracene	ND	0.10	0.10	2	08/15/2017 13:37
Benzo (a) pyrene	ND	0.0050	0.0050	2	08/15/2017 13:37
Benzo (b) fluoranthene	ND	0.025	0.025	2	08/15/2017 13:37
Benzo (g,h,i) perylene	ND	0.30	0.50	2	08/15/2017 13:37
Benzo (k) fluoranthene	ND	0.32	0.50	2	08/15/2017 13:37
Benzyl Alcohol	ND	1.0	2.6	2	08/15/2017 13:37
1,1-Biphenyl	ND	0.30	0.50	2	08/15/2017 13:37
Bis (2-chloroethoxy) Methane	ND	0.28	0.50	2	08/15/2017 13:37
Bis (2-chloroethyl) Ether	ND	0.0025	0.0025	2	08/15/2017 13:37
Bis (2-chloroisopropyl) Ether	ND	0.0025	0.0025	2	08/15/2017 13:37
Bis (2-ethylhexyl) Adipate	ND	0.50	0.50	2	08/15/2017 13:37
Bis (2-ethylhexyl) Phthalate	ND	0.26	0.50	2	08/15/2017 13:37
4-Bromophenyl Phenyl Ether	ND	0.32	0.50	2	08/15/2017 13:37
Butylbenzyl Phthalate	ND	0.26	0.50	2	08/15/2017 13:37
4-Chloroaniline	ND	0.0025	0.0025	2	08/15/2017 13:37
4-Chloro-3-methylphenol	ND	0.24	0.50	2	08/15/2017 13:37
2-Chloronaphthalene	ND	0.32	0.50	2	08/15/2017 13:37
2-Chlorophenol	ND	0.010	0.010	2	08/15/2017 13:37
4-Chlorophenyl Phenyl Ether	ND	0.30	0.50	2	08/15/2017 13:37
Chrysene	ND	0.28	0.50	2	08/15/2017 13:37
Dibenzo (a,h) anthracene	ND	0.0050	0.0050	2	08/15/2017 13:37
Dibenzofuran	ND	0.26	0.50	2	08/15/2017 13:37
Di-n-butyl Phthalate	ND	0.26	0.50	2	08/15/2017 13:37
1,2-Dichlorobenzene	ND	0.24	0.50	2	08/15/2017 13:37
1,3-Dichlorobenzene	ND	0.28	0.50	2	08/15/2017 13:37
1,4-Dichlorobenzene	ND	0.050	0.050	2	08/15/2017 13:37
3,3-Dichlorobenzidine	ND	0.010	0.010	2	08/15/2017 13:37
2,4-Dichlorophenol	ND	0.0050	0.0050	2	08/15/2017 13:37
Diethyl Phthalate	ND	0.0050	0.0050	2	08/15/2017 13:37
2,4-Dimethylphenol	ND	0.050	0.050	2	08/15/2017 13:37
Dimethyl Phthalate	ND	0.0050	0.0050	2	08/15/2017 13:37
4,6-Dinitro-2-methylphenol	ND	0.26	2.6	2	08/15/2017 13:37

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-4 #1 (1'-1'6") & ES-4 #2 (4'-4'6")	1708536-002A	Soil	08/09/2017 12:16	GC17	143626
Analytes	Result	MDL	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	1.2	1.2	2	08/15/2017 13:37
2,4-Dinitrotoluene	ND	0.050	0.050	2	08/15/2017 13:37
2,6-Dinitrotoluene	ND	0.28	0.50	2	08/15/2017 13:37
Di-n-octyl Phthalate	ND	0.28	1.0	2	08/15/2017 13:37
1,2-Diphenylhydrazine	ND	0.32	0.50	2	08/15/2017 13:37
Fluoranthene	ND	0.26	0.50	2	08/15/2017 13:37
Fluorene	ND	0.28	0.50	2	08/15/2017 13:37
Hexachlorobenzene	ND	0.050	0.050	2	08/15/2017 13:37
Hexachlorobutadiene	ND	0.050	0.050	2	08/15/2017 13:37
Hexachlorocyclopentadiene	ND	1.5	2.6	2	08/15/2017 13:37
Hexachloroethane	ND	0.28	0.50	2	08/15/2017 13:37
Indeno (1,2,3-cd) pyrene	ND	0.025	0.025	2	08/15/2017 13:37
Isophorone	ND	0.24	0.50	2	08/15/2017 13:37
2-Methylnaphthalene	ND	0.050	0.050	2	08/15/2017 13:37
2-Methylphenol (o-Cresol)	ND	0.28	0.50	2	08/15/2017 13:37
3 & 4-Methylphenol (m,p-Cresol)	ND	0.24	0.50	2	08/15/2017 13:37
Naphthalene	ND	0.0050	0.0050	2	08/15/2017 13:37
2-Nitroaniline	ND	1.2	2.6	2	08/15/2017 13:37
3-Nitroaniline	ND	1.2	2.6	2	08/15/2017 13:37
4-Nitroaniline	ND	1.1	2.6	2	08/15/2017 13:37
Nitrobenzene	ND	0.28	0.50	2	08/15/2017 13:37
2-Nitrophenol	ND	1.3	2.6	2	08/15/2017 13:37
4-Nitrophenol	ND	0.82	2.6	2	08/15/2017 13:37
N-Nitrosodiphenylamine	ND	0.32	0.50	2	08/15/2017 13:37
N-Nitrosodi-n-propylamine	ND	0.025	0.025	2	08/15/2017 13:37
Pentachlorophenol	ND	0.65	2.6	2	08/15/2017 13:37
Phenanthrene	ND	0.28	0.50	2	08/15/2017 13:37
Phenol	0.010	0.010	0.010	2	08/15/2017 13:37
Pyrene	ND	0.26	0.50	2	08/15/2017 13:37
Pyridine	ND	0.50	0.50	2	08/15/2017 13:37
1,2,4-Trichlorobenzene	ND	0.28	0.50	2	08/15/2017 13:37
2,4,5-Trichlorophenol	ND	0.025	0.025	2	08/15/2017 13:37
2,4,6-Trichlorophenol	ND	0.025	0.025	2	08/15/2017 13:37

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

Date Received: 8/11/17 13:10

Date Prepared: 8/14/17

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

Extraction Method: SW3550B/3640A

Analytical Method: SW8270C

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-4 #1 (1'-1'6") & ES-4 #2 (4'-4'6")	1708536-002A	Soil	08/09/2017 12:16	GC17	143626

Analytes	Result	MDL	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorophenol	98		30-130		08/15/2017 13:37
Phenol-d5	95		30-130		08/15/2017 13:37
Nitrobenzene-d5	98		30-130		08/15/2017 13:37
2-Fluorobiphenyl	87		30-130		08/15/2017 13:37
2,4,6-Tribromophenol	39		16-130		08/15/2017 13:37
4-Terphenyl-d14	115		30-130		08/15/2017 13:37

Analyst(s): REB



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-3 #1 (1'-1'6") & ES-3 #2 (4'-4'6")	1708536-003A	Soil	08/09/2017 13:32	GC17	143626
Analytes	Result	MDL	RL	DF	Date Analyzed
Acenaphthene	ND	0.14	0.25	1	08/15/2017 14:06
Acenaphthylene	ND	0.14	0.25	1	08/15/2017 14:06
Acetochlor	ND	0.25	0.25	1	08/15/2017 14:06
Anthracene	ND	0.14	0.25	1	08/15/2017 14:06
Benzidine	ND	0.23	1.3	1	08/15/2017 14:06
Benzo (a) anthracene	ND	0.050	0.050	1	08/15/2017 14:06
Benzo (a) pyrene	ND	0.0025	0.0025	1	08/15/2017 14:06
Benzo (b) fluoranthene	ND	0.012	0.012	1	08/15/2017 14:06
Benzo (g,h,i) perylene	ND	0.15	0.25	1	08/15/2017 14:06
Benzo (k) fluoranthene	ND	0.16	0.25	1	08/15/2017 14:06
Benzyl Alcohol	ND	0.51	1.3	1	08/15/2017 14:06
1,1-Biphenyl	ND	0.15	0.25	1	08/15/2017 14:06
Bis (2-chloroethoxy) Methane	ND	0.14	0.25	1	08/15/2017 14:06
Bis (2-chloroethyl) Ether	ND	0.0012	0.0012	1	08/15/2017 14:06
Bis (2-chloroisopropyl) Ether	ND	0.0012	0.0012	1	08/15/2017 14:06
Bis (2-ethylhexyl) Adipate	ND	0.25	0.25	1	08/15/2017 14:06
Bis (2-ethylhexyl) Phthalate	ND	0.13	0.25	1	08/15/2017 14:06
4-Bromophenyl Phenyl Ether	ND	0.16	0.25	1	08/15/2017 14:06
Butylbenzyl Phthalate	ND	0.13	0.25	1	08/15/2017 14:06
4-Chloroaniline	ND	0.0012	0.0012	1	08/15/2017 14:06
4-Chloro-3-methylphenol	ND	0.12	0.25	1	08/15/2017 14:06
2-Chloronaphthalene	ND	0.16	0.25	1	08/15/2017 14:06
2-Chlorophenol	0.0056	0.0050	0.0050	1	08/15/2017 14:06
4-Chlorophenyl Phenyl Ether	ND	0.15	0.25	1	08/15/2017 14:06
Chrysene	ND	0.14	0.25	1	08/15/2017 14:06
Dibenzo (a,h) anthracene	ND	0.0025	0.0025	1	08/15/2017 14:06
Dibenzofuran	ND	0.13	0.25	1	08/15/2017 14:06
Di-n-butyl Phthalate	ND	0.13	0.25	1	08/15/2017 14:06
1,2-Dichlorobenzene	ND	0.12	0.25	1	08/15/2017 14:06
1,3-Dichlorobenzene	ND	0.14	0.25	1	08/15/2017 14:06
1,4-Dichlorobenzene	ND	0.025	0.025	1	08/15/2017 14:06
3,3-Dichlorobenzidine	ND	0.0050	0.0050	1	08/15/2017 14:06
2,4-Dichlorophenol	ND	0.0025	0.0025	1	08/15/2017 14:06
Diethyl Phthalate	ND	0.0025	0.0025	1	08/15/2017 14:06
2,4-Dimethylphenol	ND	0.025	0.025	1	08/15/2017 14:06
Dimethyl Phthalate	ND	0.0025	0.0025	1	08/15/2017 14:06
4,6-Dinitro-2-methylphenol	ND	0.13	1.3	1	08/15/2017 14:06

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

Date Received: 8/11/17 13:10

Date Prepared: 8/14/17

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

Extraction Method: SW3550B/3640A

Analytical Method: SW8270C

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-3 #1 (1'-1'6") & ES-3 #2 (4'-4'6")	1708536-003A	Soil	08/09/2017 13:32	GC17	143626
<u>Analytes</u>	<u>Result</u>	<u>MDL</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
2,4-Dinitrophenol	ND	0.62	0.62	1	08/15/2017 14:06
2,4-Dinitrotoluene	ND	0.025	0.025	1	08/15/2017 14:06
2,6-Dinitrotoluene	ND	0.14	0.25	1	08/15/2017 14:06
Di-n-octyl Phthalate	ND	0.14	0.50	1	08/15/2017 14:06
1,2-Diphenylhydrazine	ND	0.16	0.25	1	08/15/2017 14:06
Fluoranthene	ND	0.13	0.25	1	08/15/2017 14:06
Fluorene	ND	0.14	0.25	1	08/15/2017 14:06
Hexachlorobenzene	ND	0.025	0.025	1	08/15/2017 14:06
Hexachlorobutadiene	ND	0.025	0.025	1	08/15/2017 14:06
Hexachlorocyclopentadiene	ND	0.73	1.3	1	08/15/2017 14:06
Hexachloroethane	ND	0.14	0.25	1	08/15/2017 14:06
Indeno (1,2,3-cd) pyrene	ND	0.012	0.012	1	08/15/2017 14:06
Isophorone	ND	0.12	0.25	1	08/15/2017 14:06
2-Methylnaphthalene	ND	0.025	0.025	1	08/15/2017 14:06
2-Methylphenol (o-Cresol)	ND	0.14	0.25	1	08/15/2017 14:06
3 & 4-Methylphenol (m,p-Cresol)	ND	0.12	0.25	1	08/15/2017 14:06
Naphthalene	ND	0.0025	0.0025	1	08/15/2017 14:06
2-Nitroaniline	ND	0.62	1.3	1	08/15/2017 14:06
3-Nitroaniline	ND	0.59	1.3	1	08/15/2017 14:06
4-Nitroaniline	ND	0.55	1.3	1	08/15/2017 14:06
Nitrobenzene	ND	0.14	0.25	1	08/15/2017 14:06
2-Nitrophenol	ND	0.64	1.3	1	08/15/2017 14:06
4-Nitrophenol	ND	0.41	1.3	1	08/15/2017 14:06
N-Nitrosodiphenylamine	ND	0.16	0.25	1	08/15/2017 14:06
N-Nitrosodi-n-propylamine	ND	0.012	0.012	1	08/15/2017 14:06
Pentachlorophenol	ND	0.32	1.3	1	08/15/2017 14:06
Phenanthrene	ND	0.14	0.25	1	08/15/2017 14:06
Phenol	ND	0.0050	0.0050	1	08/15/2017 14:06
Pyrene	ND	0.13	0.25	1	08/15/2017 14:06
Pyridine	ND	0.25	0.25	1	08/15/2017 14:06
1,2,4-Trichlorobenzene	ND	0.14	0.25	1	08/15/2017 14:06
2,4,5-Trichlorophenol	ND	0.012	0.012	1	08/15/2017 14:06
2,4,6-Trichlorophenol	ND	0.012	0.012	1	08/15/2017 14:06

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-3 #1 (1'-1'6") & ES-3 #2 (4'-4'6")	1708536-003A	Soil	08/09/2017 13:32	GC17	143626

Analytes	Result	MDL	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorophenol	88		30-130		08/15/2017 14:06
Phenol-d5	89		30-130		08/15/2017 14:06
Nitrobenzene-d5	94		30-130		08/15/2017 14:06
2-Fluorobiphenyl	81		30-130		08/15/2017 14:06
2,4,6-Tribromophenol	28		16-130		08/15/2017 14:06
4-Terphenyl-d14	97		30-130		08/15/2017 14:06

Analyst(s): REB



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-2 #1 (20"-24") & ES-2 #2 (4'-4'6")	1708536-004A	Soil	08/10/2017 08:35	GC17	143626
<u>Analytes</u>	<u>Result</u>	<u>MDL</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Acenaphthene	ND	0.14	0.25	1	08/15/2017 14:34
Acenaphthylene	ND	0.14	0.25	1	08/15/2017 14:34
Acetochlor	ND	0.25	0.25	1	08/15/2017 14:34
Anthracene	ND	0.14	0.25	1	08/15/2017 14:34
Benzidine	ND	0.23	1.3	1	08/15/2017 14:34
Benzo (a) anthracene	ND	0.050	0.050	1	08/15/2017 14:34
Benzo (a) pyrene	0.015	0.0025	0.0025	1	08/15/2017 14:34
Benzo (b) fluoranthene	0.017	0.012	0.012	1	08/15/2017 14:34
Benzo (g,h,i) perylene	ND	0.15	0.25	1	08/15/2017 14:34
Benzo (k) fluoranthene	ND	0.16	0.25	1	08/15/2017 14:34
Benzyl Alcohol	ND	0.51	1.3	1	08/15/2017 14:34
1,1-Biphenyl	ND	0.15	0.25	1	08/15/2017 14:34
Bis (2-chloroethoxy) Methane	ND	0.14	0.25	1	08/15/2017 14:34
Bis (2-chloroethyl) Ether	ND	0.0012	0.0012	1	08/15/2017 14:34
Bis (2-chloroisopropyl) Ether	ND	0.0012	0.0012	1	08/15/2017 14:34
Bis (2-ethylhexyl) Adipate	ND	0.25	0.25	1	08/15/2017 14:34
Bis (2-ethylhexyl) Phthalate	ND	0.13	0.25	1	08/15/2017 14:34
4-Bromophenyl Phenyl Ether	ND	0.16	0.25	1	08/15/2017 14:34
Butylbenzyl Phthalate	ND	0.13	0.25	1	08/15/2017 14:34
4-Chloroaniline	ND	0.0012	0.0012	1	08/15/2017 14:34
4-Chloro-3-methylphenol	ND	0.12	0.25	1	08/15/2017 14:34
2-Chloronaphthalene	ND	0.16	0.25	1	08/15/2017 14:34
2-Chlorophenol	0.0050	0.0050	0.0050	1	08/15/2017 14:34
4-Chlorophenyl Phenyl Ether	ND	0.15	0.25	1	08/15/2017 14:34
Chrysene	ND	0.14	0.25	1	08/15/2017 14:34
Dibenzo (a,h) anthracene	0.0027	0.0025	0.0025	1	08/15/2017 14:34
Dibenzofuran	ND	0.13	0.25	1	08/15/2017 14:34
Di-n-butyl Phthalate	ND	0.13	0.25	1	08/15/2017 14:34
1,2-Dichlorobenzene	ND	0.12	0.25	1	08/15/2017 14:34
1,3-Dichlorobenzene	ND	0.14	0.25	1	08/15/2017 14:34
1,4-Dichlorobenzene	ND	0.025	0.025	1	08/15/2017 14:34
3,3-Dichlorobenzidine	ND	0.0050	0.0050	1	08/15/2017 14:34
2,4-Dichlorophenol	ND	0.0025	0.0025	1	08/15/2017 14:34
Diethyl Phthalate	0.0077	0.0025	0.0025	1	08/15/2017 14:34
2,4-Dimethylphenol	ND	0.025	0.025	1	08/15/2017 14:34
Dimethyl Phthalate	ND	0.0025	0.0025	1	08/15/2017 14:34
4,6-Dinitro-2-methylphenol	ND	0.13	1.3	1	08/15/2017 14:34

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-2 #1 (20"-24") & ES-2 #2 (4'-4'6")	1708536-004A	Soil	08/10/2017 08:35	GC17	143626

