VOLUME 3. TD*X Comments on Thermaldyne, 7/30/2018
AI Number 198467, PER20170003

ATTACHMENT 5

A – Tank Bottoms Waste Residuals Data Summary

B – Tank Bottoms Profiles

C – Tank Bottoms Analytical, Test Reports

2018.07.30
16:35:05 -04'00'

Summary of Tank Bottom Waste Analysis

Parameter	F037 Listed Constituent	Listing Level	LDR UTS	Units		Sample Number						
						090054592-1		090067188-0		090101989-1		Centrifuged Solids 180724
						F037, F038, K048, K049, K051, K169		F037		F037		F037, F038, K048-K052, K169-K172
D001-Ignitability, flash pt	-	<140 F	DEACT	-		Not Ignitable		Not Ignitable		Not Ignitable		
D002 -Corrosivity, pH	-	<=2 - 12.5=<	DEACT	-		7.7		7.6		8		5.6
D004 - Arsenic	-	5 mg/l	5 mg/l	mg/l	<	0.5	<	0.5	<	0.5		0.27
D005 - Barium	-	100 mg/l	21 mg/l	mg/l	<	5	<	5	<	5		0.15
D006 - Cadmium	-	1 mg/l	0.11 mg/l	mg/l	<	0.1	<	0.1	<	0.1		0.021
D007 - Chromium	-	5 mg/l	0.6 mg/l	mg/l	<	0.5	<	0.5	<	0.5		0.024
D008 - Lead	-	5 mg/l	0.75 mg/l	mg/l	<	0.2	<	0.2	<	0.2		0.03
D009 - Mercury	-	0.2 mg/l	0.025 mg/l	mg/l	<	0.004	<	0.004	<	0.004	<	0.00013
D010 - Selenium	-	1 mg/l	5.7 mg/l	mg/l	<	0.1	<	0.1	<	0.1		0.0077
D011 - Silver	-	5 mg/l	0.14 mg/l	mg/l	<	0.1	<	0.1	<	0.1	<	0.001
D018 - Benzene Note 1	F037	0.5 mg/l	10	mg/l	<	0.01	<	0.01		0.0748		0.146
				mg/kg		0.868		1.99		**22.1**		**46**
D019 - Carbon tetrachloride	-	0.5 mg/l	6	mg/kg	<	0.2	<	0.1	<	5	<	2.12
D021 - Chlorobenzene	-	100 mg/l	6	mg/kg	<	0.2	<	0.1	<	5	<	2.12
D022 - Chloroform	-	6 mg/l	6	mg/kg	<	0.2	<	0.1	<	5	<	2.12
D023 - o- Cresol	-	200 mg/l	5.6	mg/kg	<	50	<	20	<	200	<	16.2
D024 - m- Cresol	-	200 mg/l	5.6	mg/kg	<	50	<	20	<	200	<	16.2
D025 - p - Cresol	-	200 mg/l	5.6	mg/kg	<	50	<	20	<	200	<	16.2
D026 - Cresols (Total)	-	200 mg/l	11.2	mg/kg	<	100	<	40	<	400	<	32.5
D027 - p-Dichloroethane	-	7.5 mg/l	6	mg/kg	<	0.2	<	0.1	<	5	<	2.12
D028 - 1,2 Dichloroethylene	-	0.5 mg/l	6	mg/kg	<	0.2	<	0.1	<	5	<	2.12
D029 - 1,1 Dichlorethylene	-	0.7 mg/l	6	mg/kg	<	0.2	<	0.1	<	5	<	2.12
D030 - 2,4 Dinitrotoluene	-	0.13 mg/l	140	mg/kg	<	50	<	20	<	200	<	16.2
D032 - Hexachlorobenzene	-	0.13 mg/l	10	mg/kg	<	25	<	10	<	100	<	16.2
D033 - Hexachlorobutadiene	-	0.5 mg/l	5.6	mg/kg	<	50	<	20	<	200	<	16.2
D034 - Hexachloroethane	-	3 mg/l	30	mg/kg	<	50	<	20	<	200	<	16.2
D035 - Methyl Ethyl Ketone	-	200 mg/l	36	mg/kg	<	0.4	<	0.2	<	10	<	53.1
D036 - Nitrobenzene	-	2 mg/l	14	mg/kg	<	50	<	20	<	200	<	16.2
D037 - Pentachlorophenol	-	100 mg/l	7.4	mg/kg	<	25	<	10	<	100	<	32.7
D038 - Pyridine	-	5 mg/l	16	mg/kg	<	50	<	20	<	100	<	32.7
D039 - Tetrachloroethylene	-	0.7 mg/l	6	mg/kg	<	0.2	<	0.1	<	5	<	2.12
D040 - Trichloroethylene	-	0.5 mg/l	6	mg/kg	<	0.2	<	0.1	<	5	<	2.12
D041 - 2,4,5 Trichlorophenol	-	400 mg/l	7.4	mg/kg	<	50	<	20	<	200	<	16.2
D042 - 2,4,6 Trichlorophenol	-	2 mg/l	7.4	mg/kg	<	50	<	20	<	200	<	16.2
D043 - Vinyl Chloride	-	0.2 mg/l	6	mg/kg	<	0.2	<	0.1	<	5	<	2.12
Acenaphthene	F037	-	3.4 mg/kg	mg/kg	<	50	<	20	<	200		**65.3**
Anthracene	F037	-	3.4 mg/kg	mg/kg	<	50	<	20	<	200		**49.9**
Benzo (a) anthracene	F037	-	3.4 mg/kg	mg/kg	<	25	<	10	<	100		**24.5**
Benzo (a) pyrene	F037	-	3.4 mg/kg	mg/kg	<	25	<	10	<	100		**9.34**
bis (2-ethylhexyl) Phthalate	F037	-	28 mg/kg	mg/kg	<	50	<	20	<	200		**5.63**
Chrysene	F037	-	3.4 mg/kg	mg/kg		**39**		**10.2**	<	100		**47.1**
Di-n-butyl-phthalate	F037	-	28 mg/kg	mg/kg	<	50	<	20	<	200	<	16.2
Ethylbenzene	F037	-	10 mg/kg	mg/kg		0.689		1.33		**58.3**		**58.0**
Fluorene	F037	-	3.4 mg/kg	mg/kg	<	50	<	20	<	200		**149**
Naphthalene	F037	-	5.6 mg/kg	mg/kg		**67.3**	<	20		**201**		**471**
Phenanthrene	F037	-	5.6 mg/kg	mg/kg		**66.7**		**23.1**		**213**		**266**
Phenol	F037	-	6.2 mg/kg	mg/kg	<	50	<	20	<	200		**21.9**
Pyrene	F037	-	8.2 mg/kg	mg/kg	<	50	<	20	<	200		**131**
Toluene	F037	-	10 mg/kg	mg/kg		5.09		0.789		**102**		**145**
Xylenes	F037	-	30 mg/kg	mg/kg		**61.7**		6.63		**342**		**235**
Cyanides	F037	-	590 mg/kg	mg/kg	<	0.05	<	0.05	<	0.05		0.251
Lead	F037	-	N/A	mg/kg		109		135		63		282
Nickel	F037	-	11 mg/l	mg/l	<	1	<	1	<	1		4.2
Carbon Disulfide	-	-	N/A	mg/kg	<	0.4		-		-	<	5.31
2,4-Dimethylphenol	-	-	N/A	mg/kg	<	50	<	20		-	<	32.7
Benzo (g,h,i) perylene	-	-	1.8 mg/kg	mg/kg	<	50	<	20		-		**5.63**
Dibenz (a,h) anthracene	-	-	8.2 mg/kg	mg/kg		-		-		-	<	3.27
Indeno (1,2,3,cd) pyrene	-	-	3.4 mg/kg	mg/kg		-		-		-	<	3.27
Vanadium	-	-	1.6 mg/l	mg/l		-		-		-	<	0.15
Antimony	-	-	1.15 mg/l	mg/l		-		-		-	<	0.18

Note 1. TCLP Benzene results from TestAmerica Lab Report 490-156147-1

Note 2. All results for Centrifuged Solids 180724 from TestAmerica 490-156147-1 and 560-74858-1

US ecology

WASTE / MATERIAL PROFILE FORM

- [ ] US Ecology Nevada (Beatty) usencs@usecology.com
- [ ] US Ecology Idaho (Grandview) useics@usecology.com
- [x] US Ecology Texas (Robstown) usetcs@usecology.com
- [ ] US Ecology Michigan (Detroit) usemcs@usecology.com

PROFILE # 090054592-1

A. CUSTOMER INFORMATION

1. Generator [redacted]
2. Facility Address: [redacted]
3. Mailing Address: [redacted]
4. City/State/Zip [redacted]
5. Technical Contact: [redacted]
6. Phone: [redacted] 7. Fax: ( ) -
8. Generator Status : [ ] VSQG/CESQG [ ] SQG, [X] LQG
9. EPA ID# [redacted] 10. State ID# [redacted]
11. NAICS/SIC Codes: 324110

[ ] Billing information is same [X] P.O. required for payment

12. Billing Company: [redacted]
13. Billing Address: [redacted]
14. City/State/Zip: [redacted]
15. Billing Contact: [redacted]
16. Phone: [redacted] 17. Fax: [redacted]
18. Email: [redacted]

B. SHIPPING INFORMATION

1. US DOT Shipping Name: HAZARDOUS WASTE, SOLID, N.O.S.
2. Hazard Class: 3. UN/NA #: NA3077 4. Packaging Group: PG III 5. RQ:
6. Container Type: [X] Bulk [ ] Totes [ ] Pallet [ ] Bags [ ] Drums [ ] Boxes [ ] Other, Describe:
7. Frequency: [X] Year [ ] QTR [ ] Month [ ] 1 Time [ ] Other Describe?:
8. Shipment Size: 0 Quantity: 250.00
9. Waste Import: [ ] Yes [ ] No
If yes, complete Waste Import Supplement

C. GENERAL MATERIAL & REGULATORY INFORMATION

1. Common Name: DEWATERED SLUDGE (REQUIRES TREATMENT)(12% OIL)
2. Process Generating: LISTED REFINERY WASTES F037, K048/49/51
3. Describe Physical Appearance: BLACK SLUDGE - DEWATERED
4. Odor: [ ] None [X] Slight [ ] Strong
5. Physical State: [ ] Liquid [ ] Sludge/Slurry [✓] Solid
6. Describe Color:
7. Liquid phases: [ ] Single [ ] Double Layer [ ] Multi-layer
8. Knowledge is from: [X] Lab Analysis [ ] MSDS [X] Process/Generator Knowlege
9. Waste/Material Type (US Ecology Texas customers only): [X] N/A [ ] Industrial [ ] Non-Industrial
10. Restricted under EPA Land Disposal Restrictions (§268): [X] Yes [ ] No
11. If LDR "Yes": [ ] Wastewater [X] Non-Wastewater [ ] Debris(§268.2) 12. Alt. Standards for soil? [ ] Yes [X] No
13. Is the material RCRA hazardous waste containing benzene and originating at a Petroleum Refinery (SIC 2911), Chemical Manufacturing Plant (SIC 2800 thru 2899) or Coke by-product Recovery Plant (SIC 3312)? [X] Yes [ ] No
(If "Yes" complete Benzene Waste/Material Operations Supplement Form and Thermal Supplement Form):
14. VO Conc.(§264.1083) : [X] <500 ppmw [ ] ≥500ppmw 15. Has it been treated after point of generation? [X] Yes [ ] No
16. CERCLA Regulated (Superfund) Waste [ ] Yes [X] No 17. Butadiene waste regulated by §63 Subpart XX: [ ] Yes [X] No
18. Waste contains UHC constituent(s) (§268.48), above a treatment standard, other than those for which the waste exhibits a characteristic. (If "yes", list all UHC's in Section D): [ ] Yes [X] No
19. Waste exempt from definition of "solid waste" or "hazardous waste" (If "Yes", list reference 40CFR [ ] Yes [X] No

20. State Waste Codes	9019409H					
21. RCRA Waste Codes	F037	K048	K049	K051	F038	K169

22. Source Code: G09 23. Form Code: W409 24. Management Code: H039 (USE only)

D. COMPOSITION

Values are: [X] TCLP [X] TOTALS Range total ≥ 100%

Constituent	Units	Typical	Min	Max
SOLIDS	%	43	40	50
WATER	%	43	40	50
HYDROCARBONS	%	0.1	0	1
OIL	%	12	10	15
CHRYSENE	PPM		0	15
Di(2-ethylhexyl) phthalate	PPM		0	30
Ethylbenzene	PPM	0.05	0	0.603
Pyrene	PPM		0	8.03
Toluene	PPM	0.05	0	0.219
Nickel	PPM	1	0	2.7
Xylene (mixed isomers)	PPM	0.05	0	0.75

E. CHARACTERISTICS

1. Oxidizer	[ ] Yes	[X] No	9. Reactive Sulfides ____ ppm	[ ] Yes	[X] No
2. Explosive	[ ] Yes	[X] No	10. Reactive Cyanides ____ ppm	[ ] Yes	[X] No
3. Organic Peroxide	[ ] Yes	[X] No	11. Water/Air Reactive	[ ] Yes	[X] No
4. Shock Sensitive	[ ] Yes	[X] No	12. Thermally Unstable	[ ] Yes	[X] No
5. Tires	[ ] Yes	[X] No	13. TSCA Regulated PCB Waste (control sheet required with shipment)	[ ] Yes	[X] No
6. Pyrophoric	[ ] Yes	[X] No	14. Medical/Infectious Waste	[ ] Yes	[X] No
7. Compressed Gases	[ ] Yes	[X] No	15. Radioactive *(If yes, complete Profile Supplement for Radioactive Waste)*	[ ] Yes	[X] No
8. Halogenated Organics	[ ] Yes	[X] No			

16. Hazardous Secondary Material? [ ] Yes [X] No

17. Possibility of incidental liquids from transporation? [ ] Yes [X] No

18. Is waste/material a solid using the paint filter test? [ ] Yes (solid) [X] No (not solid)

19. pH *(If solid, what is pH if mixed with water?)* Range 5.00 to 9.00 Typical 7.00

20. Flash Point 200 °F [ ] < 140° F

21. Is the waste/material oil bearing from Petroleum Refining, Production or Transportation practices? [ ] N/A [X] Yes [ ] No

F. GENERATOR'S CERTIFICATION

[ ] Yes [X] No I certify this waste/material may be disposed of without further treatment.

[ ] Yes [X] N/A I certify this waste/material meets all requirements of legitimate recycling of Hazardous Secondary Materials under 40 CFR 260.43 and/or I am complying with the conditions for generators using the verified recycler exclusion.