Analytes	Result	MDL	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.62	0.62	1	08/15/2017 14:34
2,4-Dinitrotoluene	ND	0.025	0.025	1	08/15/2017 14:34
2,6-Dinitrotoluene	ND	0.14	0.25	1	08/15/2017 14:34
Di-n-octyl Phthalate	ND	0.14	0.50	1	08/15/2017 14:34
1,2-Diphenylhydrazine	ND	0.16	0.25	1	08/15/2017 14:34
Fluoranthene	ND	0.13	0.25	1	08/15/2017 14:34
Fluorene	ND	0.14	0.25	1	08/15/2017 14:34
Hexachlorobenzene	ND	0.025	0.025	1	08/15/2017 14:34
Hexachlorobutadiene	ND	0.025	0.025	1	08/15/2017 14:34
Hexachlorocyclopentadiene	ND	0.73	1.3	1	08/15/2017 14:34
Hexachloroethane	ND	0.14	0.25	1	08/15/2017 14:34
Indeno (1,2,3-cd) pyrene	ND	0.012	0.012	1	08/15/2017 14:34
Isophorone	ND	0.12	0.25	1	08/15/2017 14:34
2-Methylnaphthalene	ND	0.025	0.025	1	08/15/2017 14:34
2-Methylphenol (o-Cresol)	ND	0.14	0.25	1	08/15/2017 14:34
3 & 4-Methylphenol (m,p-Cresol)	ND	0.12	0.25	1	08/15/2017 14:34
Naphthalene	ND	0.0025	0.0025	1	08/15/2017 14:34
2-Nitroaniline	ND	0.62	1.3	1	08/15/2017 14:34
3-Nitroaniline	ND	0.59	1.3	1	08/15/2017 14:34
4-Nitroaniline	ND	0.55	1.3	1	08/15/2017 14:34
Nitrobenzene	ND	0.14	0.25	1	08/15/2017 14:34
2-Nitrophenol	ND	0.64	1.3	1	08/15/2017 14:34
4-Nitrophenol	ND	0.41	1.3	1	08/15/2017 14:34
N-Nitrosodiphenylamine	ND	0.16	0.25	1	08/15/2017 14:34
N-Nitrosodi-n-propylamine	ND	0.012	0.012	1	08/15/2017 14:34
Pentachlorophenol	ND	0.32	1.3	1	08/15/2017 14:34
Phenanthrene	ND	0.14	0.25	1	08/15/2017 14:34
Phenol	ND	0.0050	0.0050	1	08/15/2017 14:34
Pyrene	ND	0.13	0.25	1	08/15/2017 14:34
Pyridine	ND	0.25	0.25	1	08/15/2017 14:34
1,2,4-Trichlorobenzene	ND	0.14	0.25	1	08/15/2017 14:34
2,4,5-Trichlorophenol	ND	0.012	0.012	1	08/15/2017 14:34
2,4,6-Trichlorophenol	ND	0.012	0.012	1	08/15/2017 14:34

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

Date Received: 8/11/17 13:10

Date Prepared: 8/14/17

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

Extraction Method: SW3550B/3640A

Analytical Method: SW8270C

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-2 #1 (20"-24") & ES-2 #2 (4'-4'6")	1708536-004A	Soil	08/10/2017 08:35	GC17	143626

Analytes	Result	MDL	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorophenol	84		30-130		08/15/2017 14:34
Phenol-d5	84		30-130		08/15/2017 14:34
Nitrobenzene-d5	87		30-130		08/15/2017 14:34
2-Fluorobiphenyl	79		30-130		08/15/2017 14:34
2,4,6-Tribromophenol	21		16-130		08/15/2017 14:34
4-Terphenyl-d14	93		30-130		08/15/2017 14:34

Analyst(s): REB



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-5 #1 (20"-23") & ES-5 #2 (23"-26")	1708536-005A	Soil	08/10/2017 10:06	GC17	143626
Analytes	Result	MDL	RL	DE	Date Analyzed
Acenaphthene	ND	0.14	0.25	1	08/15/2017 15:02
Acenaphthylene	ND	0.14	0.25	1	08/15/2017 15:02
Acetochlor	ND	0.25	0.25	1	08/15/2017 15:02
Anthracene	ND	0.14	0.25	1	08/15/2017 15:02
Benzidine	ND	0.23	1.3	1	08/15/2017 15:02
Benzo (a) anthracene	ND	0.050	0.050	1	08/15/2017 15:02
Benzo (a) pyrene	0.0030	0.0025	0.0025	1	08/15/2017 15:02
Benzo (b) fluoranthene	ND	0.012	0.012	1	08/15/2017 15:02
Benzo (g,h,i) perylene	ND	0.15	0.25	1	08/15/2017 15:02
Benzo (k) fluoranthene	ND	0.16	0.25	1	08/15/2017 15:02
Benzyl Alcohol	ND	0.51	1.3	1	08/15/2017 15:02
1,1-Biphenyl	ND	0.15	0.25	1	08/15/2017 15:02
Bis (2-chloroethoxy) Methane	ND	0.14	0.25	1	08/15/2017 15:02
Bis (2-chloroethyl) Ether	ND	0.0012	0.0012	1	08/15/2017 15:02
Bis (2-chloroisopropyl) Ether	ND	0.0012	0.0012	1	08/15/2017 15:02
Bis (2-ethylhexyl) Adipate	ND	0.25	0.25	1	08/15/2017 15:02
Bis (2-ethylhexyl) Phthalate	ND	0.13	0.25	1	08/15/2017 15:02
4-Bromophenyl Phenyl Ether	ND	0.16	0.25	1	08/15/2017 15:02
Butylbenzyl Phthalate	ND	0.13	0.25	1	08/15/2017 15:02
4-Chloroaniline	ND	0.0012	0.0012	1	08/15/2017 15:02
4-Chloro-3-methylphenol	ND	0.12	0.25	1	08/15/2017 15:02
2-Chloronaphthalene	ND	0.16	0.25	1	08/15/2017 15:02
2-Chlorophenol	0.0055	0.0050	0.0050	1	08/15/2017 15:02
4-Chlorophenyl Phenyl Ether	ND	0.15	0.25	1	08/15/2017 15:02
Chrysene	ND	0.14	0.25	1	08/15/2017 15:02
Dibenzo (a,h) anthracene	ND	0.0025	0.0025	1	08/15/2017 15:02
Dibenzofuran	ND	0.13	0.25	1	08/15/2017 15:02
Di-n-butyl Phthalate	ND	0.13	0.25	1	08/15/2017 15:02
1,2-Dichlorobenzene	ND	0.12	0.25	1	08/15/2017 15:02
1,3-Dichlorobenzene	ND	0.14	0.25	1	08/15/2017 15:02
1,4-Dichlorobenzene	ND	0.025	0.025	1	08/15/2017 15:02
3,3-Dichlorobenzidine	ND	0.0050	0.0050	1	08/15/2017 15:02
2,4-Dichlorophenol	ND	0.0025	0.0025	1	08/15/2017 15:02
Diethyl Phthalate	ND	0.0025	0.0025	1	08/15/2017 15:02
2,4-Dimethylphenol	ND	0.025	0.025	1	08/15/2017 15:02
Dimethyl Phthalate	ND	0.0025	0.0025	1	08/15/2017 15:02
4,6-Dinitro-2-methylphenol	ND	0.13	1.3	1	08/15/2017 15:02

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-5 #1 (20"-23") & ES-5 #2 (23"-26")	1708536-005A	Soil	08/10/2017 10:06	GC17	143626
Analytes	Result	MDL	RL	DE	Date Analyzed
2,4-Dinitrophenol	ND	0.62	0.62	1	08/15/2017 15:02
2,4-Dinitrotoluene	ND	0.025	0.025	1	08/15/2017 15:02
2,6-Dinitrotoluene	ND	0.14	0.25	1	08/15/2017 15:02
Di-n-octyl Phthalate	ND	0.14	0.50	1	08/15/2017 15:02
1,2-Diphenylhydrazine	ND	0.16	0.25	1	08/15/2017 15:02
Fluoranthene	ND	0.13	0.25	1	08/15/2017 15:02
Fluorene	ND	0.14	0.25	1	08/15/2017 15:02
Hexachlorobenzene	ND	0.025	0.025	1	08/15/2017 15:02
Hexachlorobutadiene	ND	0.025	0.025	1	08/15/2017 15:02
Hexachlorocyclopentadiene	ND	0.73	1.3	1	08/15/2017 15:02
Hexachloroethane	ND	0.14	0.25	1	08/15/2017 15:02
Indeno (1,2,3-cd) pyrene	ND	0.012	0.012	1	08/15/2017 15:02
Isophorone	ND	0.12	0.25	1	08/15/2017 15:02
2-Methylnaphthalene	ND	0.025	0.025	1	08/15/2017 15:02
2-Methylphenol (o-Cresol)	ND	0.14	0.25	1	08/15/2017 15:02
3 & 4-Methylphenol (m,p-Cresol)	ND	0.12	0.25	1	08/15/2017 15:02
Naphthalene	ND	0.0025	0.0025	1	08/15/2017 15:02
2-Nitroaniline	ND	0.62	1.3	1	08/15/2017 15:02
3-Nitroaniline	ND	0.59	1.3	1	08/15/2017 15:02
4-Nitroaniline	ND	0.55	1.3	1	08/15/2017 15:02
Nitrobenzene	ND	0.14	0.25	1	08/15/2017 15:02
2-Nitrophenol	ND	0.64	1.3	1	08/15/2017 15:02
4-Nitrophenol	ND	0.41	1.3	1	08/15/2017 15:02
N-Nitrosodiphenylamine	ND	0.16	0.25	1	08/15/2017 15:02
N-Nitrosodi-n-propylamine	ND	0.012	0.012	1	08/15/2017 15:02
Pentachlorophenol	ND	0.32	1.3	1	08/15/2017 15:02
Phenanthrene	ND	0.14	0.25	1	08/15/2017 15:02
Phenol	0.057	0.0050	0.0050	1	08/15/2017 15:02
Pyrene	ND	0.13	0.25	1	08/15/2017 15:02
Pyridine	ND	0.25	0.25	1	08/15/2017 15:02
1,2,4-Trichlorobenzene	ND	0.14	0.25	1	08/15/2017 15:02
2,4,5-Trichlorophenol	ND	0.012	0.012	1	08/15/2017 15:02
2,4,6-Trichlorophenol	ND	0.012	0.012	1	08/15/2017 15:02

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-5 #1 (20"-23") & ES-5 #2 (23"-26")	1708536-005A	Soil	08/10/2017 10:06	GC17	143626

Analytes	Result	MDL	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorophenol	93		30-130		08/15/2017 15:02
Phenol-d5	96		30-130		08/15/2017 15:02
Nitrobenzene-d5	100		30-130		08/15/2017 15:02
2-Fluorobiphenyl	87		30-130		08/15/2017 15:02
2,4,6-Tribromophenol	24		16-130		08/15/2017 15:02
4-Terphenyl-d14	103		30-130		08/15/2017 15:02

Analyst(s): REB



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-6 #1 (20"-24") & ES-6 #2 (4'3"-4'6")	1708536-006A	Soil	08/10/2017 11:11	GC17	143626
Analytes	Result	MDL	RL	DF	Date Analyzed
Acenaphthene	ND	0.14	0.25	1	08/15/2017 15:31
Acenaphthylene	ND	0.14	0.25	1	08/15/2017 15:31
Acetochlor	ND	0.25	0.25	1	08/15/2017 15:31
Anthracene	ND	0.14	0.25	1	08/15/2017 15:31
Benzidine	ND	0.23	1.3	1	08/15/2017 15:31
Benzo (a) anthracene	ND	0.050	0.050	1	08/15/2017 15:31
Benzo (a) pyrene	0.0050	0.0025	0.0025	1	08/15/2017 15:31
Benzo (b) fluoranthene	ND	0.012	0.012	1	08/15/2017 15:31
Benzo (g,h,i) perylene	ND	0.15	0.25	1	08/15/2017 15:31
Benzo (k) fluoranthene	ND	0.16	0.25	1	08/15/2017 15:31
Benzyl Alcohol	ND	0.51	1.3	1	08/15/2017 15:31
1,1-Biphenyl	ND	0.15	0.25	1	08/15/2017 15:31
Bis (2-chloroethoxy) Methane	ND	0.14	0.25	1	08/15/2017 15:31
Bis (2-chloroethyl) Ether	ND	0.0012	0.0012	1	08/15/2017 15:31
Bis (2-chloroisopropyl) Ether	ND	0.0012	0.0012	1	08/15/2017 15:31
Bis (2-ethylhexyl) Adipate	ND	0.25	0.25	1	08/15/2017 15:31
Bis (2-ethylhexyl) Phthalate	ND	0.13	0.25	1	08/15/2017 15:31
4-Bromophenyl Phenyl Ether	ND	0.16	0.25	1	08/15/2017 15:31
Butylbenzyl Phthalate	ND	0.13	0.25	1	08/15/2017 15:31
4-Chloroaniline	ND	0.0012	0.0012	1	08/15/2017 15:31
4-Chloro-3-methylphenol	ND	0.12	0.25	1	08/15/2017 15:31
2-Chloronaphthalene	ND	0.16	0.25	1	08/15/2017 15:31
2-Chlorophenol	0.0074	0.0050	0.0050	1	08/15/2017 15:31
4-Chlorophenyl Phenyl Ether	ND	0.15	0.25	1	08/15/2017 15:31
Chrysene	ND	0.14	0.25	1	08/15/2017 15:31
Dibenzo (a,h) anthracene	ND	0.0025	0.0025	1	08/15/2017 15:31
Dibenzofuran	ND	0.13	0.25	1	08/15/2017 15:31
Di-n-butyl Phthalate	ND	0.13	0.25	1	08/15/2017 15:31
1,2-Dichlorobenzene	ND	0.12	0.25	1	08/15/2017 15:31
1,3-Dichlorobenzene	ND	0.14	0.25	1	08/15/2017 15:31
1,4-Dichlorobenzene	ND	0.025	0.025	1	08/15/2017 15:31
3,3-Dichlorobenzidine	ND	0.0050	0.0050	1	08/15/2017 15:31
2,4-Dichlorophenol	ND	0.0025	0.0025	1	08/15/2017 15:31
Diethyl Phthalate	ND	0.0025	0.0025	1	08/15/2017 15:31
2,4-Dimethylphenol	ND	0.025	0.025	1	08/15/2017 15:31
Dimethyl Phthalate	ND	0.0025	0.0025	1	08/15/2017 15:31
4,6-Dinitro-2-methylphenol	ND	0.13	1.3	1	08/15/2017 15:31

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-6 #1 (20"-24") & ES-6 #2 (4'3"-4'6")	1708536-006A	Soil	08/10/2017 11:11	GC17	143626

Analytes	Result	MDL	RL	DE	Date Analyzed
2,4-Dinitrophenol	ND	0.62	0.62	1	08/15/2017 15:31
2,4-Dinitrotoluene	ND	0.025	0.025	1	08/15/2017 15:31
2,6-Dinitrotoluene	ND	0.14	0.25	1	08/15/2017 15:31
Di-n-octyl Phthalate	ND	0.14	0.50	1	08/15/2017 15:31
1,2-Diphenylhydrazine	ND	0.16	0.25	1	08/15/2017 15:31
Fluoranthene	ND	0.13	0.25	1	08/15/2017 15:31
Fluorene	ND	0.14	0.25	1	08/15/2017 15:31
Hexachlorobenzene	ND	0.025	0.025	1	08/15/2017 15:31
Hexachlorobutadiene	ND	0.025	0.025	1	08/15/2017 15:31
Hexachlorocyclopentadiene	ND	0.73	1.3	1	08/15/2017 15:31
Hexachloroethane	ND	0.14	0.25	1	08/15/2017 15:31
Indeno (1,2,3-cd) pyrene	ND	0.012	0.012	1	08/15/2017 15:31
Isophorone	ND	0.12	0.25	1	08/15/2017 15:31
2-Methylnaphthalene	ND	0.025	0.025	1	08/15/2017 15:31
2-Methylphenol (o-Cresol)	ND	0.14	0.25	1	08/15/2017 15:31
3 & 4-Methylphenol (m,p-Cresol)	ND	0.12	0.25	1	08/15/2017 15:31
Naphthalene	ND	0.0025	0.0025	1	08/15/2017 15:31
2-Nitroaniline	ND	0.62	1.3	1	08/15/2017 15:31
3-Nitroaniline	ND	0.59	1.3	1	08/15/2017 15:31
4-Nitroaniline	ND	0.55	1.3	1	08/15/2017 15:31
Nitrobenzene	ND	0.14	0.25	1	08/15/2017 15:31
2-Nitrophenol	ND	0.64	1.3	1	08/15/2017 15:31
4-Nitrophenol	ND	0.41	1.3	1	08/15/2017 15:31
N-Nitrosodiphenylamine	ND	0.16	0.25	1	08/15/2017 15:31
N-Nitrosodi-n-propylamine	ND	0.012	0.012	1	08/15/2017 15:31
Pentachlorophenol	ND	0.32	1.3	1	08/15/2017 15:31
Phenanthrene	ND	0.14	0.25	1	08/15/2017 15:31
Phenol	ND	0.0050	0.0050	1	08/15/2017 15:31
Pyrene	ND	0.13	0.25	1	08/15/2017 15:31
Pyridine	ND	0.25	0.25	1	08/15/2017 15:31
1,2,4-Trichlorobenzene	ND	0.14	0.25	1	08/15/2017 15:31
2,4,5-Trichlorophenol	ND	0.012	0.012	1	08/15/2017 15:31
2,4,6-Trichlorophenol	ND	0.012	0.012	1	08/15/2017 15:31

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-6 #1 (20"-24") & ES-6 #2 (4'3"-4'6")	1708536-006A	Soil	08/10/2017 11:11	GC17	143626

Analytes	Result	MDL	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>	<u>Qualifiers</u>	<u>Limits</u>		
2-Fluorophenol	118		30-130		08/15/2017 15:31
Phenol-d5	124		30-130		08/15/2017 15:31
Nitrobenzene-d5	126		30-130		08/15/2017 15:31
2-Fluorobiphenyl	108		30-130		08/15/2017 15:31
2,4,6-Tribromophenol	37		16-130		08/15/2017 15:31
4-Terphenyl-d14	135	S	30-130		08/15/2017 15:31