I authorize US Ecology to correct inconsistencies on the waste/material profile form that impact waste management decisions with my oral or written authorization. US Ecology will require re-submittal of the waste/material profile information if substantial changes are determined necessary. I understand waste/material that does conform to specifications described in this profile may be rejected by US Ecology unless other contractual arrangements have been agreed to by both parties.

I certify, under penalty of law, that I am familiar with this waste/material stream through analysis and/or process knowledge, and that all information provided is true, accurate, representative and complete, that all known or suspected hazards have been disclosed, and that is form was completed in accordance with the instructions provided.

Printed Name	Signature	Title	Date
[redacted]	[redacted]	[redacted]	1/2/18

D. MATERIAL COMPOSITION CONTINUED

Waste Stream: 090054592-1

Values are: [X] TCLP [X] TOTALS

Range total ≥ 100%

Constituent	Units	Typical	Min	Max
Chromium	PPM	0.03	0	0.05
Benzene	PPM	11	0	20
Naphthalene	PPM	5	0	12.3
BENZO(A)PYRENE	PPM	15	0	30

U.S. ECOLOGY TEXAS, INC.

PROFILE # 090054592-1

WASTE/MATERIAL PROFILE FORM

BENZENE WASTE OPERATIONS SUPPLEMENT (BWON 40 CFR Part 61 Subpart FF)

This form must be completed for all hazardous waste/material containing benzene originating at a Petroleum Refinery (SIC 2911), Chemical Manufacturing Plant (SIC 2800 thru 2899) or Coke by-Product Recovery Plant (SIC 3312).

A. GENERATOR INFORMATION

Name of Originating Facility: [redacted] | EPA Generator #: [redacted]

Waste/Material Common Name: DEWATERED SLUDGE (REQUIRES TREATMENT)(12% OIL)

Process generating the waste/material: LISTED REFINERY WASTES F037, K048/49/51

Type of Facility: [X] Refinery (SIC 2911) [ ] Coke by-products recovery (SIC 3312) [ ] Chemical manufacturing (SIC 2800 thru 2899)

Facility Total Annual Benzene Status (TAB): [ ] < 1 Megagram (2,204 lbs) [ ] ≥1 but <10 Megagram [X] ≥10 Megagram

Is the waste/material being transferred to US Ecology for offsite treatment compliance with 40 CFR Part 61.342(f)? [ ] Yes [X] No*

By indicating "Yes", notice is provided that the waste/material referenced in this profile is subject to 40 CFR Part 61 Subpart FF (National Emission Standards for Benzene Waste Operations). All shipments under this profile are being transferred to US Ecology for the destruction or removal of benzene in accordance with 40 CFR Part 61.342 (C)(1)(i).

B. CHARACTERISTICS

The flow-weighted annual average benzene content by weight or process turnaround total concentration of this waste/material is: 11 ppmw

(Benzene concentration data must be total concentration by weight. DO NOT USE TCLP CONCENTRATIONS.)

The weighted average water content is? [ ] ≤10% [X] >10%

Is this Process Unit Turnaround waste/material? [ ] Yes [X] No

*Only if you answered "No" for offsite treatment compliance above, please supply the following:

Range of benzene total concentration: 0 to 15 ppmw

This waste/material is classified as: [ ] Process wastewater stream [ ] Product tank drawdown [ ] Landfill leachate [ ] None of the three

C. CERTIFICATION

I certify under penalty of law that I am familiar with the waste/material stream through analysis and/or process knowledge, and that all information provided is true, accurate, representative and complete, and that this form was completed in accordance with the instructions provided.

Print Name	Signature	Title	Date
[redacted]	[redacted]	[redacted]	3/2/18

Revised 1/2013

US ecology

U.S. ECOLOGY TEXAS, INC.

PROFILE # 090054592-1

WASTE/MATERIAL PROFILE FORM
THERMAL SUPPLEMENT

This form must be completed for all waste/material processed by US Ecology's Oil Reclamation Facility.

Oil bearing hazardous waste from petroleum refining, production or transportation practices will be recycled to generate a RCRA excluded fuel. Petroleum refining wastes/materials are those generated by processes engaged in producing hydrocarbon products such as gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, etc., through fractionation or straight distillation of crude oil, redistillation of unfinished petroleum derivatives, including cracking, gasification or other processes. This industry also produces aliphatic and aromatic chemicals as by-products. Waste/material generated through petroleum and natural gas production and transportation practices supporting this industry, such as crude petroleum extraction, transportation and bulk storage of petroleum products, natural gas extraction, transmission, distribution and storage will also be recycled to generate a RCRA excluded fuel.

Hazardous Secondary Materials (HSM) having similar chemical properties as petroleum refining wastes will also be recycled. Hazardous wastes not meeting the above criteria will be disposed, with the recovered oil being managed at an offsite RCRA TSDF

A. GENERATOR INFORMATION

Name of Originating Facility:	[redacted]		
Name of Generator:	[redacted]	EPA Generator #:	[redacted]
Waste/Material Stream Name:	DEWATERED SLUDGE (REQUIRES TREATMENT)(12% OIL)		

B. CHARACTERISTICS

Is the waste/material oil bearing from Petroleum Refining, Production or Transportation practices (see description above)?	✓ Yes	☒ No
Is the waste/material RCRA excluded Hazardous Secondary Material (HSM)?	☐ Yes	☒ No
For "characteristics byproducts" that are not excluded petroleum refining OBHW, are the oil constituents fuel themselves?	☐ Yes	☒ No

The Petroleum Refining listed waste code associated with waste is:

☒ F037	☒ F038	☒ K048	☒ K049	☐ K050	☒ K051
☐ K052	☒ K169	☐ K170	☐ K171	☐ K172	☐ No Petroleum Refining Listed Waste Code Applies

If no Petroleum Refining Listed Waste Code applies, please provide a detailed description of the process generating the waste/material.

C. COMPOSITION

PRIMARY COMPONENTS	TYPICAL % (Should total 100%)
Water	43
Solids (excluding Organics/Oil/TPH)	45
Organics /Oil/TPH	12

PROPERTIES (wet weight basis)

PHYSICAL STATE				Heating Value Btu/Lb	2500
☒ Solid	☐ Liquid	☐ Single Phased	☐ Multi-Phased	% of ASH	

Specific Constituents (ppm)	
Halogens*	0
Mercury	0
SVM (Pb, Cd)	0
LVM (As, Be, Cr)	0
Organic Chlorine from VOCs	0
Sulfides (total)	0

Reclamation Facility Coordination Questions

☐ Yes	☒ No	Contains Non-Friable Debris Material > 2-inch size? If yes,	% vol
☐ Yes	☒ No	If Catalyst, does material posses self heating properties?	
☐ Yes	☒ No	Contains Bitumen / Asphalt / Tar > 1% (wt.)? If yes,	% vol
☒ Yes	☐ No	Has the material been processed by a centrifuge prior to shipment?	
☐ Yes	☒ No	Contains fuel oxygenates? ☐ MTBE ☐ Ethanol ☐ Other	ppm
☐ Yes	☒ No	Does the waste contain any surfactants?	

D. CERTIFICATION

I certify under penalty of law that I am familiar with the waste/material stream through analysis and/or process knowledge, and that all information provided is true, accurate, representative and complete, and that this form was completed in accordance with the instructions provided.