Analyst(s): REB

Analytical Comments: c2

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-7 #1 (20"-23") & ES-7 #2 (4'-4'6")	1708536-007A	Soil	08/10/2017 11:48	GC17	143626
Analytes	Result	MDL	RL	DE	Date Analyzed
Acenaphthene	ND	0.14	0.25	1	08/15/2017 15:59
Acenaphthylene	ND	0.14	0.25	1	08/15/2017 15:59
Acetochlor	ND	0.25	0.25	1	08/15/2017 15:59
Anthracene	ND	0.14	0.25	1	08/15/2017 15:59
Benzidine	ND	0.23	1.3	1	08/15/2017 15:59
Benzo (a) anthracene	ND	0.050	0.050	1	08/15/2017 15:59
Benzo (a) pyrene	0.029	0.0025	0.0025	1	08/15/2017 15:59
Benzo (b) fluoranthene	0.026	0.012	0.012	1	08/15/2017 15:59
Benzo (g,h,i) perylene	ND	0.15	0.25	1	08/15/2017 15:59
Benzo (k) fluoranthene	ND	0.16	0.25	1	08/15/2017 15:59
Benzyl Alcohol	ND	0.51	1.3	1	08/15/2017 15:59
1,1-Biphenyl	ND	0.15	0.25	1	08/15/2017 15:59
Bis (2-chloroethoxy) Methane	ND	0.14	0.25	1	08/15/2017 15:59
Bis (2-chloroethyl) Ether	ND	0.0012	0.0012	1	08/15/2017 15:59
Bis (2-chloroisopropyl) Ether	ND	0.0012	0.0012	1	08/15/2017 15:59
Bis (2-ethylhexyl) Adipate	ND	0.25	0.25	1	08/15/2017 15:59
Bis (2-ethylhexyl) Phthalate	ND	0.13	0.25	1	08/15/2017 15:59
4-Bromophenyl Phenyl Ether	ND	0.16	0.25	1	08/15/2017 15:59
Butylbenzyl Phthalate	ND	0.13	0.25	1	08/15/2017 15:59
4-Chloroaniline	ND	0.0012	0.0012	1	08/15/2017 15:59
4-Chloro-3-methylphenol	ND	0.12	0.25	1	08/15/2017 15:59
2-Chloronaphthalene	ND	0.16	0.25	1	08/15/2017 15:59
2-Chlorophenol	0.0056	0.0050	0.0050	1	08/15/2017 15:59
4-Chlorophenyl Phenyl Ether	ND	0.15	0.25	1	08/15/2017 15:59
Chrysene	ND	0.14	0.25	1	08/15/2017 15:59
Dibenzo (a,h) anthracene	0.0054	0.0025	0.0025	1	08/15/2017 15:59
Dibenzofuran	ND	0.13	0.25	1	08/15/2017 15:59
Di-n-butyl Phthalate	ND	0.13	0.25	1	08/15/2017 15:59
1,2-Dichlorobenzene	ND	0.12	0.25	1	08/15/2017 15:59
1,3-Dichlorobenzene	ND	0.14	0.25	1	08/15/2017 15:59
1,4-Dichlorobenzene	ND	0.025	0.025	1	08/15/2017 15:59
3,3-Dichlorobenzidine	ND	0.0050	0.0050	1	08/15/2017 15:59
2,4-Dichlorophenol	ND	0.0025	0.0025	1	08/15/2017 15:59
Diethyl Phthalate	ND	0.0025	0.0025	1	08/15/2017 15:59
2,4-Dimethylphenol	ND	0.025	0.025	1	08/15/2017 15:59
Dimethyl Phthalate	ND	0.0025	0.0025	1	08/15/2017 15:59
4,6-Dinitro-2-methylphenol	ND	0.13	1.3	1	08/15/2017 15:59

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

Date Received: 8/11/17 13:10

Date Prepared: 8/14/17

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

Extraction Method: SW3550B/3640A

Analytical Method: SW8270C

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-7 #1 (20"-23") & ES-7 #2 (4'-4'6")	1708536-007A	Soil	08/10/2017 11:48	GC17	143626

Analytes	Result	MDL	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.62	0.62	1	08/15/2017 15:59
2,4-Dinitrotoluene	ND	0.025	0.025	1	08/15/2017 15:59
2,6-Dinitrotoluene	ND	0.14	0.25	1	08/15/2017 15:59
Di-n-octyl Phthalate	ND	0.14	0.50	1	08/15/2017 15:59
1,2-Diphenylhydrazine	ND	0.16	0.25	1	08/15/2017 15:59
Fluoranthene	ND	0.13	0.25	1	08/15/2017 15:59
Fluorene	ND	0.14	0.25	1	08/15/2017 15:59
Hexachlorobenzene	ND	0.025	0.025	1	08/15/2017 15:59
Hexachlorobutadiene	ND	0.025	0.025	1	08/15/2017 15:59
Hexachlorocyclopentadiene	ND	0.73	1.3	1	08/15/2017 15:59
Hexachloroethane	ND	0.14	0.25	1	08/15/2017 15:59
Indeno (1,2,3-cd) pyrene	0.018	0.012	0.012	1	08/15/2017 15:59
Isophorone	ND	0.12	0.25	1	08/15/2017 15:59
2-Methylnaphthalene	ND	0.025	0.025	1	08/15/2017 15:59
2-Methylphenol (o-Cresol)	ND	0.14	0.25	1	08/15/2017 15:59
3 & 4-Methylphenol (m,p-Cresol)	ND	0.12	0.25	1	08/15/2017 15:59
Naphthalene	ND	0.0025	0.0025	1	08/15/2017 15:59
2-Nitroaniline	ND	0.62	1.3	1	08/15/2017 15:59
3-Nitroaniline	ND	0.59	1.3	1	08/15/2017 15:59
4-Nitroaniline	ND	0.55	1.3	1	08/15/2017 15:59
Nitrobenzene	ND	0.14	0.25	1	08/15/2017 15:59
2-Nitrophenol	ND	0.64	1.3	1	08/15/2017 15:59
4-Nitrophenol	ND	0.41	1.3	1	08/15/2017 15:59
N-Nitrosodiphenylamine	ND	0.16	0.25	1	08/15/2017 15:59
N-Nitrosodi-n-propylamine	ND	0.012	0.012	1	08/15/2017 15:59
Pentachlorophenol	ND	0.32	1.3	1	08/15/2017 15:59
Phenanthrene	ND	0.14	0.25	1	08/15/2017 15:59
Phenol	ND	0.0050	0.0050	1	08/15/2017 15:59
Pyrene	ND	0.13	0.25	1	08/15/2017 15:59
Pyridine	ND	0.25	0.25	1	08/15/2017 15:59
1,2,4-Trichlorobenzene	ND	0.14	0.25	1	08/15/2017 15:59
2,4,5-Trichlorophenol	ND	0.012	0.012	1	08/15/2017 15:59
2,4,6-Trichlorophenol	ND	0.012	0.012	1	08/15/2017 15:59

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

Date Received: 8/11/17 13:10

Date Prepared: 8/14/17

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

Extraction Method: SW3550B/3640A

Analytical Method: SW8270C

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-7 #1 (20"-23") & ES-7 #2 (4'-4'6")	1708536-007A	Soil	08/10/2017 11:48	GC17	143626

Analytes	Result	MDL	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorophenol	86		30-130		08/15/2017 15:59
Phenol-d5	85		30-130		08/15/2017 15:59
Nitrobenzene-d5	91		30-130		08/15/2017 15:59
2-Fluorobiphenyl	78		30-130		08/15/2017 15:59
2,4,6-Tribromophenol	21		16-130		08/15/2017 15:59
4-Terphenyl-d14	94		30-130		08/15/2017 15:59

Analyst(s): REB



Analytical Report

Client: AGS, Inc.

Date Received: 8/11/17 13:10

Date Prepared: 8/14/17

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

Extraction Method: SW3550B/3640A

Analytical Method: SW8270C

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-8 #1 (20"-23") & ES-8 #2 (4'-4'6")	1708536-008A	Soil	08/10/2017 12:42	GC17	143626
Analytes	Result	MDL	RL	DF	Date Analyzed
Acenaphthene	ND	0.14	0.25	1	08/15/2017 16:27
Acenaphthylene	ND	0.14	0.25	1	08/15/2017 16:27
Acetochlor	ND	0.25	0.25	1	08/15/2017 16:27
Anthracene	ND	0.14	0.25	1	08/15/2017 16:27
Benzidine	ND	0.23	1.3	1	08/15/2017 16:27
Benzo (a) anthracene	ND	0.050	0.050	1	08/15/2017 16:27
Benzo (a) pyrene	ND	0.0025	0.0025	1	08/15/2017 16:27
Benzo (b) fluoranthene	ND	0.012	0.012	1	08/15/2017 16:27
Benzo (g,h,i) perylene	ND	0.15	0.25	1	08/15/2017 16:27
Benzo (k) fluoranthene	ND	0.16	0.25	1	08/15/2017 16:27
Benzyl Alcohol	ND	0.51	1.3	1	08/15/2017 16:27
1,1-Biphenyl	ND	0.15	0.25	1	08/15/2017 16:27
Bis (2-chloroethoxy) Methane	ND	0.14	0.25	1	08/15/2017 16:27
Bis (2-chloroethyl) Ether	ND	0.0012	0.0012	1	08/15/2017 16:27
Bis (2-chloroisopropyl) Ether	ND	0.0012	0.0012	1	08/15/2017 16:27
Bis (2-ethylhexyl) Adipate	ND	0.25	0.25	1	08/15/2017 16:27
Bis (2-ethylhexyl) Phthalate	ND	0.13	0.25	1	08/15/2017 16:27
4-Bromophenyl Phenyl Ether	ND	0.16	0.25	1	08/15/2017 16:27
Butylbenzyl Phthalate	ND	0.13	0.25	1	08/15/2017 16:27
4-Chloroaniline	ND	0.0012	0.0012	1	08/15/2017 16:27
4-Chloro-3-methylphenol	ND	0.12	0.25	1	08/15/2017 16:27
2-Chloronaphthalene	ND	0.16	0.25	1	08/15/2017 16:27
2-Chlorophenol	ND	0.0050	0.0050	1	08/15/2017 16:27
4-Chlorophenyl Phenyl Ether	ND	0.15	0.25	1	08/15/2017 16:27
Chrysene	ND	0.14	0.25	1	08/15/2017 16:27
Dibenzo (a,h) anthracene	ND	0.0025	0.0025	1	08/15/2017 16:27
Dibenzofuran	ND	0.13	0.25	1	08/15/2017 16:27
Di-n-butyl Phthalate	ND	0.13	0.25	1	08/15/2017 16:27
1,2-Dichlorobenzene	ND	0.12	0.25	1	08/15/2017 16:27
1,3-Dichlorobenzene	ND	0.14	0.25	1	08/15/2017 16:27
1,4-Dichlorobenzene	ND	0.025	0.025	1	08/15/2017 16:27
3,3-Dichlorobenzidine	ND	0.0050	0.0050	1	08/15/2017 16:27
2,4-Dichlorophenol	ND	0.0025	0.0025	1	08/15/2017 16:27
Diethyl Phthalate	ND	0.0025	0.0025	1	08/15/2017 16:27
2,4-Dimethylphenol	ND	0.025	0.025	1	08/15/2017 16:27
Dimethyl Phthalate	ND	0.0025	0.0025	1	08/15/2017 16:27
4,6-Dinitro-2-methylphenol	ND	0.13	1.3	1	08/15/2017 16:27

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-8 #1 (20"-23") & ES-8 #2 (4'-4'6")	1708536-008A	Soil	08/10/2017 12:42	GC17	143626

Analytes	Result	MDL	RL	DF	Date Analyzed
2,4-Dinitrophenol	ND	0.62	0.62	1	08/15/2017 16:27
2,4-Dinitrotoluene	ND	0.025	0.025	1	08/15/2017 16:27
2,6-Dinitrotoluene	ND	0.14	0.25	1	08/15/2017 16:27
Di-n-octyl Phthalate	ND	0.14	0.50	1	08/15/2017 16:27
1,2-Diphenylhydrazine	ND	0.16	0.25	1	08/15/2017 16:27
Fluoranthene	ND	0.13	0.25	1	08/15/2017 16:27
Fluorene	ND	0.14	0.25	1	08/15/2017 16:27
Hexachlorobenzene	ND	0.025	0.025	1	08/15/2017 16:27
Hexachlorobutadiene	ND	0.025	0.025	1	08/15/2017 16:27
Hexachlorocyclopentadiene	ND	0.73	1.3	1	08/15/2017 16:27
Hexachloroethane	ND	0.14	0.25	1	08/15/2017 16:27
Indeno (1,2,3-cd) pyrene	ND	0.012	0.012	1	08/15/2017 16:27
Isophorone	ND	0.12	0.25	1	08/15/2017 16:27
2-Methylnaphthalene	ND	0.025	0.025	1	08/15/2017 16:27
2-Methylphenol (o-Cresol)	ND	0.14	0.25	1	08/15/2017 16:27
3 & 4-Methylphenol (m,p-Cresol)	ND	0.12	0.25	1	08/15/2017 16:27
Naphthalene	ND	0.0025	0.0025	1	08/15/2017 16:27
2-Nitroaniline	ND	0.62	1.3	1	08/15/2017 16:27
3-Nitroaniline	ND	0.59	1.3	1	08/15/2017 16:27
4-Nitroaniline	ND	0.55	1.3	1	08/15/2017 16:27
Nitrobenzene	ND	0.14	0.25	1	08/15/2017 16:27
2-Nitrophenol	ND	0.64	1.3	1	08/15/2017 16:27
4-Nitrophenol	ND	0.41	1.3	1	08/15/2017 16:27
N-Nitrosodiphenylamine	ND	0.16	0.25	1	08/15/2017 16:27
N-Nitrosodi-n-propylamine	ND	0.012	0.012	1	08/15/2017 16:27
Pentachlorophenol	ND	0.32	1.3	1	08/15/2017 16:27
Phenanthrene	ND	0.14	0.25	1	08/15/2017 16:27
Phenol	ND	0.0050	0.0050	1	08/15/2017 16:27
Pyrene	ND	0.13	0.25	1	08/15/2017 16:27
Pyridine	ND	0.25	0.25	1	08/15/2017 16:27
1,2,4-Trichlorobenzene	ND	0.14	0.25	1	08/15/2017 16:27
2,4,5-Trichlorophenol	ND	0.012	0.012	1	08/15/2017 16:27
2,4,6-Trichlorophenol	ND	0.012	0.012	1	08/15/2017 16:27

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NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3550B/3640A

Date Prepared: 8/14/17

Analytical Method: SW8270C

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Semi-Volatile Organics (Low Level) with GPC Cleanup

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-8 #1 (20"-23") & ES-8 #2 (4'-4'6")	1708536-008A	Soil	08/10/2017 12:42	GC17	143626

Analytes	Result	MDL	RL	DF	Date Analyzed
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
2-Fluorophenol	88		30-130		08/15/2017 16:27
Phenol-d5	87		30-130		08/15/2017 16:27
Nitrobenzene-d5	93		30-130		08/15/2017 16:27
2-Fluorobiphenyl	78		30-130		08/15/2017 16:27
2,4,6-Tribromophenol	25		16-130		08/15/2017 16:27
4-Terphenyl-d14	94		30-130		08/15/2017 16:27

Analyst(s): REB



Analytical Report

Client: AGS, Inc.

Date Received: 8/11/17 13:10

Date Prepared: 8/11/17

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

Extraction Method: SW3050B

Analytical Method: SW6020

Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-1 #1 (1'-1'6") & ES-1 #2 (3'6"-4')	1708536-001A	Soil	08/09/2017 10:02	ICP-MS2	143537

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	5.0	10	08/14/2017 22:57
Arsenic	ND	5.0	10	08/14/2017 22:57
Barium	98	50	10	08/14/2017 22:57
Beryllium	ND	5.0	10	08/14/2017 22:57
Cadmium	ND	2.5	10	08/14/2017 22:57
Chromium	140	5.0	10	08/14/2017 22:57
Cobalt	27	5.0	10	08/14/2017 22:57
Copper	41	5.0	10	08/14/2017 22:57
Lead	ND	5.0	10	08/14/2017 22:57
Mercury	ND	0.50	10	08/14/2017 22:57
Molybdenum	ND	5.0	10	08/14/2017 22:57
Nickel	78	5.0	10	08/14/2017 22:57
Selenium	ND	5.0	10	08/14/2017 22:57
Silver	ND	5.0	10	08/14/2017 22:57
Thallium	ND	5.0	10	08/14/2017 22:57
Vanadium	170	5.0	10	08/14/2017 22:57
Zinc	ND	50	10	08/14/2017 22:57

Surrogates	REC (%)	Limits	
Terbium	102	70-130	08/14/2017 22:57

Analyst(s): ND

Analytical Comments: a1

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CA ELAP 1644 • NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3050B

Date Prepared: 8/11/17

Analytical Method: SW6020

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-4 #1 (1'-1'6") & ES-4 #2 (4'-4'6")	1708536-002A	Soil	08/09/2017 12:16	ICP-MS2	143575

Analytes	Result	RL	DE	Date Analyzed
Antimony	ND	0.50	1	08/14/2017 21:01
Arsenic	3.6	0.50	1	08/14/2017 21:01
Barium	80	5.0	1	08/14/2017 21:01
Beryllium	ND	0.50	1	08/14/2017 21:01
Cadmium	ND	0.25	1	08/14/2017 21:01
Chromium	96	0.50	1	08/14/2017 21:01
Cobalt	12	0.50	1	08/14/2017 21:01
Copper	16	0.50	1	08/14/2017 21:01
Lead	8.6	0.50	1	08/14/2017 21:01
Mercury	0.099	0.050	1	08/14/2017 21:01
Molybdenum	ND	0.50	1	08/14/2017 21:01
Nickel	46	0.50	1	08/14/2017 21:01
Selenium	ND	0.50	1	08/14/2017 21:01
Silver	ND	0.50	1	08/14/2017 21:01
Thallium	ND	0.50	1	08/14/2017 21:01
Vanadium	110	0.50	1	08/14/2017 21:01
Zinc	46	5.0	1	08/14/2017 21:01

Surrogates	REC (%)	Limits	
Terbium	112	70-130	08/14/2017 21:01

Analyst(s): MIG

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CA ELAP 1644 • NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3050B

Date Prepared: 8/11/17

Analytical Method: SW6020

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-3 #1 (1'-1'6") & ES-3 #2 (4'-4'6")	1708536-003A	Soil	08/09/2017 13:32	ICP-MS2	143575

Analytes	Result	RL	DF	Date Analyzed
Antimony	ND	5.0	10	08/15/2017 14:37
Arsenic	ND	5.0	10	08/15/2017 14:37
Barium	66	50	10	08/15/2017 14:37
Beryllium	ND	5.0	10	08/15/2017 14:37
Cadmium	ND	2.5	10	08/15/2017 14:37
Chromium	220	5.0	10	08/15/2017 14:37
Cobalt	36	5.0	10	08/15/2017 14:37
Copper	69	5.0	10	08/15/2017 14:37
Lead	ND	5.0	10	08/15/2017 14:37
Mercury	ND	0.50	10	08/15/2017 14:37
Molybdenum	ND	5.0	10	08/15/2017 14:37
Nickel	130	5.0	10	08/15/2017 14:37
Selenium	ND	5.0	10	08/15/2017 14:37
Silver	ND	5.0	10	08/15/2017 14:37
Thallium	ND	5.0	10	08/15/2017 14:37
Vanadium	200	5.0	10	08/15/2017 14:37
Zinc	ND	50	10	08/15/2017 14:37

Surrogates	REC (%)	Limits	
Terbium	99	70-130	08/15/2017 14:37

Analyst(s): ND

Analytical Comments: a1

(Cont.)

CA ELAP 1644 • NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3050B

Date Prepared: 8/11/17

Analytical Method: SW6020

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-2 #1 (20"-24") & ES-2 #2 (4'-4'6")	1708536-004A	Soil	08/10/2017 08:35	ICP-MS2	143575

Analytes	Result	RL	DE	Date Analyzed
Antimony	ND	0.50	1	08/14/2017 21:32
Arsenic	3.5	0.50	1	08/14/2017 21:32
Barium	45	5.0	1	08/14/2017 21:32
Beryllium	ND	0.50	1	08/14/2017 21:32
Cadmium	ND	0.25	1	08/14/2017 21:32
Chromium	62	0.50	1	08/14/2017 21:32
Cobalt	7.6	0.50	1	08/14/2017 21:32
Copper	11	0.50	1	08/14/2017 21:32
Lead	25	0.50	1	08/14/2017 21:32
Mercury	0.12	0.050	1	08/14/2017 21:32
Molybdenum	ND	0.50	1	08/14/2017 21:32
Nickel	48	0.50	1	08/14/2017 21:32
Selenium	ND	0.50	1	08/14/2017 21:32
Silver	ND	0.50	1	08/14/2017 21:32
Thallium	ND	0.50	1	08/14/2017 21:32
Vanadium	52	0.50	1	08/14/2017 21:32
Zinc	39	5.0	1	08/14/2017 21:32

Surrogates	REC (%)	Limits	
Terbium	105	70-130	08/14/2017 21:32

Analyst(s): ND

(Cont.)

CA ELAP 1644 • NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3050B

Date Prepared: 8/11/17

Analytical Method: SW6020

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-5 #1 (20"-23") & ES-5 #2 (23"-26")	1708536-005A	Soil	08/10/2017 10:06	ICP-MS1	143575

Analytes	Result	RL	DE	Date Analyzed
Antimony	ND	0.50	1	08/14/2017 11:47
Arsenic	2.2	0.50	1	08/14/2017 11:47
Barium	310	5.0	1	08/14/2017 11:47
Beryllium	ND	0.50	1	08/14/2017 11:47
Cadmium	ND	0.25	1	08/14/2017 11:47
Chromium	51	0.50	1	08/14/2017 11:47
Cobalt	10	0.50	1	08/14/2017 11:47
Copper	52	0.50	1	08/14/2017 11:47
Lead	31	0.50	1	08/14/2017 11:47
Mercury	1.1	0.050	1	08/14/2017 11:47
Molybdenum	ND	0.50	1	08/14/2017 11:47
Nickel	29	0.50	1	08/14/2017 11:47
Selenium	ND	0.50	1	08/14/2017 11:47
Silver	ND	0.50	1	08/14/2017 11:47
Thallium	ND	0.50	1	08/14/2017 11:47
Vanadium	54	0.50	1	08/14/2017 11:47
Zinc	48	5.0	1	08/14/2017 11:47

Surrogates	REC (%)	Limits	
Terbium	110	70-130	08/14/2017 11:47

Analyst(s): ND

(Cont.)

CA ELAP 1644 • NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3050B

Date Prepared: 8/11/17

Analytical Method: SW6020

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-6 #1 (20'-24") & ES-6 #2 (4'3"-4'6")	1708536-006A	Soil	08/10/2017 11:11	ICP-MS2	143575
<u>Analytes</u>	<u>Result</u>		<u>RL</u>	<u>DE</u>	<u>Date Analyzed</u>
Antimony	ND		0.50	1	08/14/2017 21:44
Arsenic	2.8		0.50	1	08/14/2017 21:44
Barium	120		5.0	1	08/14/2017 21:44
Beryllium	ND		0.50	1	08/14/2017 21:44
Cadmium	ND		0.25	1	08/14/2017 21:44
Chromium	71		0.50	1	08/14/2017 21:44
Cobalt	9.8		0.50	1	08/14/2017 21:44
Copper	18		0.50	1	08/14/2017 21:44
Lead	44		0.50	1	08/14/2017 21:44
Mercury	0.15		0.050	1	08/14/2017 21:44
Molybdenum	ND		0.50	1	08/14/2017 21:44
Nickel	34		0.50	1	08/14/2017 21:44
Selenium	ND		0.50	1	08/14/2017 21:44
Silver	ND		0.50	1	08/14/2017 21:44
Thallium	ND		0.50	1	08/14/2017 21:44
Vanadium	68		0.50	1	08/14/2017 21:44
Zinc	55		5.0	1	08/14/2017 21:44
<u>Surrogates</u>	<u>REC (%)</u>		<u>Limits</u>		
Terbium	103		70-130		08/14/2017 21:44
<u>Analyst(s):</u> ND					

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CA ELAP 1644 • NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3050B

Date Prepared: 8/11/17

Analytical Method: SW6020

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-7 #1 (20"-23") & ES-7 #2 (4'-4'6")	1708536-007A	Soil	08/10/2017 11:48	ICP-MS2	143575

Analytes	Result	RL	DE	Date Analyzed
Antimony	ND	0.50	1	08/14/2017 21:38
Arsenic	4.9	0.50	1	08/14/2017 21:38
Barium	21	5.0	1	08/14/2017 21:38
Beryllium	ND	0.50	1	08/14/2017 21:38
Cadmium	ND	0.25	1	08/14/2017 21:38
Chromium	34	0.50	1	08/14/2017 21:38
Cobalt	5.7	0.50	1	08/14/2017 21:38
Copper	5.6	0.50	1	08/14/2017 21:38
Lead	3.9	0.50	1	08/14/2017 21:38
Mercury	ND	0.050	1	08/14/2017 21:38
Molybdenum	ND	0.50	1	08/14/2017 21:38
Nickel	34	0.50	1	08/14/2017 21:38
Selenium	ND	0.50	1	08/14/2017 21:38
Silver	ND	0.50	1	08/14/2017 21:38
Thallium	ND	0.50	1	08/14/2017 21:38
Vanadium	25	0.50	1	08/14/2017 21:38
Zinc	21	5.0	1	08/14/2017 21:38

Surrogates	REC (%)	Limits	
Terbium	107	70-130	08/14/2017 21:38

Analyst(s): ND

(Cont.)

CA ELAP 1644 • NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW3050B

Date Prepared: 8/11/17

Analytical Method: SW6020

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

CAM / CCR 17 Metals

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-8 #1 (20"-23") & ES-8 #2 (4'-4'6")	1708536-008A	Soil	08/10/2017 12:42	ICP-MS2	143575

Analytes	Result	RL	DE	Date Analyzed
Antimony	ND	0.50	1	08/14/2017 21:50
Arsenic	1.5	0.50	1	08/14/2017 21:50
Barium	79	5.0	1	08/14/2017 21:50
Beryllium	ND	0.50	1	08/14/2017 21:50
Cadmium	ND	0.25	1	08/14/2017 21:50
Chromium	69	0.50	1	08/14/2017 21:50
Cobalt	3.3	0.50	1	08/14/2017 21:50
Copper	10	0.50	1	08/14/2017 21:50
Lead	3.6	0.50	1	08/14/2017 21:50
Mercury	0.058	0.050	1	08/14/2017 21:50
Molybdenum	ND	0.50	1	08/14/2017 21:50
Nickel	22	0.50	1	08/14/2017 21:50
Selenium	ND	0.50	1	08/14/2017 21:50
Silver	ND	0.50	1	08/14/2017 21:50
Thallium	ND	0.50	1	08/14/2017 21:50
Vanadium	38	0.50	1	08/14/2017 21:50
Zinc	21	5.0	1	08/14/2017 21:50

Surrogates	REC (%)	Limits	
Terbium	98	70-130	08/14/2017 21:50

Analyst(s): ND



Analytical Report

Client: AGS, Inc. **WorkOrder:** 1708536
Date Received: 8/11/17 13:10 **Extraction Method:** CARB 435 Asbestos
Date Prepared: 8/11/17 **Analytical Method:** 435 CARB
Project: University Mound East Pipeline; AGS 14-027/24 **Unit:** %

Asbestos (CARB 435) 400 Point Count

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-1 #1 (1'-1'6") & ES-1 #2 (3'6"-4')	1708536-001A	Soil	08/09/2017 10:02	WetChem	143747

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Asbestos	ND	0.25	1	08/15/2017 10:00

Analyst(s): DA

Analytical Comments: k10

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-4 #1 (1'-1'6") & ES-4 #2 (4'-4'6")	1708536-002A	Soil	08/09/2017 12:16	WetChem	143747

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Asbestos	ND	0.25	1	08/15/2017 10:50

Analyst(s): DA

Analytical Comments: k10

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-3 #1 (1'-1'6") & ES-3 #2 (4'-4'6")	1708536-003A	Soil	08/09/2017 13:32	WetChem	143747

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Asbestos	ND	0.25	1	08/15/2017 11:15

Analyst(s): DA

Analytical Comments: k10

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-2 #1 (20"-24") & ES-2 #2 (4'-4'6")	1708536-004A	Soil	08/10/2017 08:35	WetChem	143747

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Asbestos	ND	0.25	1	08/15/2017 11:40

Analyst(s): DA

Analytical Comments: k10

(Cont.)

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc. **WorkOrder:** 1708536
Date Received: 8/11/17 13:10 **Extraction Method:** CARB 435 Asbestos
Date Prepared: 8/11/17 **Analytical Method:** 435 CARB
Project: University Mound East Pipeline; AGS 14-027/24 **Unit:** %

Asbestos (CARB 435) 400 Point Count

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-5 #1 (20"-23") & ES-5 #2 (23"-26")	1708536-005A	Soil	08/10/2017 10:06	WetChem	143747

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Asbestos	ND	0.25	1	08/15/2017 12:05

Analyst(s): DA

Analytical Comments: k10

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-6 #1 (20"-24") & ES-6 #2 (4'3"-4'6")	1708536-006A	Soil	08/10/2017 11:11	WetChem	143747

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Asbestos	ND	0.25	1	08/15/2017 12:30

Analyst(s): DA

Analytical Comments: k10

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-7 #1 (20"-23") & ES-7 #2 (4'-4'6")	1708536-007A	Soil	08/10/2017 11:48	WetChem	143747

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Asbestos	ND	0.25	1	08/15/2017 12:55

Analyst(s): DA

Analytical Comments: k10

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-8 #1 (20"-23") & ES-8 #2 (4'-4'6")	1708536-008A	Soil	08/10/2017 12:42	WetChem	143747

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Asbestos	ND	0.25	1	08/15/2017 13:20

Analyst(s): DA

Analytical Comments: k10

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW5030B

Date Prepared: 8/11/17

Analytical Method: SW8021B/8015Bm

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-1 #1 (1'-1'6") & ES-1 #2 (3'6"-4')	1708536-001A	Soil	08/09/2017 10:02	GC19	143542

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	08/12/2017 06:37
MTBE	ND	0.050	1	08/12/2017 06:37
Benzene	ND	0.0050	1	08/12/2017 06:37
Toluene	ND	0.0050	1	08/12/2017 06:37
Ethylbenzene	ND	0.0050	1	08/12/2017 06:37
Xylenes	ND	0.015	1	08/12/2017 06:37

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	77	62-126	08/12/2017 06:37

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-4 #1 (1'-1'6") & ES-4 #2 (4'-4'6")	1708536-002A	Soil	08/09/2017 12:16	GC19	143542

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	08/12/2017 08:38
MTBE	ND	0.050	1	08/12/2017 08:38
Benzene	ND	0.0050	1	08/12/2017 08:38
Toluene	ND	0.0050	1	08/12/2017 08:38
Ethylbenzene	ND	0.0050	1	08/12/2017 08:38
Xylenes	ND	0.015	1	08/12/2017 08:38

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	83	62-126	08/12/2017 08:38

Analyst(s): IA

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

Date Received: 8/11/17 13:10

Date Prepared: 8/11/17

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

Extraction Method: SW5030B

Analytical Method: SW8021B/8015Bm

Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-3 #1 (1'-1'6") & ES-3 #2 (4'-4'6")	1708536-003A	Soil	08/09/2017 13:32	GC19	143572

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	08/12/2017 09:08
MTBE	ND	0.050	1	08/12/2017 09:08
Benzene	ND	0.0050	1	08/12/2017 09:08
Toluene	ND	0.0050	1	08/12/2017 09:08
Ethylbenzene	ND	0.0050	1	08/12/2017 09:08
Xylenes	ND	0.015	1	08/12/2017 09:08

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	84	62-126	08/12/2017 09:08

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-2 #1 (20"-24") & ES-2 #2 (4'-4'6")	1708536-004A	Soil	08/10/2017 08:35	GC19	143572

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	08/12/2017 09:39
MTBE	ND	0.050	1	08/12/2017 09:39
Benzene	ND	0.0050	1	08/12/2017 09:39
Toluene	ND	0.0050	1	08/12/2017 09:39
Ethylbenzene	ND	0.0050	1	08/12/2017 09:39
Xylenes	ND	0.015	1	08/12/2017 09:39

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	79	62-126	08/12/2017 09:39

Analyst(s): IA

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW5030B

Date Prepared: 8/11/17

Analytical Method: SW8021B/8015Bm

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-5 #1 (20"-23") & ES-5 #2 (23"-26")	1708536-005A	Soil	08/10/2017 10:06	GC19	143572

Analytes	Result	RL	DE	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	08/12/2017 10:40
MTBE	ND	0.050	1	08/12/2017 10:40
Benzene	ND	0.0050	1	08/12/2017 10:40
Toluene	ND	0.0050	1	08/12/2017 10:40
Ethylbenzene	ND	0.0050	1	08/12/2017 10:40
Xylenes	ND	0.015	1	08/12/2017 10:40

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	79	62-126	08/12/2017 10:40

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-6 #1 (20"-24") & ES-6 #2 (4'3"-4'6")	1708536-006A	Soil	08/10/2017 11:11	GC7	143572

Analytes	Result	RL	DE	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	08/12/2017 07:38
MTBE	ND	0.050	1	08/12/2017 07:38
Benzene	ND	0.0050	1	08/12/2017 07:38
Toluene	ND	0.0050	1	08/12/2017 07:38
Ethylbenzene	ND	0.0050	1	08/12/2017 07:38
Xylenes	ND	0.015	1	08/12/2017 07:38

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	79	62-126	08/12/2017 07:38

Analyst(s): IA

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: SW5030B

Date Prepared: 8/11/17

Analytical Method: SW8021B/8015Bm

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/Kg

Gasoline Range (C6-C12) Volatile Hydrocarbons as Gasoline with BTEX and MTBE

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-7 #1 (20"-23") & ES-7 #2 (4'-4'6")	1708536-007A	Soil	08/10/2017 11:48	GC7	143572

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	08/12/2017 08:08
MTBE	ND	0.050	1	08/12/2017 08:08
Benzene	ND	0.0050	1	08/12/2017 08:08
Toluene	ND	0.0050	1	08/12/2017 08:08
Ethylbenzene	ND	0.0050	1	08/12/2017 08:08
Xylenes	ND	0.015	1	08/12/2017 08:08

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	86	62-126	08/12/2017 08:08

Analyst(s): IA

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-8 #1 (20"-23") & ES-8 #2 (4'-4'6")	1708536-008A	Soil	08/10/2017 12:42	GC7	143572

Analytes	Result	RL	DF	Date Analyzed
TPH(g) (C6-C12)	ND	1.0	1	08/12/2017 08:39
MTBE	ND	0.050	1	08/12/2017 08:39
Benzene	ND	0.0050	1	08/12/2017 08:39
Toluene	ND	0.0050	1	08/12/2017 08:39
Ethylbenzene	ND	0.0050	1	08/12/2017 08:39
Xylenes	ND	0.015	1	08/12/2017 08:39

Surrogates	REC (%)	Limits	Date Analyzed
2-Fluorotoluene	82	62-126	08/12/2017 08:39

Analyst(s): IA



Analytical Report

Client: AGS, Inc.
Date Received: 8/11/17 13:10
Date Prepared: 8/11/17
Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-1 #1 (1'-1'6") & ES-1 #2 (3'6"-4')	1708536-001A	Soil	08/09/2017 10:02	GC6B	143560

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	2.0	1.0	1	08/12/2017 01:16
TPH-Motor Oil (C18-C36)	26	5.0	1	08/12/2017 01:16

Surrogates	REC (%)	Limits	
C9	95	78-109	08/12/2017 01:16

Analyst(s): TK

Analytical Comments: e7,e2

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-4 #1 (1'-1'6") & ES-4 #2 (4'-4'6")	1708536-002A	Soil	08/09/2017 12:16	GC11B	143560

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	1.4	1.0	1	08/15/2017 05:24
TPH-Motor Oil (C18-C36)	41	5.0	1	08/15/2017 05:24

Surrogates	REC (%)	Limits	
C9	86	78-109	08/15/2017 05:24

Analyst(s): TK

Analytical Comments: e7,e2

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-3 #1 (1'-1'6") & ES-3 #2 (4'-4'6")	1708536-003A	Soil	08/09/2017 13:32	GC9b	143560

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	08/12/2017 14:54
TPH-Motor Oil (C18-C36)	ND	5.0	1	08/12/2017 14:54

Surrogates	REC (%)	Limits	
C9	91	78-109	08/12/2017 14:54

Analyst(s): TK

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.
Date Received: 8/11/17 13:10
Date Prepared: 8/11/17
Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-2 #1 (20"-24") & ES-2 #2 (4'-4'6")	1708536-004A	Soil	08/10/2017 08:35	GC6A	143560

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	1.2	1.0	1	08/15/2017 09:28
TPH-Motor Oil (C18-C36)	17	5.0	1	08/15/2017 09:28

Surrogates	REC (%)	Limits	
C26	97	70-130	08/15/2017 09:28

Analyst(s): TK

Analytical Comments: e7,e2

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-5 #1 (20"-23") & ES-5 #2 (23"-26")	1708536-005A	Soil	08/10/2017 10:06	GC6B	143560

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	3.1	1.0	1	08/12/2017 08:12
TPH-Motor Oil (C18-C36)	17	5.0	1	08/12/2017 08:12

Surrogates	REC (%)	Limits	
C9	100	78-109	08/12/2017 08:12

Analyst(s): TK

Analytical Comments: e7,e2

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-6 #1 (20"-24") & ES-6 #2 (4'3"-4'6")	1708536-006A	Soil	08/10/2017 11:11	GC6A	143560

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	08/12/2017 12:05
TPH-Motor Oil (C18-C36)	11	5.0	1	08/12/2017 12:05

Surrogates	REC (%)	Limits	
C9	92	78-109	08/12/2017 12:05

Analyst(s): TK

Analytical Comments: e7

(Cont.)