Printed Name	Signature	Title	Date
[redacted]	[redacted]	[redacted]	1/2/18

*Halogens: Total Halogens includes Fluorine, Chlorine, Bromine and Iodine. Report weight (ppm) as Halogens.

(effective date 11/01/16)

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US ecology

WASTE / MATERIAL PROFILE FORM

- [ ] US Ecology Nevada (Beatty) — usencs@usecology.com
- [ ] Ecology Idaho (Grandview) — useics@usecology
- [x] US Ecology Texas (Robstown) — usetcs@usecology.com
- [ ] US Ecology Michigan (Detroit) — usemcs@usecology.com

PROFILE # 090067188-0

A. CUSTOMER INFORMATION

1. Generator [redacted]	[ ] Billing information is same [X] P.O. required for payment
2. Facility Address: [redacted]	12. Billing Company: [redacted]
3. Mailing Address: [redacted]	13. Billing Address: [redacted]
4. City/State/Zip [redacted]	14. City/State/Zip: [redacted]
5. Technical Contact: [redacted]	15. Billing Contact: [redacted]
6. Phone: [redacted] 7. Fax: [redacted]	16. Phone: [redacted] 17. Fax: [redacted]
8. Generator Status : [ ] VSQG/CESQG [ ] SQG, [X] LQG	18. Email:
9. EPA ID# [redacted]	10. State ID# [redacted]
11. NAICS/SIC Codes: 324110	

B. SHIPPING INFORMATION

1. US DOT Shipping Name: HAZARDOUS WASTE, SOLID, N.O.S.

2. Hazard Class: 9 | 3. UN/NA #: NA3077 | 4. Packaging Group: III | 5. RQ: 10.00

6. Container Type: [X] Bulk [ ] Totes [ ] Pallet [ ] Bags [ ] Drums [ ] Boxes [ ] Other, Describe:

7. Frequency: [ ] Year [ ] QTR [ ] Month [ ] 1 Time [X] Other Describe?: periodic

8. Shipment Size: 30 tons Quantity: 25.00

9. Waste Import: [ ] Yes [ ] No
If yes, complete Waste Import Supplement

C. GENERAL MATERIAL & REGULATORY INFORMATION

1. Common Name: PRIMARY SLUDGE

2. Process Generating: REFINERY WASTE WATER TANK CLEANOUT

3. Describe Physical Appearance: MUDDY OILY SOLIDS

4. Odor: [ ] None [X] Slight [ ] Strong

5. Physical State: [ ] Liquid [X] Sludge/Slurry [ ] Solid

6. Describe Color: VARIES

7. Liquid phases: [ ] Single [ ] Double Layer [ ] Multi-layer

8. Knowledge is from: [X] Lab Analysis [ ] MSDS [X] Process/Generator Knowlege

9. Waste/Material Type (US Ecology Texas customers only): [X] N/A [ ] Industrial [ ] Non-Industrial

10. Restricted under EPA Land Disposal Restrictions (§268): [X] Yes [ ] No

11. If LDR "Yes": [ ] Wastewater [X] Non-Wastewater [ ] Debris(§268.2) 12. Alt. Standards for soil? [ ] Yes [X] No

13. Is the material RCRA hazardous waste containing benzene and originating at a Petroleum Refinery (SIC 2911), Chemical Manufacturing Plant (SIC 2800 thru 2899) or Coke by-product Recovery Plant (SIC 3312)? (If "Yes" complete Benzene Waste/Material Operations Supplement Form and Thermal Supplement Form): [X] Yes [ ] No

14. VO Conc.(§264.1083) : [ ] <500 ppmw [X] ≥500ppmw

15. Has it been treated after point of generation? [ ] Yes [X] No

16. CERCLA Regulated (Superfund) Waste [ ] Yes [X] No

17. Butadiene waste regulated by §63 Subpart XX: [ ] Yes [X] No

18. Waste contains UHC constituent(s) (§268.48), above a treatment standard, other than those for which the waste exhibits a characteristic. (If "yes", list all UHC's in Section D): [ ] Yes [X] No

19. Waste exempt from definition of "solid waste" or "hazardous waste" (If "Yes", list reference 40CFR [ ] Yes [X] No

20. State Waste Codes	0014695H					
21. RCRA Waste Codes	F037					

22. Source Code: G13 | 23. Form Code: W609 | 24. Management Code: H039 (USE only)

D. COMPOSITION

DocuSign Envelope ID: 4639765C-7ED1-4FF3-B71[illegible]931447FD00

Values are: [ ] TCLP [X] TOTALS

Range total ≥ 100%

Constituent	Units	Typical	Min	Max
OILY SLUDGE AND SOLIDS	%	100	0	0
Ethylbenzene	MG/KG	3.2	0	0
Toluene	MG/KG	1.4	0	0
Xylene (mixed isomers)	MG/KG	57	0	0
Benzene	MG/KG	4.38	0	0
CYANIDE ND <1.76MG/KG			0	0
OIL	%	5	0	0
BENZ(A)ANTHRACENE	MG/KG	71	0	0
BENZO(A)PYRENE	MG/KG	53	0	0
CHRYSENE	MG/KG	140	0	0
Naphthalene	MG/KG	63	0	0

E. CHARACTERISTICS

1. Oxidizer	[ ] Yes	[X] No	9. Reactive Sulfides ppm	[ ] Yes	[X] No
2. Explosive	[ ] Yes	[X] No	10. Reactive Cyanides ppm	[ ] Yes	[X] No
3. Organic Peroxide	[ ] Yes	[X] No	11. Water/Air Reactive	[ ] Yes	[X] No
4. Shock Sensitive	[ ] Yes	[X] No	12. Thermally Unstable	[ ] Yes	[X] No
5. Tires	[ ] Yes	[X] No	13. TSCA Regulated PCB Waste (control sheet required with shipment)	[ ] Yes	[X] No
6. Pyrophoric	[ ] Yes	[X] No	14. Medical/Infectious Waste	[ ] Yes	[X] No
7. Compressed Gases	[ ] Yes	[X] No	15. Radioactive *(If yes, complete Profile Supplement for Radioactive Waste)*	[ ] Yes	[X] No
8. Halogenated Organics	[ ] Yes	[X] No			

16. Hazardous Secondary Material? [ ] Yes [X] No

17. Possibility of incidental liquids from transporation? [ ] Yes [X] No

18. Is waste/material a solid using the paint filter test? [X] Yes (solid) [ ] No (not solid)

19. pH *(If solid, what is pH if mixed with water?)* Range 6.00 to 8.50 Typical

20. Flash Point 212 °F [ ] < 140° F

21. Is the waste/material oil bearing from Petroleum Refining, Production or Transportation practices? [ ] N/A [X] Yes [ ] No

F. GENERATOR'S CERTIFICATION

[ ] Yes [X] No I certify this waste/material may be disposed of without further treatment.

[ ] Yes [X] N/A I certify this waste/material meets all requirements of legitimate recycling of Hazardous Secondary Materials under 40 CFR 260.43 and/or I am complying with the conditions for generators using the verified recycler exclusion.

I authorize US Ecology to correct inconsistencies on the waste/material profile form that impact waste management decisions with my oral or written authorization. US Ecology will require re-submittal of the waste/material profile information if substantial changes are determined necessary. I understand waste/material that does conform to specifications described in this profile may be rejected by US Ecology unless other contractual arrangements have been agreed to by both parties.