NELAP 4033ORELAP

 Angela Rydelius, Lab Manager



Analytical Report

Client: AGS, Inc.
Date Received: 8/11/17 13:10
Date Prepared: 8/11/17
Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536
Extraction Method: SW3550B
Analytical Method: SW8015B
Unit: mg/Kg

Total Extractable Petroleum Hydrocarbons w/out SG Clean-Up

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-7 #1 (20"-23") & ES-7 #2 (4'-4'6")	1708536-007A	Soil	08/10/2017 11:48	GC9b	143560

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	08/12/2017 16:11
TPH-Motor Oil (C18-C36)	ND	5.0	1	08/12/2017 16:11

Surrogates	REC (%)	Limits	
C9	92	78-109	08/12/2017 16:11

Analyst(s): TK

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-8 #1 (20"-23") & ES-8 #2 (4'-4'6")	1708536-008A	Soil	08/10/2017 12:42	GC9b	143560

Analytes	Result	RL	DF	Date Analyzed
TPH-Diesel (C10-C23)	ND	1.0	1	08/12/2017 13:36
TPH-Motor Oil (C18-C36)	ND	5.0	1	08/12/2017 13:36

Surrogates	REC (%)	Limits	
C9	92	78-109	08/12/2017 13:36

Analyst(s): TK



Quality Control Report

Client: AGS, Inc.

Date Prepared: 8/14/17

Date Analyzed: 8/14/17 - 8/15/17

Instrument: IC2

Matrix: Soil

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

BatchID: 143680

Extraction Method: SW3060A

Analytical Method: SW7199

Unit: mg/Kg

Sample ID: MB/LCS-143680
1708536-006AMS/MSD

QC Summary Report for SW7199 (Hexavalent chromium)

Analyte	MB Result	LCS Result	MDL	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Hexavalent chromium	ND	17.9	0.10	0.20	20	-	90	70-130

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Hexavalent chromium	21.2	18.8	20	0.3040	105	92	70-130	12.2	20



Quality Control Report

Client: AGS, Inc.

Date Prepared: 8/14/17

Date Analyzed: 8/15/17

Instrument: GC17

Matrix: Soil

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

BatchID: 143626

Extraction Method: SW3550B/3640A

Analytical Method: SW8270C

Unit: mg/Kg

Sample ID: MB/LCS-143626

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	MB Result	LCS Result	MDL	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Acenaphthene	ND	2.87	0.14	0.25	5	-	57	32-118
Acenaphthylene	ND	3.02	0.14	0.25	5	-	60	32-122
Acetochlor	ND	-	0.25	0.25	-	-	-	-
Anthracene	ND	2.83	0.14	0.25	5	-	57	36-125
Benzidine	ND	1.11	0.23	1.3	5	-	22	4-83
Benzo (a) anthracene	ND	3.11	0.050	0.050	5	-	62	35-117
Benzo (a) pyrene	ND	3.85	0.0025	0.0025	5	-	77	42-138
Benzo (b) fluoranthene	ND	3.51	0.012	0.012	5	-	70	37-125
Benzo (g,h,i) perylene	ND	3.59	0.15	0.25	5	-	72	45-146
Benzo (k) fluoranthene	ND	4.08	0.16	0.25	5	-	82	39-124
Benzyl Alcohol	ND	3.21	0.51	1.3	5	-	64	5-105
1,1-Biphenyl	ND	-	0.15	0.25	-	-	-	-
Bis (2-chloroethoxy) Methane	ND	3.09	0.14	0.25	5	-	62	35-115
Bis (2-chloroethyl) Ether	ND	3.24	0.0012	0.0012	5	-	65	35-105
Bis (2-chloroisopropyl) Ether	ND	3.56	0.0012	0.0012	5	-	71	34-119
Bis (2-ethylhexyl) Adipate	ND	3.58	0.25	0.25	5	-	72	27-117
Bis (2-ethylhexyl) Phthalate	ND	3.00	0.13	0.25	5	-	60	34-124
4-Bromophenyl Phenyl Ether	ND	3.11	0.16	0.25	5	-	62	33-112
Butylbenzyl Phthalate	ND	3.56	0.13	0.25	5	-	71	35-127
4-Chloroaniline	ND	2.53	0.0012	0.0012	5	-	51	12-77
4-Chloro-3-methylphenol	ND	3.39	0.12	0.25	5	-	68	35-123
2-Chloronaphthalene	ND	2.73	0.16	0.25	5	-	55	28-109
2-Chlorophenol	ND	3.22	0.0050	0.0050	5	-	64	38-116
4-Chlorophenyl Phenyl Ether	ND	3.34	0.15	0.25	5	-	67	33-122
Chrysene	ND	3.21	0.14	0.25	5	-	64	37-116
Dibenzo (a,h) anthracene	ND	3.59	0.0025	0.0025	5	-	72	43-141
Dibenzofuran	ND	3.28	0.13	0.25	5	-	66	33-117
Di-n-butyl Phthalate	ND	2.98	0.13	0.25	5	-	60	38-126
1,2-Dichlorobenzene	ND	3.26	0.12	0.25	5	-	65	34-105
1,3-Dichlorobenzene	ND	3.20	0.14	0.25	5	-	64	33-104
1,4-Dichlorobenzene	ND	2.95	0.025	0.025	5	-	59	31-102
3,3-Dichlorobenzidine	ND	2.42	0.0050	0.0050	5	-	48	14-84
2,4-Dichlorophenol	ND	3.43	0.0025	0.0025	5	-	69	31-124
Diethyl Phthalate	ND	3.14	0.0025	0.0025	5	-	63	35-118
2,4-Dimethylphenol	ND	2.98	0.025	0.025	5	-	60	30-120
Dimethyl Phthalate	ND	3.09	0.0025	0.0025	5	-	62	33-118
4,6-Dinitro-2-methylphenol	ND	2.45	0.13	1.3	5	-	49	12-126

(Cont.)

NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: AGS, Inc.

Date Prepared: 8/14/17

Date Analyzed: 8/15/17

Instrument: GC17

Matrix: Soil

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

BatchID: 143626

Extraction Method: SW3550B/3640A

Analytical Method: SW8270C

Unit: mg/Kg

Sample ID: MB/LCS-143626

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	MB Result	LCS Result	MDL	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
2,4-Dinitrophenol	ND	1.81	0.62	0.62	5	-	36	8-130
2,4-Dinitrotoluene	ND	3.18	0.025	0.025	5	-	64	38-117
2,6-Dinitrotoluene	ND	3.48	0.14	0.25	5	-	70	35-121
Di-n-octyl Phthalate	ND	3.46	0.14	0.50	5	-	69	42-150
1,2-Diphenylhydrazine	ND	3.18	0.16	0.25	5	-	64	0-117
Fluoranthene	ND	3.04	0.13	0.25	5	-	61	38-126
Fluorene	ND	3.00	0.14	0.25	5	-	60	34-118
Hexachlorobenzene	ND	3.19	0.025	0.025	5	-	64	30-130
Hexachlorobutadiene	ND	3.54	0.025	0.025	5	-	71	33-121
Hexachlorocyclopentadiene	ND	1.62	0.73	1.3	5	-	32	8-89
Hexachloroethane	ND	3.05	0.14	0.25	5	-	61	32-106
Indeno (1,2,3-cd) pyrene	ND	3.45	0.012	0.012	5	-	69	43-138
Isophorone	ND	2.58	0.12	0.25	5	-	52	26-92
2-Methylnaphthalene	ND	3.24	0.025	0.025	5	-	65	30-121
2-Methylphenol (o-Cresol)	ND	3.43	0.14	0.25	5	-	69	34-114
3 & 4-Methylphenol (m,p-Cresol)	ND	3.02	0.12	0.25	5	-	60	26-130
Naphthalene	ND	2.98	0.0025	0.0025	5	-	60	33-113
2-Nitroaniline	ND	3.03	0.62	1.3	5	-	61	29-115
3-Nitroaniline	ND	3.08	0.59	1.3	5	-	62	25-93
4-Nitroaniline	ND	3.62	0.55	1.3	5	-	72	31-108
Nitrobenzene	ND	3.54	0.14	0.25	5	-	71	33-122
2-Nitrophenol	ND	3.00	0.64	1.3	5	-	60	32-121
4-Nitrophenol	ND	2.38	0.41	1.3	5	-	48	27-102
N-Nitrosodiphenylamine	ND	-	0.16	0.25	-	-	-	-
N-Nitrosodi-n-propylamine	ND	2.94	0.012	0.012	5	-	59	25-108
Pentachlorophenol	ND	3.38	0.32	1.3	5	-	68	28-134
Phenanthrene	ND	2.88	0.14	0.25	5	-	58	36-123
Phenol	ND	3.12	0.0050	0.0050	5	-	62	33-107
Pyrene	ND	3.44	0.13	0.25	5	-	69	38-124
Pyridine	ND	4.20	0.25	0.25	5	-	84	30-130
1,2,4-Trichlorobenzene	ND	3.35	0.14	0.25	5	-	67	34-121
2,4,5-Trichlorophenol	ND	3.20	0.012	0.012	5	-	64	31-126
2,4,6-Trichlorophenol	ND	2.85	0.012	0.012	5	-	57	32-128

(Cont.)

NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: AGS, Inc.

Date Prepared: 8/14/17

Date Analyzed: 8/15/17

Instrument: GC17

Matrix: Soil

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

BatchID: 143626

Extraction Method: SW3550B/3640A

Analytical Method: SW8270C

Unit: mg/Kg

Sample ID: MB/LCS-143626

QC Summary Report for SW8270C (Low Level) w/ GPC

Analyte	MB Result	LCS Result	MDL	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Surrogate Recovery								
2-Fluorophenol	3.5	3.15			5	70	63	31-108
Phenol-d5	3.524	3.23			5	70	65	32-106
Nitrobenzene-d5	3.694	3.46			5	74	69	27-109
2-Fluorobiphenyl	3.217	3.16			5	64	63	26-100
2,4,6-Tribromophenol	1.803	2.33			5	36	47	25-106
4-Terphenyl-d14	3.946	3.67			5	79	73	27-113



Quality Control Report

Client: AGS, Inc.

Date Prepared: 8/11/17

Date Analyzed: 8/11/17

Instrument: ICP-MS1

Matrix: Soil

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

BatchID: 143537

Extraction Method: SW3050B

Analytical Method: SW6020

Unit: mg/Kg

Sample ID: MB/LCS-143537
1708514-012AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Antimony	ND	54.8	0.50	50	-	110	75-125
Arsenic	ND	51.1	0.50	50	-	102	75-125
Barium	ND	503	5.0	500	-	101	75-125
Beryllium	ND	50.8	0.50	50	-	102	75-125
Cadmium	ND	50.1	0.25	50	-	100	75-125
Chromium	ND	49.8	0.50	50	-	100	75-125
Cobalt	ND	49.5	0.50	50	-	99	75-125
Copper	ND	50.2	0.50	50	-	100	75-125
Lead	ND	50.6	0.50	50	-	101	75-125
Mercury	ND	1.28	0.050	1.25	-	102	75-125
Molybdenum	ND	52.4	0.50	50	-	105	75-125
Nickel	ND	50.5	0.50	50	-	101	75-125
Selenium	ND	49.8	0.50	50	-	100	75-125
Silver	ND	50.3	0.50	50	-	101	75-125
Thallium	ND	47.6	0.50	50	-	95	75-125
Vanadium	ND	48.7	0.50	50	-	97	75-125
Zinc	ND	495	5.0	500	-	99	75-125
Surrogate Recovery							
Terbium	502.7	527		500	101	105	70-130

(Cont.)

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QA/QC Officer



Quality Control Report

Client: AGS, Inc.

Date Prepared: 8/11/17

Date Analyzed: 8/11/17

Instrument: ICP-MS1

Matrix: Soil

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

BatchID: 143537

Extraction Method: SW3050B

Analytical Method: SW6020

Unit: mg/Kg

Sample ID: MB/LCS-143537
1708514-012AMS/MSD

QC Summary Report for Metals

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Antimony	55.6	55.6	50	ND	111	111	75-125	0	20
Arsenic	53.0	54.1	50	2.635	101	103	75-125	2.09	20
Barium	514	530	500	13.94	100	103	75-125	3.11	20
Beryllium	47.9	49.7	50	ND	95	99	75-125	3.79	20
Cadmium	48.9	50.2	50	ND	98	100	75-125	2.70	20
Chromium	80.2	83.6	50	32.64	95	102	75-125	4.26	20
Cobalt	51.0	52.3	50	3.996	94	97	75-125	2.63	20
Copper	53.9	55.1	50	5.015	98	100	75-125	2.09	20
Lead	63.4	62.9	50	15.00	97	96	75-125	0.665	20
Mercury	1.32	1.35	1.25	ND	103	105	75-125	1.65	20
Molybdenum	52.5	53.0	50	ND	105	106	75-125	1.10	20
Nickel	70.7	71.0	50	18.32	105	105	75-125	0	20
Selenium	47.4	49.9	50	ND	95	100	75-125	5.20	20
Silver	49.0	50.0	50	ND	98	100	75-125	2.20	20
Thallium	46.2	47.7	50	ND	92	95	75-125	3.15	20
Vanadium	82.0	80.8	50	30.71	102	100	75-125	1.40	20
Zinc	512	521	500	33.23	96	98	75-125	1.70	20

Surrogate Recovery

Terbium	531	534	500		106	107	70-130	0.470	20
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Analyte	DLT Result	DLTRef Val	%D	%D Limit
Antimony	ND<2.5	ND	-	-
Arsenic	2.95	2.635	12.0	-
Barium	ND<25	13.94	-	-
Beryllium	ND<2.5	ND	-	-
Cadmium	ND<1.2	ND	-	-
Chromium	33.2	32.64	1.72	20
Cobalt	4.10	3.996	2.60	-
Copper	4.96	5.015	1.10	-
Lead	14.9	15.00	0.667	20
Mercury	ND<0.25	ND	-	-
Molybdenum	ND<2.5	ND	-	-
Nickel	18.9	18.32	3.17	20
Selenium	ND<2.5	ND	-	-

(Cont.)



Quality Control Report

Client: AGS, Inc.

Date Prepared: 8/11/17

Date Analyzed: 8/11/17

Instrument: ICP-MS1

Matrix: Soil

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

BatchID: 143537

Extraction Method: SW3050B

Analytical Method: SW6020

Unit: mg/Kg

Sample ID: MB/LCS-143537
1708514-012AMS/MSD

QC Summary Report for Metals

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Silver	ND<2.5	ND	-	-
Thallium	ND<2.5	ND	-	-
Vanadium	31.1	30.71	1.27	20
Zinc	32.9	33.23	0.993	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



Quality Control Report

Client: AGS, Inc.

Date Prepared: 8/11/17

Date Analyzed: 8/14/17

Instrument: ICP-MS1

Matrix: Soil

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

BatchID: 143575

Extraction Method: SW3050B

Analytical Method: SW6020

Unit: mg/Kg

Sample ID: MB/LCS-143575
1708536-005AMS/MSD

QC Summary Report for Metals

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Antimony	ND	52.2	0.50	50	-	104	75-125
Arsenic	ND	51.1	0.50	50	-	102	75-125
Barium	ND	504	5.0	500	-	101	75-125
Beryllium	ND	50.4	0.50	50	-	101	75-125
Cadmium	ND	49.1	0.25	50	-	98	75-125
Chromium	ND	50.1	0.50	50	-	100	75-125
Cobalt	ND	48.8	0.50	50	-	98	75-125
Copper	ND	50.3	0.50	50	-	101	75-125
Lead	ND	50.5	0.50	50	-	101	75-125
Mercury	ND	1.33	0.050	1.25	-	106	75-125
Molybdenum	ND	50.1	0.50	50	-	100	75-125
Nickel	ND	49.9	0.50	50	-	100	75-125
Selenium	ND	50.0	0.50	50	-	100	75-125
Silver	ND	49.4	0.50	50	-	99	75-125
Thallium	ND	47.7	0.50	50	-	95	75-125
Vanadium	ND	50.0	0.50	50	-	100	75-125
Zinc	ND	499	5.0	500	-	100	75-125
Surrogate Recovery							
Terbium	520.1	532		500	104	106	70-130

(Cont.)