I certify, under penalty of law, that I am familiar with this waste/material stream through analysis and/or process knowledge, and that all information provided is true, accurate, representative and complete, that all known or suspected hazards have been disclosed, and that is form was completed in accordance with the instructions provided.

Printed Name	Signature	Title	Date
[redacted]	[redacted]	[redacted]	1/16/2018

D. MATERIAL COMPOSITION CONTINUED

Waste Stream: 090067188-0

DocuSign Envelope ID: 4639765C-7ED1-4FF3-B71F-[illegible]931447FD00

Values are: [ ] TCLP [X] TOTALS

Range total ≥ 100%

Constituent	Units	Typical	Min	Max
Phenanthrene	MG/KG	190	0	0
Pyrene	MG/KG	150	0	0
2-METHYLNAPHTHALENE	MG/KG	1200	0	0
TPH C6-C35	MG/KG	120000	0	0
Mercury	MG/KG	0.62	0	0
REACTIVE SULFIDE	MG/KG	50	0	0
2009 ANALYSIS			0	0

DocuSign Envelope ID: 4639765C-7ED1-4FF3-B71[illegible]931447FD00

US ecology

U.S. ECOLOGY TEXAS, INC.

PROFILE # 090067188-0

WASTE/MATERIAL PROFILE FORM
THERMAL SUPPLEMENT

This form must be completed for all waste/material processed by US Ecology's Oil Reclamation Facility.

Oil bearing hazardous waste from petroleum refining, production or transportation practices will be recycled to generate a RCRA excluded fuel. Petroleum refining wastes/materials are those generated by processes engaged in producing hydrocarbon products such as gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, etc., through fractionation or straight distillation of crude oil, redistillation of unfinished petroleum derivatives, including cracking, gasification or other processes. This industry also produces aliphatic and aromatic chemicals as by-products. Waste/material generated through petroleum and natural gas production and transportation practices supporting this industry, such as crude petroleum extraction, transportation and bulk storage of petroleum products, natural gas extraction, transmission, distribution and storage will also be recycled to generate a RCRA excluded fuel.

Hazardous Secondary Materials (HSM) having similar chemical properties as petroleum refining wastes will also be recycled. Hazardous wastes not meeting the above criteria will be disposed, with the recovered oil being managed at an offsite RCRA TSDF

A. GENERATOR INFORMATION

Name of Originating Facility:	[redacted]		
Name of Generator:	[redacted]	EPA Generator #:	[redacted]
Waste/Material Stream Name:	PRIMARY SLUDGE		

B. CHARACTERISTICS

Is the waste/material oil bearing from Petroleum Refining, Production or Transportation practices (see description above)?	[X] Yes	[ ] No
Is the waste/material RCRA excluded Hazardous Secondary Material (HSM)?	[ ] Yes	[X] No
For "characteristics byproducts" that are not excluded petroleum refining OBHW, are the oil constituents fuel themselves?	[ ] Yes	[X] No

The Petroleum Refining listed waste code associated with waste is:

[X] F037 [ ] F038 [ ] K048 [ ] K049 [ ] K050 [ ] K051
[ ] K052 [ ] K169 [ ] K170 [ ] K171 [ ] K172 [ ] No Petroleum Refining Listed Waste Code Applies

If no Petroleum Refining Listed Waste Code applies, please provide a detailed description of the process generating the waste/material.

C. COMPOSITION

PRIMARY COMPONENTS	TYPICAL % (Should total 100%)
Water	50
Solids (excluding Organics/Oil/TPH)	45
Organics /Oil/TPH	5

PROPERTIES (wet weight basis)

PHYSICAL STATE: [X] Solid [ ] Liquid [ ] Single Phased [ ] Multi-Phased

Heating Value Btu/Lb	
% of ASH	

Specific Constituents (ppm)	
Halogens*	0
Mercury	0
SVM (Pb, Cd)	0
LVM (As, Be, Cr)	0
Organic Chlorine from VOCs	0
Sulfides (total)	0

Reclamation Facility Coordination Questions

[ ] Yes	[X] No	Contains Non-Friable Debris Material > 2-inch size? If yes, ____	% vol
[ ] Yes	[X] No	If Catalyst, does material posses self heating properties?	
[ ] Yes	[X] No	Contains Bitumen / Asphalt / Tar > 1% (wt.)? If yes, ____	% vol
[ ] Yes	[X] No	Has the material been processed by a centrifuge prior to shipment?	
[ ] Yes	[X] No	Contains fuel oxygenates? [ ] MTBE [ ] Ethanol [ ] Other ____	ppm
[ ] Yes	[X] No	Does the waste contain any surfactants?	

D. CERTIFICATION

I certify under penalty of law that I am familiar with the waste/material stream through analysis and/or process knowledge, and that all information provided is true, accurate, representative and complete, and that this form was completed in accordance with the instructions provided.

Printed Name	Signature	Title	Date
[redacted]	[redacted]	[redacted]	01/16/2018

*Halogens: Total Halogens includes Fluorine, Chlorine, Bromine and Iodine. Report weight (ppm) as Halogens.

(effective date 11/01/16)

US ecology

U.S. ECOLOGY TEXAS, INC.

PROFILE # 090067188-0

WASTE/MATERIAL PROFILE FORM

BENZENE WASTE OPERATIONS SUPPLEMENT (BWON 40 CFR Part 61 Subpart FF)

This form must be completed for all hazardous waste/material containing benzene originating at a Petroleum Refinery (SIC 2911), Chemical Manufacturing Plant (SIC 2800 thru 2899) or Coke by-Product Recovery Plant (SIC 3312).

A. GENERATOR INFORMATION

Name of Originating Facility: [redacted]

EPA Generator #: [redacted]

Waste/Material Common Name: PRIMARY SLUDGE

Process generating the waste/material: REFINERY WASTE WATER TANK CLEANOUT

Type of Facility: [X] Refinery (SIC 2911) [ ] Coke by-products recovery (SIC 3312) [ ] Chemical manufacturing (SIC 2800 thru 2899)

Facility Total Annual Benzene Status (TAB): [ ] < 1 Megagram (2,204 lbs) [ ] ≥1 but <10 Megagram [X] ≥10 Megagram

Is the waste/material being transferred to US Ecology for offsite treatment compliance with 40 CFR Part 61.342(f)? [X] Yes [ ] No*

By indicating "Yes", notice is provided that the waste/material referenced in this profile is subject to 40 CFR Part 61 Subpart FF (National Emission Standards for Benzene Waste Operations). All shipments under this profile are being transferred to US Ecology for the destruction or removal of benzene in accordance with 40 CFR Part 61.342 (C)(1)(i).

B. CHARACTERISTICS

The flow-weighted annual average benzene content by weight or process turnaround total concentration of this waste/material is: 4.35 ppmw

(Benzene concentration data must be total concentration by weight. DO NOT USE TCLP CONCENTRATIONS.)

The weighted average water content is? [X] ≤10% [ ] >10%

Is this Process Unit Turnaround waste/material? [ ] Yes [X] No

*Only if you answered "No" for offsite treatment compliance above, please supply the following:

Range of benzene total concentration: _____ to _____ ppmw

This waste/material is classified as: [ ] Process wastewater stream [ ] Product tank drawdown [ ] Landfill leachate [ ] None of the three

C. CERTIFICATION

I certify under penalty of law that I am familiar with the waste/material stream through analysis and/or process knowledge, and that all information provided is true, accurate, representative and complete, and that this form was completed in accordance with the instructions provided.

Print Name	Signature	Title	Date
[redacted]	[redacted]	[redacted]	1/16/2018

Revised 1/2013

090101989

US ecology

WASTE/MATERIAL PROFILE FORM

US Ecology Nevada (Beatty)	800-239-3943
US Ecology Idaho (Grand View)	800-274-1516
US Ecology Texas (Robstown)	800-242-3209
US Ecology Michigan (Detroit)	800-396-3265

PROFILE # 090101988

A. GENERATOR INFORMATION

1. Generator: [redacted]
2. Facility Address: [redacted]
3. Mailing Address: [redacted]
4. City/State/Zip: [redacted]
5. Technical Contact: [redacted]
6. Phone: [redacted] 7. Fax: [redacted]

☐ Billing information is same ☐ P.O. required for payment

12. Billing Company: [redacted]
13. Billing Address: [redacted]
14. City/State/Zip: [redacted]
15. Billing Contact: [redacted]
16. Phone: [redacted] 17. Fax: [redacted]
18. Email: [redacted]

8. Generator Status: ☐ CESQG ☐ SQG ☑ LQG
9. EPA ID #: [redacted] 10. State ID #: [redacted]
11. NAICS CODES: 2911 | 324110

B. SHIPPING INFORMATION

1. US DOT Shipping name: Waste Environmentally Hazardous Substance, solid, n.o.s. (Benzene, Petroleum Sludge)
2. Hazard Class: 9 3. UN/NA #: UN3077 4. Packaging Group: III 5. RQ: 1.0 lb.
6. Container Type: ☐ Bulk ☐ Totes ☐ Pallet ☐ Boxes ☐ Drums ☑ Other, Describe: CY Bags
7. Frequency: ☐ Year ☐ Quarterly ☑ Monthly ☐ 1 time ☐ Other, Describe:
8. Shipment: Size: 16-20 units Quantity: 5-30 loads
9. Waste Import: ☐ Yes ☑ No *(If yes, complete Waste Import Supplement)*

C. GENERAL MATERIAL & REGULATORY INFORMATION

1. Common name: PETROLEUM REFINERY LISTED WASTE (centrifuge solids), [redacted]
2. Process generating:
Centrifuge solids generated from processing oil bearing hazardous secondary material. Note: EPA Guidance on residuals from June 1998 "Petroleum Refinery Listing Determination"
3. Describe physical appearance:
Brown to black sludge, slight petroleum hydrocarbon odor
4. Odor: ☐ None ☑ Slight ☐ Strong
5. Physical State: ☐ Liquid ☐ Sludge/Slurry ☑ Solid
6. Describe Color: brown/black
7. Liquid phases: ☐ Single ☐ Double Layer ☐ Multi-layer
8. Knowledge is from: ☑ Lab analysis ☐ MSDS ☐ Process/generator knowledge
9. Waste/Material Type (US Ecology Texas customers only): ☐ N/A ☑ Industrial ☐ Non-Industrial
10. Restricted under EPA Land Disposal Restrictions (§268)? ☑ Yes ☐ No
11. If LDR "Yes": ☐ Wastewater ☑ Non-wastewater ☐ Debris (§268.2)
12. Alt. Standards for soil? ☐ Yes ☑ No
13. Is the material RCRA hazardous waste containing benzene and originating at a Petroleum Refinery (SIC 2911), Chemical Manufacturing Plant (SIC 2800 thru 2899) or Coke by-Product Recovery Plant (SIC 3312)? *(If yes, complete Benzene Waste/Material Operations Supplement Form and Thermal Supplement Form)*: ☐ Yes ☑ No
14. VO Conc.(§264.1083): ☑ <500 ppmw ☐ ≥500ppmw
15. Has it been treated after point of generation? ☐ Yes ☑ No
16. CERCLA Regulated (Superfund) Waste: ☐ Yes ☑ No
17. Butadiene waste regulated by §63 Subpart XX: ☐ Yes ☑ No
18. Waste contains UHC constituent(s) (§268.48), above a treatment standard, other than those for which the waste exhibits a characteristic. *(If yes, list all UHC's in Section D)*: ☐ Yes ☑ No
19. Waste exempt from definition of "solid waste" or "hazardous waste" *(If yes, list reference 40CFR _____)*: ☐ Yes ☑ No
20. State Waste Codes: OUTS603H
21. RCRA Waste Codes: F037
22. Source Code: G14 Remov
23. Form Code: W603 Oily s
24. Management Code: H _____ (USE only)

Revision date: 06/24/16 Page 1

D. COMPOSITION *(use additional form if necessary)*

Constituent	Units	TCLP	Totals	Range total ≥ 100% Typical	Min	Max
Rust scale, rock, gravel, soil, silt, sand (<2")	percent	☐	☑	50	20	80
Heavy end petroleum residue	percent	☐	☑	25	1	80
Absorbent (perlite)	percent	☐	☑	5	0	10
Water (entrained)	percent	☐	☑	20	0	40
Mercury	ppm	☐	☑	46.7	40	50
Benzene	ppm	☐	☑	32.9	10	50
Sulfur	ppm	☐	☑	24,000	1,000	30,000
		☐	☐			
		☐	☐			
		☐	☐			
		☐	☐			

E. CHARACTERISTICS

1. Oxidizer	☐ Yes	☑ No	9. Reactive sulfides _____ ppm	☐ Yes	☑ No
2. Explosive	☐ Yes	☑ No	10. Reactive cyanides _____ ppm	☐ Yes	☑ No
3. Organic peroxide	☐ Yes	☑ No	11. Water/air reactive	☐ Yes	☑ No
4. Shock sensitive	☐ Yes	☑ No	12. Thermally unstable	☐ Yes	☑ No
5. Tires	☐ Yes	☑ No	13. TSCA regulated PCB waste *(control sheet required with shipment)*	☐ Yes	☑ No
6. Pyrophoric	☐ Yes	☑ No	14. Medical/infectious waste	☐ Yes	☑ No
7. Compressed gas	☐ Yes	☑ No	15. Radioactive *(If yes, complete Profile Supplement for Radioactive Waste)*	☐ Yes	☑ No
8. Halogenated organics	☐ Yes	☑ No	16. Hazardous Secondary Material (HSM)	☐ Yes	☑ No

17. Possibility of incidental liquids from transportation? ☐ Yes ☑ No

18. Is waste/material a solid using the paint filter test? ☑ Yes (solid) ☐ No (not solid)

19. pH: *(If solid, what is pH if mixed with water?)* Range 4 to 50 Typical 7.5 ☐ ≤ 2 ☑ 2 < 12.5 ☐ ≥ 12.5

20. Flash Point: >200 º F ☐ < 140 º F

21. Is the waste/material oil bearing from Petroleum Refining, Production or Transportation practices? ☐ N/A ☑ Yes ☐ No

F. GENERATOR'S CERTIFICATION

☐ Yes ☑ No **I certify this waste/material may be disposed without further treatment.**

☐ Yes ☑ N/A **I certify this waste/material meets all requirements of legitimate recycling of hazardous secondary materials under 40 CFR 260.43 and/or I am complying with the conditions for generators using the verified recycler exclusion.**

I authorize US Ecology to correct inconsistencies on the waste/material profile form that impact management decisions with my oral or written authorization. US Ecology will require re-submittal of the waste/material profile information if substantial changes are determined necessary. I understand waste/material that does not conform to specifications described in this profile may be rejected by US Ecology unless other contractual arrangements have been agreed to by both parties. I certify, under penalty of law, that I am familiar with this waste/material stream through analysis and/or process knowledge, and that all information provided is true, accurate, representative and complete, that all known or suspected hazards have been disclosed, and that this form was completed in accordance with the instructions provided.