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QA/QC Officer



Quality Control Report

Client: AGS, Inc.

Date Prepared: 8/11/17

Date Analyzed: 8/14/17

Instrument: ICP-MS1

Matrix: Soil

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

BatchID: 143575

Extraction Method: SW3050B

Analytical Method: SW6020

Unit: mg/Kg

Sample ID: MB/LCS-143575
1708536-005AMS/MSD

QC Summary Report for Metals

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Antimony	54.6	52.0	50	ND	108	103	75-125	5.03	20
Arsenic	54.7	52.3	50	2.204	105	100	75-125	4.45	20
Barium	856	778	500	313.3	108	93	75-125	9.49	20
Beryllium	50.0	47.8	50	ND	99	95	75-125	4.62	20
Cadmium	52.6	50.0	50	ND	105	100	75-125	5.01	20
Chromium	101	97.5	50	50.93	100	93	75-125	3.60	20
Cobalt	59.4	57.0	50	10.09	99	94	75-125	4.02	20
Copper	106	95.7	50	52.27	107	87	75-125	9.79	20
Lead	85.2	79.2	50	31.00	108	96	75-125	7.35	20
Mercury	2.98	2.44	1.25	1.111	149,F10	106	75-125	20.0	20
Molybdenum	52.5	50.6	50	ND	104	100	75-125	3.69	20
Nickel	85.2	79.7	50	28.91	113	102	75-125	6.66	20
Selenium	51.8	49.3	50	ND	103	98	75-125	4.90	20
Silver	52.3	49.4	50	ND	105	99	75-125	5.67	20
Thallium	50.6	47.6	50	ND	101	95	75-125	6.11	20
Vanadium	109	102	50	54.34	109	96	75-125	6.35	20
Zinc	572	539	500	47.88	105	98	75-125	6.03	20

Surrogate Recovery

Terbium	554	530	500		111	106	70-130	4.32	20
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Analyte	DLT Result	DLTRef Val	%D	%D Limit
Antimony	ND<2.5	ND	-	-
Arsenic	2.67	2.204	21.1	-
Barium	331	313.3	5.65	20
Beryllium	ND<2.5	ND	-	-
Cadmium	ND<1.2	ND	-	-
Chromium	56.2	50.93	10.3	20
Cobalt	11.2	10.09	11.0	-
Copper	56.2	52.27	7.52	20
Lead	32.7	31.00	5.48	20
Mercury	1.25	1.111	12.5	-
Molybdenum	ND<2.5	ND	-	-
Nickel	30.9	28.91	6.88	20
Selenium	ND<2.5	ND	-	-

(Cont.)



Quality Control Report

Client:	AGS, Inc.	WorkOrder:	1708536
Date Prepared:	8/11/17	BatchID:	143575
Date Analyzed:	8/14/17	Extraction Method:	SW3050B
Instrument:	ICP-MS1	Analytical Method:	SW6020
Matrix:	Soil	Unit:	mg/Kg
Project:	University Mound East Pipeline; AGS 14-027/24	Sample ID:	MB/LCS-143575 1708536-005AMS/MSD

QC Summary Report for Metals

Analyte	DLT Result	DLTRef Val	%D	%D Limit
Silver	ND<2.5	ND	-	-
Thallium	ND<2.5	ND	-	-
Vanadium	58.6	54.34	7.84	20
Zinc	52.6	47.88	9.86	-

%D Control Limit applied to analytes with concentrations greater than 25 times the reporting limits.



Quality Control Report

Client:	AGS, Inc.	WorkOrder:	1708536
Date Prepared:	8/11/17	BatchID:	143542
Date Analyzed:	8/11/17	Extraction Method:	SW5030B
Instrument:	GC19	Analytical Method:	SW8021B/8015Bm
Matrix:	Soil	Unit:	mg/Kg
Project:	University Mound East Pipeline; AGS 14-027/24	Sample ID:	MB/LCS-143542 1708518-001AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	1.0	-	-	-
MTBE	ND	0.050	-	-	-
Benzene	ND	0.0050	-	-	-
Toluene	ND	0.0050	-	-	-
Ethylbenzene	ND	0.0050	-	-	-
Xylenes	ND	0.015	-	-	-

Surrogate Recovery

2-Fluorotoluene	0.08568	0.10	86	75-134
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Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	0.567		0.60	94		82-118		-
MTBE	0.0835		0.10	83		61-119		-
Benzene	0.124		0.10	124		77-128		-
Toluene	0.128		0.10	128		74-132		-
Ethylbenzene	0.125		0.10	125		84-127		-
Xylenes	0.369		0.30	123		86-129		-

Surrogate Recovery

2-Fluorotoluene	0.107	0.10	107	75-134	-
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Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	NR	NR		ND	NR	NR	-	NR	-
MTBE	NR	NR		ND	NR	NR	-	NR	-
Benzene	NR	NR		ND	NR	NR	-	NR	-
Toluene	NR	NR		ND	NR	NR	-	NR	-
Ethylbenzene	NR	NR		ND	NR	NR	-	NR	-
Xylenes	NR	NR		ND	NR	NR	-	NR	-

Surrogate Recovery

2-Fluorotoluene	NR	NR			NR	NR	-	NR	-
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Quality Control Report

Client:	AGS, Inc.	WorkOrder:	1708536
Date Prepared:	8/11/17	BatchID:	143572
Date Analyzed:	8/12/17	Extraction Method:	SW5030B
Instrument:	GC19, GC7	Analytical Method:	SW8021B/8015Bm
Matrix:	Soil	Unit:	mg/Kg
Project:	University Mound East Pipeline; AGS 14-027/24	Sample ID:	MB/LCS-143572 1708536-006AMS/MSD

QC Summary Report for SW8021B/8015Bm

Analyte	MB Result	RL	SPK Val	MB SS %REC	MB SS Limits
TPH(g) (C6-C12)	ND	1.0	-	-	-
MTBE	ND	0.050	-	-	-
Benzene	ND	0.0050	-	-	-
Toluene	ND	0.0050	-	-	-
Ethylbenzene	ND	0.0050	-	-	-
Xylenes	ND	0.015	-	-	-

Surrogate Recovery

2-Fluorotoluene	0.08357	0.10	84	75-134
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Analyte	LCS Result	LCSD Result	SPK Val	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Limit
TPH(btex)	0.604		0.60	101		82-118		-
MTBE	0.0911		0.10	91		61-119		-
Benzene	0.106		0.10	106		77-128		-
Toluene	0.109		0.10	109		74-132		-
Ethylbenzene	0.106		0.10	106		84-127		-
Xylenes	0.310		0.30	103		86-129		-

Surrogate Recovery

2-Fluorotoluene	0.0861	0.10	86	75-134	-
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Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH(btex)	0.550	0.554	0.60	ND	92	92	58-129	0	20
MTBE	0.0836	0.0825	0.10	ND	67	66	47-118	1.30	20
Benzene	0.0929	0.0902	0.10	ND	93	90	55-129	2.92	20
Toluene	0.0979	0.0957	0.10	ND	98	96	56-130	2.35	20
Ethylbenzene	0.0991	0.0971	0.10	ND	99	97	63-129	2.01	20
Xylenes	0.312	0.307	0.30	ND	104	102	64-131	1.87	20

Surrogate Recovery

2-Fluorotoluene	0.0809	0.0802	0.10	81	80	62-126	0.954	20
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Quality Control Report

Client: AGS, Inc.

Date Prepared: 8/11/17

Date Analyzed: 8/11/17

Instrument: GC9a

Matrix: Soil

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

BatchID: 143560

Extraction Method: SW3550B

Analytical Method: SW8015B

Unit: mg/Kg

Sample ID: MB/LCS-143560
1708519-003AMS/MSD

QC Report for SW8015B w/out SG Clean-Up

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
TPH-Diesel (C10-C23)	ND	40.2	1.0	40	-	100	79-133
TPH-Motor Oil (C18-C36)	ND	-	5.0	-	-	-	-
Surrogate Recovery							
C9	26.18	26.0		25	105	104	77-109

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
TPH-Diesel (C10-C23)	NR	NR		370	NR	NR	-	NR	-
Surrogate Recovery									
C9	N/A	N/A			N/A	N/A	-	N/A	-

McC Campbell Analytical, Inc.



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CHAIN-OF-CUSTODY RECORD

Page 1 of 1

WorkOrder: 1708536

ClientCode: AGSI

QuoteID: 7536

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☐ EDF

☐ Excel

☒ EQUIS

☐ Email

☐ HardCopy

☐ ThirdParty

☒ J-flag

☐ Detection Summary

☒ Dry-Weight

Report to:

Michelle Shriro
AGS, Inc.
5 Freelon Street
San Francisco, CA 94107
(415) 777-2166 FAX:

Email: michelle.shriro@agsinc.com
cc/3rd Party:
PO:
ProjectNo: University Mound East Pipeline; AGS 14-027/24

Bill to:

Jana Marjanovic Pearson
AGS, Inc.
5 Freelon Street
San Francisco, CA 94107
jana.pearson@agsinc.com

Requested TAT: 5 days;

Date Received: 08/11/2017

Date Logged: 08/11/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1708536-001	ES-1 #1 (1'-1'6") & ES-1 #2 (3'6"-4')	Soil	8/9/2017 10:02	<input type="checkbox"/>	A	A	A	A	A	A	A	A	A	A		
1708536-002	ES-4 #1 (1'-1'6") & ES-4 #2 (4'-4'6")	Soil	8/9/2017 12:16	<input type="checkbox"/>	A	A	A	A	A	A	A	A	A	A		
1708536-003	ES-3 #1 (1'-1'6") & ES-3 #2 (4'-4'6")	Soil	8/9/2017 13:32	<input type="checkbox"/>	A	A	A			A	A	A	A	A		
1708536-004	ES-2 #1 (20"-24") & ES-2 #2 (4'-4'6")	Soil	8/10/2017 08:35	<input type="checkbox"/>	A	A	A	A	A	A	A	A	A	A		
1708536-005	ES-5 #1 (20"-23") & ES-5 #2 (23"-26")	Soil	8/10/2017 10:06	<input type="checkbox"/>	A	A	A	A		A	A	A	A	A		
1708536-006	ES-6 #1 (20"-24") & ES-6 #2 (4'3"-4'6")	Soil	8/10/2017 11:11	<input type="checkbox"/>	A	A	A	A		A	A	A	A	A		
1708536-007	ES-7 #1 (20"-23") & ES-7 #2 (4'-4'6")	Soil	8/10/2017 11:48	<input type="checkbox"/>	A	A	A			A	A	A	A	A		
1708536-008	ES-8 #1 (20"-23") & ES-8 #2 (4'-4'6")	Soil	8/10/2017 12:42	<input type="checkbox"/>	A	A	A			A	A	A	A	A		

Test Legend:

1	7199_TTLC_LL_S [J]
5	8081PCB_GPCFLSL_S [J]
9	G-MBTX_S

2	8081PCB_ESL_S [J]
6	8270_SCSM_S [J]
10	TPH(DMO)_S

3	8081PCB_ESL_SUB
7	CAM17MS_TTLC_S
11	

4	8081PCB_FLORISIL_S [J]
8	CARB435_400
12	

Project Manager: Angela Rydelius

Prepared by: Alexandra Iniguez

Comments:

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



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http://www.mcccampbell.com / E-mail: main@mcccampbell.com

WORK ORDER SUMMARY

Client Name: AGS, INC.

Project: University Mound East Pipeline; AGS 14-027/24

Work Order: 1708536

Client Contact: Michelle Shriro

QC Level:

Contact's Email: michelle.shriro@agsinc.com

Comments:

Date Logged: 8/11/2017

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1708536-001A	ES-1 #1 (1'-1'6") & ES-1 #2 (3'6"-4')	Soil	SW8015B (Diesel & Motor Oil)	2 / (2:1)	16OZ GJ	<input type="checkbox"/>	8/9/2017 10:02	5 days		<input type="checkbox"/>	
			SW8021B/8015Bm (G/MBTEX)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCB w/ GPC & Florisil)			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCB w/ Florisil)			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	
			SW8081PCB (Subcontracted)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	SubOut
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	
			SW7199 (Hexavalent chromium, Low-Level)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1708536-002A	ES-4 #1 (1'-1'6") & ES-4 #2 (4'-4'6")	Soil	SW8015B (Diesel & Motor Oil)	2 / (2:1)	16OZ GJ	<input type="checkbox"/>	8/9/2017 12:16	5 days		<input type="checkbox"/>	
			SW8021B/8015Bm (G/MBTEX)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

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WORK ORDER SUMMARY

Client Name: AGS, INC.

Project: University Mound East Pipeline; AGS 14-027/24

Work Order: 1708536

Client Contact: Michelle Shriro

QC Level:

Contact's Email: michelle.shriro@agsinc.com

Comments:

Date Logged: 8/11/2017

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De- chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1708536-002A	ES-4 #1 (1'-1'6") & ES-4 #2 (4'-4'6")	Soil	SW8270C (Low Level SVOCs) with GPC Cleanup	2 / (2:1)	16OZ GJ	<input type="checkbox"/>	8/9/2017 12:16	5 days		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCB w/ GPC & Florisil)			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCB w/ Florisil)			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	
			SW8081PCB (Subcontracted)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	SubOut
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	
			SW7199 (Hexavalent chromium, Low- Level)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1708536-003A	ES-3 #1 (1'-1'6") & ES-3 #2 (4'-4'6")	Soil	SW8015B (Diesel & Motor Oil)	2 / (2:1)	16OZ GJ	<input type="checkbox"/>	8/9/2017 13:32	5 days		<input type="checkbox"/>	
			SW8021B/8015Bm (G/MBTEX)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8081PCB (Subcontracted)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	SubOut
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

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WORK ORDER SUMMARY

Client Name: AGS, INC.

Client Contact: Michelle Shriro

Contact's Email: michelle.shriro@agsinc.com

Project: University Mound East Pipeline; AGS 14-027/24

Comments:

Work Order: 1708536

QC Level:

Date Logged: 8/11/2017

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1708536-003A	ES-3 #1 (1'-1'6") & ES-3 #2 (4'-4'6")	Soil	SW7199 (Hexavalent chromium, Low-Level)	2 / (2:1)	16OZ GJ	<input type="checkbox"/>	8/9/2017 13:32	5 days		<input type="checkbox"/>	
1708536-004A	ES-2 #1 (20"-24") & ES-2 #2 (4'-4'6")	Soil	SW8015B (Diesel & Motor Oil)	2 / (2:1)	16OZ GJ	<input type="checkbox"/>	8/10/2017 8:35	5 days		<input type="checkbox"/>	
			SW8021B/8015Bm (G/MBTEX)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCB w/ GPC & Florisil)			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCB w/ Florisil)			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	
			SW8081PCB (Subcontracted)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	SubOut
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	
			SW7199 (Hexavalent chromium, Low-Level)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1708536-005A	ES-5 #1 (20"-23") & ES-5 #2 (23"-26")	Soil	SW8015B (Diesel & Motor Oil)	2 / (2:1)	16OZ GJ	<input type="checkbox"/>	8/10/2017 10:06	5 days		<input type="checkbox"/>	
			SW8021B/8015Bm (G/MBTEX)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

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WORK ORDER SUMMARY

Client Name: AGS, INC.

Client Contact: Michelle Shriro

Contact's Email: michelle.shriro@agsinc.com

Project: University Mound East Pipeline; AGS 14-027/24

Comments:

Work Order: 1708536

QC Level:

Date Logged: 8/11/2017

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1708536-005A	ES-5 #1 (20"-23") & ES-5 #2 (23"-26")	Soil	Asbestos, CARB 435, 400 Point	2 / (2:1)	16OZ GJ	<input type="checkbox"/>	8/10/2017 10:06	5 days		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCB w/ Florisil)			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	
			SW8081PCB (Subcontracted)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	SubOut
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	
			SW7199 (Hexavalent chromium, Low-Level)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1708536-006A	ES-6 #1 (20"-24") & ES-6 #2 (4'3"-4'6")	Soil	SW8015B (Diesel & Motor Oil)	2 / (2:1)	16OZ GJ	<input type="checkbox"/>	8/10/2017 11:11	5 days		<input type="checkbox"/>	
			SW8021B/8015Bm (G/MBTEX)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8081A/8082 (OC Pesticides+PCB w/ Florisil)			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	

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WORK ORDER SUMMARY

Client Name: AGS, INC.

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Contact's Email: michelle.shriro@agsinc.com

Project: University Mound East Pipeline; AGS 14-027/24

Comments:

Work Order: 1708536

QC Level:

Date Logged: 8/11/2017

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1708536-006A	ES-6 #1 (20"-24") & ES-6 #2 (4'3"-4'6")	Soil	SW8081PCB (Subcontracted)	2 / (2:1)	16OZ GJ	<input type="checkbox"/>	8/10/2017 11:11	5 days		<input type="checkbox"/>	SubOut
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	
			SW7199 (Hexavalent chromium, Low-Level)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1708536-007A	ES-7 #1 (20"-23") & ES-7 #2 (4'-4'6")	Soil	SW8015B (Diesel & Motor Oil)	2 / (2:1)	16OZ GJ	<input type="checkbox"/>	8/10/2017 11:48	5 days		<input type="checkbox"/>	
			SW8021B/8015Bm (G/MBTEX)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			Asbestos, CARB 435, 400 Point			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8081PCB (Subcontracted)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	SubOut
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	
			SW7199 (Hexavalent chromium, Low-Level)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
1708536-008A	ES-8 #1 (20"-23") & ES-8 #2 (4'-4'6")	Soil	SW8015B (Diesel & Motor Oil)	2 / (2:1)	16OZ GJ	<input type="checkbox"/>	8/10/2017 12:42	5 days		<input type="checkbox"/>	
			SW8021B/8015Bm (G/MBTEX)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	

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WORK ORDER SUMMARY

Client Name: AGS, INC.