Print Name	Signature	Title	Date
[redacted]	[redacted]	[redacted]	07/11/2017

US ecology

WASTE/MATERIAL PROFILE FORM
THERMAL SUPPLEMENT

PROFILE # _____

This form must be completed for all waste/material processed by US Ecology's Oil Reclamation Facility.

Oil bearing hazardous waste from petroleum refining, production or transportation practices will be recycled to generate a RCRA excluded fuel. Petroleum refining wastes/materials are those generated by processes engaged in producing hydrocarbon products such as gasoline, kerosene, distillate fuel oils, residual fuel oils, lubricants, etc., through fractionation or straight distillation of crude oil, redistillation of unfinished petroleum derivatives, including cracking, gasification or other processes. This industry also produces aliphatic and aromatic chemicals as by-products. Waste/material generated through petroleum and natural gas production and transportation practices supporting this industry, such as crude petroleum extraction; transportation and bulk storage of petroleum products; natural gas extraction, transmission, distribution and storage will also be recycled to generate a RCRA excluded fuel.

Hazardous secondary materials (HSM) having similar chemical properties as petroleum refining wastes will also be recycled.
Hazardous wastes not meeting the above criteria will be disposed, with the recovered oil being managed at an offsite RCRA TSDF.

A. GENERATOR INFORMATION

Name of Originating Facility:	[redacted]
Name of Generator:	[redacted]
Waste/Material Stream Name:	PETROLEUM REFINERY LISTED WASTE (centrifuge solids), WTS# 40177 (KSW)

B. CHARACTERISTICS

Is the waste/material oil bearing from Petroleum Refining, Production or Transportation practices (see description above)?	☑ YES	☐ NO
Is the waste/material RCRA Excluded Hazardous Secondary Material (HSM)?	☐ YES	☐ NO
For "characteristics byproducts" that are not excluded petroleum refining OBHW, are the oil constituents fuel themselves?	☐ YES	☐ NO

The Petroleum Refining listed waste code associated with waste is:

☑ F037 ☐ F038 ☐ K048 ☐ K049 ☐ K050 ☐ K051
☐ K052 ☐ K169 ☐ K170 ☐ K171 ☐ K172 ☐ No Petroleum Refining Listed Waste Code Applies

If no Petroleum Refining Listed Waste Code applies, please provide a detailed description of the process generating the waste/material.

C. COMPOSITION

Primary Components	Typical % (should total 100%)
Water	20
Solids (excluding Organics/Oil/TPH)	65
Organics /Oil/TPH	15

PROPERTIES (wet weight basis)

PHYSICAL STATE: ☑ Solid ☐ Liquid ☐ Single Phased ☐ Multi Phased

Heating Value Btu/Lb: 6670

% of ASH:

Specific Constituents (ppm)	
Halogens*	0
Mercury	46.7
SVM (Pb, Cd)	73.4
LVM (As, Be, Cr)	324.66
Organic Chlorine from VOCs	0
Sulfides (total)	0

Reclamation Facility Coordination Questions

☐ YES	☑ NO	Contains Non-Friable Debris Material > 2-inch size? If yes,	_____ % vol
☐ YES	☑ NO	If Catalyst, does material posses self heating properties?	
☐ YES	☑ NO	Contains Bitumen / Asphalt / Tar > 1% (wt.)? If yes,	_____ % vol
☑ YES	☐ NO	Has the material been processed by a centrifuge prior to shipment?	
☐ YES	☑ NO	Contains fuel oxygenates? ☐ MTBE ☐ Ethanol ☐ Other	_____ ppm
☐ YES	☑ NO	Does the waste contain any surfactants?	

D. CERTIFICATION

I certify under penalty of law that I am familiar with the waste/material stream through analysis and/or process knowledge, and that all information provided is true, accurate, representative and complete, and that this form was completed in accordance with the instructions provided.

Print Name	Signature	Title	Date
[redacted]	[redacted]	[redacted]	07/11/17

*Halogens: Total Halogens includes Fluorine, Chlorine, Bromine and Iodine. Report weight (ppm) as Halogens

(effective date 10/10/12)

Revised 7/21/16

US ecology

WASTE/MATERIAL PROFILE FORM **PROFILE #**_____

BENZENE WASTE OPERATIONS SUPPLEMENT (BWON 40 CFR Part 61 Subpart FF)
(Former Attachment 4)

This form must be completed for all hazardous waste/material containing benzene originating at a Petroleum Refinery (SIC 2911), Chemical Manufacturing Plant (SIC 2800 thru 2899) or Coke by-Product Recovery Plant (SIC 3312).

A. GENERATOR INFORMATION

Name of Originating Facility:	[redacted] EPA Generator #: [redacted]
Waste/Material Common Name:	PETROLEUM REFINERY LISTED WASTE (centrifuge solids), [redacted]
Process generating the waste/material:	Centrifuge solids generated from processing oil bearing hazardous secondary material.
Type of Facility:	☑ Refinery (SIC 2911) ☐ Coke by-products recovery (SIC 3312) ☐ Chemical manufacturing (SIC 2800 thru 2899)
Facility Total Annual Benzene Status (TAB):	☑ < 1 Megagram (2,204 lbs) ☐ ≥1 but <10 Megagram ☐ ≥10 Megagram

Is the waste/material being transferred to US Ecology for offsite treatment compliance with 40 CFR Part 61.342(f)? ☐ Yes ☑ No*
By indicating "Yes", notice is provided that the waste/material referenced in this profile is subject to 40 CFR Part 61 Subpart FF (National Emission Standards for Benzene Waste Operations). All shipments under this profile are being transferred to US Ecology for the destruction or removal of benzene in accordance with 40 CFR Part 61.342 (C)(1)(i).

B. CHARACTERISTICS

The flow-weighted annual average benzene content by weight or process turnaround total concentration of this waste/material is: 32.9 ppmw

(Benzene concentration data must be total concentration by weight. DO NOT USE TCLP CONCENTRATIONS.)

The weighted average water content is? ☐ ≤10% ☑ >10%

Is this Process Unit Turnaround waste/material? ☐ Yes ☑ No

*Only if you answered "No" for offsite treatment compliance above, please supply the following:

Range of benzene total concentration: 10 to 50 ppmw

This waste/material is classified as: ☐ Process wastewater stream ☐ Product tank drawdown ☐ Landfill leachate ☑ None of the three

C. CERTIFICATION

I certify under penalty of law that I am familiar with the waste/material stream through analysis and/or process knowledge, and that all information provided is true, accurate, representative and complete, and that this form was completed in accordance with the instructions provided.

Print Name	Signature	Title	Date
[redacted]	[redacted]	[redacted]	07/11/17

Revised 6/2016

ANALYSYS LABORATORIES

Sample Analysis Case Narrative & Exceptions Report

Client: US Ecology
Attn: Jose Salazar
for Sample #'s: 447939-447942
Analyzed by AnalySys, Inc.

Final Review Date: 7/24/18 **By:** KPassalacqua (Kristine Passalacqua)

Samples 447929-942 were diluted due to matrix interferences resulting in elevated RQLs for several analytical results.