Project: University Mound East Pipeline; AGS 14-027/24

Work Order: 1708536

Client Contact: Michelle Shriro

QC Level:

Contact's Email: michelle.shriro@agsinc.com

Comments:

Date Logged: 8/11/2017

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☒ J-flag

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	De-chlorinated	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1708536-008A	ES-8 #1 (20"-23") & ES-8 #2 (4'-4'6")	Soil	Asbestos, CARB 435, 400 Point	2 / (2:1)	16OZ GJ	<input type="checkbox"/>	8/10/2017 12:42	5 days		<input type="checkbox"/>	
			SW6020 (CAM 17)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8270C (Low Level SVOCs) with GPC Cleanup			<input type="checkbox"/>		5 days		<input type="checkbox"/>	
			SW8081PCB (Subcontracted)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	SubOut
			SW8081A/8082 (OC Pesticides+PCBs) ESLs			<input type="checkbox"/>		5 days		<input checked="" type="checkbox"/>	
			SW7199 (Hexavalent chromium, Low-Level)			<input type="checkbox"/>		5 days		<input type="checkbox"/>	


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Hold all Scope for SFPAC authorization

MAI Work Order #

1708536

McCAMPBELL ANALYTICAL, INC.							CHAIN OF CUSTODY RECORD																																	
 <p>1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701 Telephone: (877) 252-9262 Fax: (925) 252-9269 www.mcccampbell.com main@mcccampbell.com</p>							<p>Turn Around Time 1 Day Rush <input type="checkbox"/> 2 Day Rush <input type="checkbox"/> 3 Day Rush <input checked="" type="checkbox"/> STD <i>See TAT</i></p> <p>Quote # 7536</p> <p>Bottle Order #</p> <p>Delivery Format PDF <input type="checkbox"/> GeoTracker EDF <input type="checkbox"/> FDD <input type="checkbox"/> Write On (DW) <input type="checkbox"/> FQdS <input type="checkbox"/></p>																																	
Report To: <u>Michelle Shrimo</u> Bill To: <u>Michelle Shrimo</u> Company: <u>AGS Inc.</u> Email: <u>michelle.shrimo@agsinc.com</u> Alt Email: _____ Tele: <u>415.777.2166 ext 39</u> Project Name: <u>University Mound East Pipeline</u> Project #: <u>AGS 14-027/24</u> Project Location: <u>San Francisco, CA</u> PO #: _____ Sampler Signature: <u>[Signature]</u>							<p>Analysis Requested</p> <table border="1"> <tr> <td>BTEX & TPH as Gas (8021 8015) NITB</td> <td>TPH as Diesel (8015) + Motor Oil Without Silica Gel</td> <td>TPH as Diesel (8015) - Motor Oil With Silica Gel</td> <td>Total Oil & Grease (1664 90" 1) Without Silica Gel</td> <td>Total Petroleum Hydrocarbons - Oil & Grease (1664 90" 1) With Silica Gel</td> <td>Total Petroleum Hydrocarbons (418.1) With Silica Gel</td> <td>EPA 505 608 8081 (C Pesticides)</td> <td>EPA 608 8082 PCB's: Aroclors only</td> <td>EPA 524.2 624 8260 (AOCs)</td> <td>EPA 525.2 625 8270 (SVOCs)</td> <td>EPA 8270-SM 8310-PHHS (PNS)</td> <td>CAM 17 Metals (200.8 6020)</td> <td>Metals (200.8 6020)</td> <td>Baylands Requirements</td> <td>Lab to filter sample for dissolved metals analysis</td> <td>SW 8270 C (1" level SVOC)</td> <td>SW 8061A/8082 (Sub) OC Pesticides & PCBs</td> <td>ASbestos CARB 435</td> <td>SW 7199 Hexavalent Chromium (low level)</td> </tr> </table>															BTEX & TPH as Gas (8021 8015) NITB	TPH as Diesel (8015) + Motor Oil Without Silica Gel	TPH as Diesel (8015) - Motor Oil With Silica Gel	Total Oil & Grease (1664 90" 1) Without Silica Gel	Total Petroleum Hydrocarbons - Oil & Grease (1664 90" 1) With Silica Gel	Total Petroleum Hydrocarbons (418.1) With Silica Gel	EPA 505 608 8081 (C Pesticides)	EPA 608 8082 PCB's: Aroclors only	EPA 524.2 624 8260 (AOCs)	EPA 525.2 625 8270 (SVOCs)	EPA 8270-SM 8310-PHHS (PNS)	CAM 17 Metals (200.8 6020)	Metals (200.8 6020)	Baylands Requirements	Lab to filter sample for dissolved metals analysis	SW 8270 C (1" level SVOC)	SW 8061A/8082 (Sub) OC Pesticides & PCBs	ASbestos CARB 435	SW 7199 Hexavalent Chromium (low level)
BTEX & TPH as Gas (8021 8015) NITB	TPH as Diesel (8015) + Motor Oil Without Silica Gel	TPH as Diesel (8015) - Motor Oil With Silica Gel	Total Oil & Grease (1664 90" 1) Without Silica Gel	Total Petroleum Hydrocarbons - Oil & Grease (1664 90" 1) With Silica Gel	Total Petroleum Hydrocarbons (418.1) With Silica Gel	EPA 505 608 8081 (C Pesticides)	EPA 608 8082 PCB's: Aroclors only	EPA 524.2 624 8260 (AOCs)	EPA 525.2 625 8270 (SVOCs)	EPA 8270-SM 8310-PHHS (PNS)	CAM 17 Metals (200.8 6020)	Metals (200.8 6020)	Baylands Requirements	Lab to filter sample for dissolved metals analysis	SW 8270 C (1" level SVOC)	SW 8061A/8082 (Sub) OC Pesticides & PCBs	ASbestos CARB 435	SW 7199 Hexavalent Chromium (low level)																						
SAMPLE ID		Sampling		# Containers	Matrix	Preservative																																		
Location - Field Point	Depth	Date	Time																																					
ES-1 #1	(1'-1'6")	8/9/17	9 ³⁵ am	1	Soil	ice	X	X																																
ES-1 #2	(3'6"-4')	8/9/17	10 ⁰² am	1																																				
ES-4 #1	(1'-1'6")	8/9/17	11 ⁴² am	1																																				
ES-4 #2	(4'-4'6")	8/9/17	12 ¹⁶ pm	1																																				
ES-3 #1	(1'-1'6")	8/9/17	12 ⁴⁷ pm	1																																				
ES-3 #2	(4'-4'6")	8/9/17	1 ³² pm	1																																				
ES-2 #1	(20"-24")	8/10/17	8 ²⁴ am	1																																				
ES-2 #2	(4'-4'6")	8/10/17	9 ³⁵ am	1																																				
ES-5 #1	(20"-23")	8/10/17	10 ⁰⁵ am	1																																				
ES-5 #2	(23"-26")	8/10/17	10 ⁰⁶ am	1																																				

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, ploved, open air sample handling by MAI staff. Non-disclosure incurs an immediate \$750 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by E-200.8

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By - Company Name	Date	Time	Received By - Company Name	Date	Time
<u>[Signature]</u>	8/11/17	9 ⁵⁵	<u>[Signature]</u>	8-11-17	12 ⁵⁰
<u>[Signature]</u>	8-11-17	13 ¹⁰	<u>[Signature]</u>	8/11/17	13 ¹⁰

Matrix Code: DW - Drinking Water, GW - Ground Water, WW - Waste Water, SW - Sewer Water, S - Soil, SL - Sludge, A - Air, WP - Wipe, O - Other

Preservative Code: 1 - HCl 2 - HCl 3 - H₂SO₄ 4 - HNO₃ 5 - NaOH 6 - ZnOAc 7 - None

* Do Not include corrosivity Scope outlined in quote (see pg 2 of 2)

Temp 29 C Initials [Signature]


Comments - Instructions
 All Sample 1 (Shallow) and Sample 2 pairs to be composited from same hole. Test composite. Hold individual & discrete samples.

No STLC or TCLP without Special request, Hold all samples after testing.

Hold all Scope for SF PUC authorization

MAI Work Order #

1708536

McCAMPBELL ANALYTICAL, INC.						CHAIN OF CUSTODY RECORD																																		
 <p>1534 Willow Pass Rd. Pittsburg, Ca. 94565-1701 Telephone: (877) 252-9262 Fax: (925) 252-9269 www.mcccampbell.com main@mcccampbell.com</p>						<p>Turn Around Time 1 Day Rush <input type="checkbox"/> 2 Day Rush <input type="checkbox"/> 3 Day Rush <input checked="" type="checkbox"/> STD <input type="checkbox"/> Quote # 7536</p> <p>I-Flag MDL <input type="checkbox"/> ESI <input type="checkbox"/> Cleanup Approved <input type="checkbox"/> Bottle Order # <input type="checkbox"/></p> <p>Delivery Format PDF <input type="checkbox"/> GeoTracker FDE <input type="checkbox"/> FDD <input type="checkbox"/> Write On (DW) <input type="checkbox"/> FQHS <input type="checkbox"/></p>																																		
<p>Report To: <u>Michelle Shiro</u> Bill To: <u>Michelle Shiro</u></p> <p>Company: <u>AGS Inc.</u></p> <p>Email: <u>Michelle.shiro@agsinc.com</u></p> <p>Alt Email: <u></u> Tele: <u>415.777.2166 ext 39</u></p> <p>Project Name: <u>University Mound East Pipeline</u> Project #: <u>AGS 14-027/24</u></p> <p>Project Location: <u>San Francisco, CA</u> PO #: <u></u></p> <p>Sampler Signature: <u>[Signature]</u></p>						<p>Analysis Requested</p> <table border="1"> <tr> <td>BTEX & TPH as Gas (8021 8015) NUB</td> <td>TPH as Diesel (8015) + Motor Oil Without Silica Gel</td> <td>TPH as Diesel (8015) + Motor Oil With Silica Gel</td> <td>Total Oil & Grease (1664 9071) Without Silica Gel</td> <td>Total Petroleum Hydrocarbons - Oil & Grease (1664 9071) With Silica Gel</td> <td>Total Petroleum Hydrocarbons (418.1) With Silica Gel</td> <td>EPA 505 608 8081 (C1 Pesticides)</td> <td>EPA 608 8082 PCB's: Aroclors only</td> <td>EPA 524.2 624 8260 (VOCs)</td> <td>EPA 525.2 625 8270 (SVOCs)</td> <td>EPA 8270 SEM 8310 (PAHs PNAs)</td> <td>CAM 17 Metals (200.8 6020)</td> <td>Metals (200.8 6020)</td> <td>Baylands Requirements</td> <td>Lab to filter sample for dissolved metals analysis</td> <td>SW 8270 C (170.001 SVOC)</td> <td>WLGRC Cleanup</td> <td>SW 8061A 16092 (Sub)</td> <td>OC Pesticides + PCBs</td> <td>Asbestos CAR 8435</td> <td>SW 7199 Hexavalent Chromium, Low Level</td> </tr> </table>														BTEX & TPH as Gas (8021 8015) NUB	TPH as Diesel (8015) + Motor Oil Without Silica Gel	TPH as Diesel (8015) + Motor Oil With Silica Gel	Total Oil & Grease (1664 9071) Without Silica Gel	Total Petroleum Hydrocarbons - Oil & Grease (1664 9071) With Silica Gel	Total Petroleum Hydrocarbons (418.1) With Silica Gel	EPA 505 608 8081 (C1 Pesticides)	EPA 608 8082 PCB's: Aroclors only	EPA 524.2 624 8260 (VOCs)	EPA 525.2 625 8270 (SVOCs)	EPA 8270 SEM 8310 (PAHs PNAs)	CAM 17 Metals (200.8 6020)	Metals (200.8 6020)	Baylands Requirements	Lab to filter sample for dissolved metals analysis	SW 8270 C (170.001 SVOC)	WLGRC Cleanup	SW 8061A 16092 (Sub)	OC Pesticides + PCBs	Asbestos CAR 8435	SW 7199 Hexavalent Chromium, Low Level
BTEX & TPH as Gas (8021 8015) NUB	TPH as Diesel (8015) + Motor Oil Without Silica Gel	TPH as Diesel (8015) + Motor Oil With Silica Gel	Total Oil & Grease (1664 9071) Without Silica Gel	Total Petroleum Hydrocarbons - Oil & Grease (1664 9071) With Silica Gel	Total Petroleum Hydrocarbons (418.1) With Silica Gel	EPA 505 608 8081 (C1 Pesticides)	EPA 608 8082 PCB's: Aroclors only	EPA 524.2 624 8260 (VOCs)	EPA 525.2 625 8270 (SVOCs)	EPA 8270 SEM 8310 (PAHs PNAs)	CAM 17 Metals (200.8 6020)	Metals (200.8 6020)	Baylands Requirements	Lab to filter sample for dissolved metals analysis	SW 8270 C (170.001 SVOC)	WLGRC Cleanup	SW 8061A 16092 (Sub)	OC Pesticides + PCBs	Asbestos CAR 8435	SW 7199 Hexavalent Chromium, Low Level																				
SAMPLE ID		Sampling		Matrix	Preservative																																			
Location	Field Point	Date	Time																																					
Boring	Sample #	Depth																																						
ES-6 #1	(20"-24")	8/10/17	11 ^{am}	1	Soil	ice	X	X								X	X	X	X	X																				
ES-6 #2	(4'3"-4'6")	8/10/17	11 ^{am}	1																																				
ES-7 #1	(20"-23")	8/10/17	11 ⁴² ^{am}	1																																				
ES-7 #2	(4'-4'6")	8/10/17	11 ⁴⁸ ^{am}	1																																				
ES-8 #1	(20"-23")	8/10/17	12 ³³ ^{am}	1																																				
ES-8 #2	(4'-4'6")	8/10/17	12 ⁴² ^{am}	1																																				

MAI clients MUST disclose any dangerous chemicals known to be present in their submitted samples in concentrations that may cause immediate harm or serious future health endangerment as a result of brief, gloved, open air, sample handling by MAI staff. Non-disclosure incurs an immediate \$750 surcharge and the client is subject to full legal liability for harm suffered. Thank you for your understanding and for allowing us to work safely.

* If metals are requested for water samples and the water type (Matrix) is not specified on the chain of custody, MAI will default to metals by 1-200.8

Please provide an adequate volume of sample. If the volume is not sufficient for a MS/MSD a LCS/LCSD will be prepared in its place and noted in the report.

Relinquished By - Company Name	Date	Time	Received By - Company Name	Date	Time
<u>[Signature]</u>	8/11/17	9:55	<u>[Signature]</u>	8-11-17	0950
<u>[Signature]</u>	8-11-17	1310	<u>[Signature]</u>	8/11/17	1310

Matrix Code: DW Drinking Water, GW Ground Water, WW Waste Water, SW Seawater, S Soil, SL Sludge, A Air, WP Wipe, O Other

Preservative Code: 1 - HCl 2 - HCl 3 - H2SO4 4 - HNO3 5 - NaOH 6 - ZnOAc/NaOH 7 - None

Temp C Initials

* Do not include corrosivity Scope outlined in quote (SW 9045C - corr, SM 2580 Bm TT, ASTM D1125A-M, SM 2320B, SM 4500 - CE, E300.0, SM 4500 - 2D).

No CTLR or TCLP without special request but HOLD all samples after testing.



Sample Receipt Checklist

Client Name: **AGS, Inc.**
Project Name: **University Mound East Pipeline; AGS 14-027/24**
WorkOrder No: **1708536** Matrix: Soil
Carrier: Bernie Cummins (MAI Courier)

Date and Time Received: **8/11/2017 13:10**
Date Logged: **8/11/2017**
Received by: **Alexandra Iniguez**
Logged by: **Alexandra Iniguez**

Chain of Custody (COC) Information

Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Sample IDs noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Date and Time of collection noted by Client on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Sampler's name noted on COC?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Sample Receipt Information

Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper containers/bottles?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

Sample Preservation and Hold Time (HT) Information

All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	NA <input type="checkbox"/>
Sample/Temp Blank temperature	Temp: 4.9°C		NA <input type="checkbox"/>
Water - VOA vials have zero headspace / no bubbles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Sample labels checked for correct preservation?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
pH acceptable upon receipt (Metal: <2; 522: <4; 218.7: >8)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Samples Received on Ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	

(Ice Type: WET ICE)

UCMR Samples:

Total Chlorine tested and acceptable upon receipt for EPA 522?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Free Chlorine tested and acceptable upon receipt for EPA 218.7, 300.1, 537, 539?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>

Comments:

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McC Campbell Analytical, Inc.

"When Quality Counts"

Analytical Report

WorkOrder: 1708536 A

Report Created for: AGS, Inc.

5 Freelon Street
San Francisco, CA 94107

Project Contact: Michelle Shriro

Project P.O.:

Project Name: University Mound East Pipeline; AGS 14-027/24

Project Received: 08/11/2017

Analytical Report reviewed & approved for release on 09/08/2017 by:

Angela Rydelius,
Laboratory Manager

The report shall not be reproduced except in full, without the written approval of the laboratory. The analytical results relate only to the items tested. Results reported conform to the most current NELAP standards, where applicable, unless otherwise stated in the case narrative.





Glossary of Terms & Qualifier Definitions

Client: AGS, Inc.
Project: University Mound East Pipeline; AGS 14-027/24
WorkOrder: 1708536 A

Glossary Abbreviation

%D	Serial Dilution Percent Difference
95% Interval	95% Confident Interval
DF	Dilution Factor
DI WET	(DISTLC) Waste Extraction Test using DI water
DISS	Dissolved (direct analysis of 0.45 µm filtered and acidified water sample)
DLT	Dilution Test (Serial Dilution)
DUP	Duplicate
EDL	Estimated Detection Limit
ERS	External reference sample. Second source calibration verification.
ITEF	International Toxicity Equivalence Factor
LCS	Laboratory Control Sample
MB	Method Blank
MB % Rec	% Recovery of Surrogate in Method Blank, if applicable
MDL	Method Detection Limit
ML	Minimum Level of Quantitation
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N/A	Not Applicable
ND	Not detected at or above the indicated MDL or RL
NR	Data Not Reported due to matrix interference or insufficient sample amount.
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
PF	Prep Factor
RD	Relative Difference
RL	Reporting Limit (The RL is the lowest calibration standard in a multipoint calibration.)
RPD	Relative Percent Deviation
RRT	Relative Retention Time
SPK Val	Spike Value
SPKRef Val	Spike Reference Value
SPLP	Synthetic Precipitation Leachate Procedure
ST	Sorbent Tube
TCLP	Toxicity Characteristic Leachate Procedure
TEQ	Toxicity Equivalents
WET (STLC)	Waste Extraction Test (Soluble Threshold Limit Concentration)



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: CA Title 22

Date Prepared: 9/3/17-9/5/17

Analytical Method: SW6020

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-1 #1 (1'-1'6") & ES-1 #2 (3'6"-4')	1708536-001A	Soil	08/09/2017 10:02	ICP-MS3	144913

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Chromium	ND	0.10	1	09/08/2017 10:13

Analyst(s): ND

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-4 #1 (1'-1'6") & ES-4 #2 (4'-4'6")	1708536-002A	Soil	08/09/2017 12:16	ICP-MS3	144913

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Chromium	0.12	0.10	1	09/07/2017 21:01

Analyst(s): ND

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-3 #1 (1'-1'6") & ES-3 #2 (4'-4'6")	1708536-003A	Soil	08/09/2017 13:32	ICP-MS3	144913

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Chromium	0.23	0.10	1	09/07/2017 21:07

Analyst(s): ND

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-2 #1 (20"-24") & ES-2 #2 (4'-4'6")	1708536-004A	Soil	08/10/2017 08:35	ICP-MS2	144839

<u>Analytes</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Date Analyzed</u>
Chromium	0.23	0.10	1	09/05/2017 18:29

Analyst(s): MIG

(Cont.)



Analytical Report

Client: AGS, Inc.

WorkOrder: 1708536

Date Received: 8/11/17 13:10

Extraction Method: CA Title 22

Date Prepared: 9/3/17-9/5/17

Analytical Method: SW6020

Project: University Mound East Pipeline; AGS 14-027/24

Unit: mg/L

Metals (STLC)

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-5 #1 (20"-23") & ES-5 #2 (23"-26")	1708536-005A	Soil	08/10/2017 10:06	ICP-MS2	144839

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.23	0.10	1	09/05/2017 18:36

Analyst(s): MIG

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-6 #1 (20"-24") & ES-6 #2 (4'3"-4'6")	1708536-006A	Soil	08/10/2017 11:11	ICP-MS2	144837

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.28	0.10	1	09/05/2017 18:42

Analyst(s): MIG

Client ID	Lab ID	Matrix	Date Collected	Instrument	Batch ID
ES-8 #1 (20"-23") & ES-8 #2 (4'-4'6")	1708536-008A	Soil	08/10/2017 12:42	ICP-MS2	144839

Analytes	Result	RL	DF	Date Analyzed
Chromium	0.13	0.10	1	09/05/2017 18:48

Analyst(s): MIG



Quality Control Report

Client: AGS, Inc.

Date Prepared: 9/3/17

Date Analyzed: 9/5/17

Instrument: ICP-MS3

Matrix: Soil

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

BatchID: 144837

Extraction Method: CA Title 22

Analytical Method: SW6020

Unit: mg/L

Sample ID: MB/LCS-144837
1708E22-001AMS/MSD

QC Summary Report for Metals (STLC)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Chromium	ND	9.37	0.10	10	-	94	75-125

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Chromium	9.08	9.28	10	ND	91	93	75-125	2.24	20

(Cont.)

CA ELAP 1644 • NELAP 4033ORELAP

QA/QC Officer



Quality Control Report

Client: AGS, Inc.

Date Prepared: 9/3/17

Date Analyzed: 9/5/17

Instrument: ICP-MS3

Matrix: Soil

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

BatchID: 144839

Extraction Method: CA Title 22

Analytical Method: SW6020

Unit: mg/L

Sample ID: MB/LCS-144839
1709020-001AMS/MSD

QC Summary Report for Metals (STLC)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Chromium	ND	9.27	0.10	10	-	93	75-125

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Chromium	9.14	8.19	10	ND<2.0	91	82	75-125	11.0	20

(Cont.)

CA ELAP 1644 • NELAP 4033ORELAP

 QA/QC Officer



Quality Control Report

Client: AGS, Inc.

Date Prepared: 9/5/17

Date Analyzed: 9/7/17

Instrument: ICP-MS3

Matrix: Soil

Project: University Mound East Pipeline; AGS 14-027/24

WorkOrder: 1708536

BatchID: 144913

Extraction Method: CA Title 22

Analytical Method: SW6020

Unit: mg/L

Sample ID: MB/LCS-144913
1709091-001AMS/MSD

QC Summary Report for Metals (STLC)

Analyte	MB Result	LCS Result	RL	SPK Val	MB SS %REC	LCS %REC	LCS Limits
Chromium	ND	9.44	0.10	10	-	94	75-125

Analyte	MS Result	MSD Result	SPK Val	SPKRef Val	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD Limit
Chromium	9.98	9.78	10	0.48	95	93	75-125	1.96	20

McC Campbell Analytical, Inc.



1534 Willow Pass Rd
Pittsburg, CA 94565-1701
(925) 252-9262

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

WorkOrder: 1708536 **A** **ClientCode:** AGSI **QuoteID:** 7536

☐ WaterTrax ☐ WriteOn ☐ EDF ☐ Excel ☐ Fax ☐ Email ☐ HardCopy ☐ ThirdParty ☐ J-flag

☐ Detection Summary ☐ Dry-Weight

Report to:

Michelle Shriro
AGS, Inc.
5 Freelon Street
San Francisco, CA 94107
(415) 777-2166 FAX:

Email: michelle.shriro@agsinc.com
cc/3rd Party:
PO:
ProjectNo: University Mound East Pipeline; AGS 14-027/24

Bill to:

Jana Marjanovic Pearson
AGS, Inc.
5 Freelon Street
San Francisco, CA 94107
jana.pearson@agsinc.com

Requested TAT: 5 days;

Date Received: 08/11/2017

Date Logged: 08/11/2017

Date Add-On: 09/01/2017

Lab ID	Client ID	Matrix	Collection Date	Hold	Requested Tests (See legend below)											
					1	2	3	4	5	6	7	8	9	10	11	12
1708536-001	ES-1 #1 (1'-1'6") & ES-1 #2 (3'6"-4')	Soil	8/9/2017 10:02	<input type="checkbox"/>	A											
1708536-002	ES-4 #1 (1'-1'6") & ES-4 #2 (4'-4'6")	Soil	8/9/2017 12:16	<input type="checkbox"/>	A											
1708536-003	ES-3 #1 (1'-1'6") & ES-3 #2 (4'-4'6")	Soil	8/9/2017 13:32	<input type="checkbox"/>	A											
1708536-004	ES-2 #1 (20"-24") & ES-2 #2 (4'-4'6")	Soil	8/10/2017 08:35	<input type="checkbox"/>	A											
1708536-005	ES-5 #1 (20"-23") & ES-5 #2 (23"-26")	Soil	8/10/2017 10:06	<input type="checkbox"/>	A											
1708536-006	ES-6 #1 (20"-24") & ES-6 #2 (4'3"-4'6")	Soil	8/10/2017 11:11	<input type="checkbox"/>	A											
1708536-008	ES-8 #1 (20"-23") & ES-8 #2 (4'-4'6")	Soil	8/10/2017 12:42	<input type="checkbox"/>	A											

Test Legend:

1	CRMS_STLC_S	2		3		4	
5		6		7		8	
9		10		11		12	

Project Manager: Angela Rydelius

Prepared by: Alexandra Iniguez

Add-On Prepared By: Jena Alfaro

Comments: STLC Cr added 9/1/17 STAT

NOTE: Soil samples are discarded 60 days after results are reported unless other arrangements are made (Water samples are 30 days).
Hazardous samples will be returned to client or disposed of at client expense.



McC Campbell Analytical, Inc.

"When Quality Counts"

1534 Willow Pass Road, Pittsburg, CA 94565-1701
Toll Free Telephone: (877) 252-9262 / Fax: (925) 252-9269
http://www.mccampbell.com / E-mail: main@mccampbell.com

WORK ORDER SUMMARY

Client Name: AGS, INC.

Client Contact: Michelle Shriro

Contact's Email michelle.shriro@agsinc.com

Project: University Mound East Pipeline; AGS 14-027/24

Comments: STLC Cr added 9/1/17 STAT

Work Order: 1708536

QC Level:

Date Logged: 8/11/2017

Date Add-On: 9/1/2017

Lab ID	Client ID	Matrix	Test Name	Containers /Composites	Bottle & Preservative	Collection Date & Time	TAT	Sediment Content	Hold	SubOut
1708536-001A	ES-1 #1 (1'-1'6") & ES-1 #2 (3'6"-4')	Soil	SW6020 (Chromium) (STLC)	2 / (2:1)	16OZ GJ	8/9/2017 10:02	5 days*		<input type="checkbox"/>	
1708536-002A	ES-4 #1 (1'-1'6") & ES-4 #2 (4'-4'6")	Soil	SW6020 (Chromium) (STLC)	2 / (2:1)	16OZ GJ	8/9/2017 12:16	5 days*		<input type="checkbox"/>	
1708536-003A	ES-3 #1 (1'-1'6") & ES-3 #2 (4'-4'6")	Soil	SW6020 (Chromium) (STLC)	2 / (2:1)	16OZ GJ	8/9/2017 13:32	5 days*		<input type="checkbox"/>	
1708536-004A	ES-2 #1 (20"-24") & ES-2 #2 (4'-4'6")	Soil	SW6020 (Chromium) (STLC)	2 / (2:1)	16OZ GJ	8/10/2017 8:35	5 days*		<input type="checkbox"/>	
1708536-005A	ES-5 #1 (20"-23") & ES-5 #2 (23"-26")	Soil	SW6020 (Chromium) (STLC)	2 / (2:1)	16OZ GJ	8/10/2017 10:06	5 days*		<input type="checkbox"/>	
1708536-006A	ES-6 #1 (20"-24") & ES-6 #2 (4'3"-4'6")	Soil	SW6020 (Chromium) (STLC)	2 / (2:1)	16OZ GJ	8/10/2017 11:11	5 days*		<input type="checkbox"/>	
1708536-008A	ES-8 #1 (20"-23") & ES-8 #2 (4'-4'6")	Soil	SW6020 (Chromium) (STLC)	2 / (2:1)	16OZ GJ	8/10/2017 12:42	5 days*		<input type="checkbox"/>	

NOTES: - STLC and TCLP extractions require 2 days to complete; therefore, all TATs begin after the extraction is completed (i.e., One-day TAT yields results in 3 days from sample submission).

- MAI assumes that all material present in the provided sampling container is considered part of the sample - MAI does not exclude any material from the sample prior to sample preparation unless requested in writing by the client.

Temp 22.9 °C Initials Sando

Page 1 of 2

*Added 9/1/17 STAT.

No CTLR or TCLR without special request but HOLD all samples after testing

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TRANSMITTAL LETTER

DATE: July 17, 2017

ATTENTION: Michelle Shiriro

TO: AGS, Inc.
5 Freelon Street
San Francisco, CA 94107

SUBJECT: Laboratory Test Data
University Mound
Your #AGS-14-027, HDR Lab #17-0464LAB

COMMENTS: Enclosed are the results for the subject project.

A handwritten signature in black ink, appearing to read 'J. Keegan', written over a horizontal line.

James T. Keegan
Laboratory Services Manager

**Table 1 - Laboratory Tests on Soil Samples**

AGS, Inc.
University Mound
Your #AGS-14-027, HDR Lab #17-0464LAB
17-Jul-17

Sample ID

			B-1 4	B-2 3B	B-3 2C	B-7 3	B-9 2B
Resistivity							
as-received	ohm-cm		1,440	5,600	11,600	30,000	2,600
saturated	ohm-cm		1,160	1,760	7,600	10,000	1,800
pH			7.2	7.3	7.7	6.7	6.7
Electrical							
Conductivity	mS/cm		0.17	0.09	0.03	0.04	0.04
Chemical Analyses							
Cations							
calcium	Ca ²⁺	mg/kg	52	50	40	37	40
magnesium	Mg ²⁺	mg/kg	18	31	19	18	24
sodium	Na ¹⁺	mg/kg	30	58	30	22	30
potassium	K ¹⁺	mg/kg	218	11	8.6	29	10
Anions							
carbonate	CO ₃ ²⁻	mg/kg	ND	ND	ND	ND	ND
bicarbonate	HCO ₃ ¹⁻	mg/kg	140	177	116	46	82
fluoride	F ¹⁻	mg/kg	5.2	5.2	8.1	2.3	5.1
chloride	Cl ¹⁻	mg/kg	4.8	11	2.0	3.3	4.1
sulfate	SO ₄ ²⁻	mg/kg	205	87	8.2	62	32
phosphate	PO ₄ ³⁻	mg/kg	ND	ND	2.4	ND	ND
Other Tests							
ammonium	NH ₄ ¹⁺	mg/kg	ND	ND	ND	ND	ND
nitrate	NO ₃ ¹⁻	mg/kg	86	9.2	4.4	5.7	13
sulfide	S ²⁻	qual	na	na	na	na	na
Redox		mV	na	na	na	na	na
% moisture	H ₂ O	%	16.4%	na	na	na	na

Resistivity per ASTM G-187, Cations per ASTM D6919, Anions per ASTM D4327, and Alkalinity per AWWA 2320-B.

Electrical conductivity in millisiemens/cm and chemical analyses were made on a 1:5 soil-to-water extract.

mg/kg = milligrams per kilogram (parts per million) of dry soil.

Redox = oxidation-reduction potential in millivolts

ND = not detected

**Table 1 - Laboratory Tests on Soil Samples**

AGS, Inc.
University Mound
Your #AGS-14-027, HDR Lab #17-0464LAB
17-Jul-17

Sample ID

			B-10 2B	B-5 2B	B-12 2	B -15 3B/C
Resistivity						
as-received	ohm-cm		4,800	44,000	6,800	2,400
saturated	ohm-cm		3,920	2,960	4,800	2,200
pH			7.2	7.6	7.5	7.0
Electrical						
Conductivity	mS/cm		0.03	0.14	0.04	0.03
Chemical Analyses						
Cations						
calcium	Ca ²⁺	mg/kg	36	62	35	33
magnesium	Mg ²⁺	mg/kg	18	19	15	18
sodium	Na ¹⁺	mg/kg	19	71	29	27
potassium	K ¹⁺	mg/kg	7.6	43	11	16
Anions						
carbonate	CO ₃ ²⁻	mg/kg	ND	ND	ND	ND
bicarbonate	HCO ₃ ¹⁻	mg/kg	58	308	113	88
fluoride	F ¹⁻	mg/kg	9.6	5.2	6.2	3.9
chloride	Cl ¹⁻	mg/kg	4.0	25	3.7	6.5
sulfate	SO ₄ ²⁻	mg/kg	17	84	23	13
phosphate	PO ₄ ³⁻	mg/kg	ND	19	2.6	2.5
Other Tests						
ammonium	NH ₄ ¹⁺	mg/kg	ND	ND	ND	ND
nitrate	NO ₃ ¹⁻	mg/kg	7.3	4.4	7.1	19
sulfide	S ²⁻	qual	na	na	na	na
Redox		mV	na	na	na	na
% moisture	H ₂ O	%	na	na	14.8%	na

Resistivity per ASTM G-187, Cations per ASTM D6919, Anions per ASTM D4327, and Alkalinity per AWWA 2320-B.

Electrical conductivity in millisiemens/cm and chemical analyses were made on a 1:5 soil-to-water extract.

mg/kg = milligrams per kilogram (parts per million) of dry soil.

Redox = oxidation-reduction potential in millivolts

ND = not detected

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San Francisco Public Works Environmental Commitment Record

FIS ID:		Name of Project Manager:	Edmund Lee
Project Name:	Paul Ave, Woolsey St and Salinas Ave Pavement Renovation and Sewer Replacement	Name of Resident Engineer:	
Project Description	Project proposes pavement renovation, curb ramp construction and sewer work at various locations.		

PERMITS REQUIRED	DATE OF PERMIT	DATE RECEIVED

SITE VISIT – DATE	PERSONNEL

NOTE: This following table is intended as a summary guide to environmental commitments. If there are any discrepancies between this table and technical studies/correspondence then the technical studies/correspondence take precedence

Task and Brief Description	Compliance Item	Timing/ Phase	Specific Action(s) Taken to Comply with Task	Task Completed		Remarks
				Initial	Date	
Standard construction Measures apply	SCMs	Pre-Construction/ Construction	Include 01 35 49			
Work is within the Air Pollutant Exposure Zone (APEZ).	Clean Construction Ordinance	Pre-Construction/ Construction	Include 01 35 49 Construction Emissions Minimization Plan			A CEMP is required if the project meets the definition of a major project in Chapter 2503 of the SF Environmental Code

Task and Brief Description	Compliance Item	Timing/ Phase	Specific Action(s) Taken to Comply with Task	Task Completed		Remarks
				Initial	Date	
Work is within Maher Zone(s).	Maher Ordinance	Pre-Construction/ Construction	Public Works Maher Screening Form Specifications as required as a result of screening			
Construction and maintenance activities in areas soils containing naturally occurring asbestos.	SCMs	Pre-Construction/ Construction	Include 01 35 49 Notification Form for Road Construction and Maintenance Operations			Notification Form must be submitted to the Bay Area Air Quality Management District (BAAQMD) at least 14 days prior to initiation of construction/maintenance activities. A copy/scan of this must then be provided to Regulatory Affairs
Preserve granite, cobblestones, and/or brick of existing curb and gutter in the Public Right of Way.	Public Works Order No: 201954	Pre-Construction/ Construction	Include in specs and plans			
Preserve historic materials in the Public Right of Way	SCMs	Pre-Construction/ Construction	Show as protected/preserved in place on plans			