The samples were originally diluted during the sample extraction procedure. Only 5.0 grams of sample were used rather than 25 grams due to high organic content for all four samples. Samples, with the exception of 447939, would not blow down during the extraction procedure to 0.5 mL due to the presence of high organics. The resulting extracts were black, viscous, and smelled strongly of crude oil. High presence of crude prevents the sample from blowing down properly.

The samples were then further diluted on the GC-MS due to high concentrations of target and non-target compounds. All four samples exhibited an apparent hydrocarbon (TPH) signature on their chromatograms. With the exception of 447942, all samples caused a significant raised baseline. Running the samples at a lower dilution would result in quality control failures and cause the chromatogram peaks to be too saturated making it difficult to correctly identify individual compounds.

Definitions:

CCB	Continning Calibration Blank.
MS/MSD	Matrix spike and matrix spike duplicate (a spiked sample).
LCS	Laboratory control sample (a "same-matrix" spiked blank).
MQL	Method quantitation limit (equivalent to the "sample factor (SF) adjusted low standard.)
SDL	Sample qnantitation limit (equivalent to the "sample factor (SF) adjusted Method detection limit (MDL).

ANALYSYS LABORATORIES

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 919-4141

Client: US Ecology Texas
Attn: Jose Salazar
Address: 3277 County Rd 69
Robstown TX 78380
Phone: 361-887-3518 **FAX:**

NELAP ACCREDITED TNI LABORATORY
T104704268-18-15

Report#/Lab ID#: 447939 **Report Date:** 07/19/18
Project ID:
Sample Name: 090067188-0
Sample Matrix: soil
Date Received: 07/13/2018 **Time:** 09:37
Date Sampled: 07/13/2018 **Time:** 08:55

REPORT OF ANALYSIS **QUALITY ASSURANCE DATA** [1]

Parameter	Result	Units	RQL [5]	Blank	Date/Time Analyzed	Method [6]	TCLP Limit	TCEQ Limit	Data Qual.[7]	Prec.[2]	Recov.[3]
A/BN extraction-625/8270	---	---	---	---	07/16/18 11:45	3550	---	---	---	---	---
A/BN extraction-Herbicides	---	---	---	---	07/17/18 08:45	8151	---	---	---	---	---
A/BN extraction-Pesticides	---	---	---	---	07/18/18 09:02	3550	---	---	---	---	---
Ignitability/Flash Point	Not Ignitable	---	---	---	07/16/18 11:00	40CFR 261.21	---	---	N,	-NA-	-NA-
Metals Dig.-Hg/TCLP	---	---	---	---	07/16/18 12:10	7470	---	---	---	---	---
Metals Dig.-Total	---	---	---	---	07/16/18 09:00	3050B	---	---	---	---	---
Metals Dig.-Total/TCLP	---	---	---	---	07/16/18 10:05	3005A	---	---	---	---	---
pH (@T=22.7°C)	7.6	pH units	---	---	07/16/18 11:38	9045D	---	---	---	0.03	-NA-
TCLP extraction-metals	---	---	---	---	07/15/18 16:02	1311	---	---	---	---	---
Lead/ICPMS	135	mg/Kg	1	<1	07/17/18 13:28	6020A	---	---	S1,M,	0	52.2
TCLP-Arsenic/ICPMS	<0.5	mg/L	0.5	<0.5	07/17/18 20:11	6020A	5	1.8	---	0.1	108
TCLP-Barium/ICPMS	<5	mg/L	5	<5	07/17/18 20:11	6020A	100	100	J,B1,	6.1	101.3
TCLP-Cadmium/ICPMS	<0.1	mg/L	0.1	<0.1	07/17/18 20:11	6020A	1	0.5	---	4	108.3
TCLP-Chromium/ICPMS	<0.5	mg/L	0.5	<0.5	07/17/18 20:11	6020A	5	5	---	2.2	104
TCLP-Lead/ICPMS	<0.2	mg/L	0.2	<0.2	07/17/18 20:11	6020A	5	1.5	J,	5.3	94.1
TCLP-Mercury/CVAA	<0.004	mg/L	0.004	<0.004	07/16/18 15:08	7470	0.2	0.2	---	3.69	98.3
TCLP-Nickel/ICPMS	<1	mg/L	1	<1	07/17/18 20:11	6020A	70	70	J,	0.1	104.8
TCLP-Selenium/ICPMS	<0.1	mg/L	0.1	<0.1	07/17/18 20:11	6020A	1	1	J,B,B1,L,	0.1	115.6
TCLP-Silver/ICPMS	<0.1	mg/L	0.1	<0.1	07/17/18 20:11	6020A	5	5	---	6.7	103.6
Cyanide	<0.05	mg/Kg	0.05	<0.05	07/16/18 10:41	9014	---	590	---	5.94	117.7
Reactivity cyanide	<1	mg/Kg	1	<1	07/17/18 10:00	9014/SW846-S.7.3	---	---	---	1.29	113.88

This analytical report is respectfully submitted by AnalySys, Inc. The enclosed results reflect only the sample identified above.The results have been carefully reviewed and to the best of my knowledge, unless otherwise indicated, meet NELAP requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program. © Copyright 2003, AnalySys, Inc., Austin, TX. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means without the express written consent of AnalySys, Inc.

Respectfully Submitted, Respectfully Submitted,

Quality Manager Assistant Quality Manager

Numbers in RED are above our MDLs and may or may not indicate a permit exceedance.
1. Quality assurance data for the sample batch which included this sample. 2. Precision (PREC) is the absolute value of the relative percent difference between duplicate results. 3. Recovery (Recov.) is the percent of analyte recovered from a spiked sample. 4. Calibration Verification (CCV) and Laboratory Control Sample (LCS) results are expressed as the percent recovery of analyte. 5. Reporting Quantitation Limits (RQL), typically at or above the Practical Quantitation Limit (PQL) of the analytical method. 6. Method numbers typically denote USEPA procedures. Less than ("<") values reflect nominal quantitation limits adjusted for any required dilutions. 7. Data Qualifiers are J = analyte detected between the RQL and the MDL. B =Analyte detected in associated method blank(s). C=poor CCV recovery. L=poor LCS recovery. S & S1 =MS and/or MSD recovery exceed advisory limits. S2 =Post digestion spike (PDS) recovery exceeds advisory limit. S3 =MS and/or MSD and PDS recoveries exceed advisory limits. P =Precision higher than advisory limit. M =Matrix interference. N=not NELAP certified. N1=subcontract result enquire concerning NELAP certification. Solid sample results for all metals, except Mercury, reported on a dry weght basis (DWB)s. All other results for solid samples reported on an as received basis unless specifically identified as DWB.

ANALYSYS LABORATORIES

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 919-4141

Client: US Ecology Texas
Attn: Jose Salazar

Project ID:
Sample Name: 090067188-0

Report#/Lab ID#: 447939
Sample Matrix: soil

REPORT OF ANALYSIS **QUALITY ASSURANCE DATA** [1]

Parameter	Result	Units	RQL [5]	Blank	Date/Time Analyzed	Method [6]	TCLP Limit	TCEQ Limit	Data Qual.[7]	Prec.[2]	Recov.[3]
Reactivity sulfide	130	mg/Kg	20	<20	07/16/18 15:00	9034/SW846 S.7.3	---	---	---	2.3	88.17
Volatile Organics-8260	---	---	---	---	07/17/18	8260b(5030/5035)	---	---	---	---	---
1,1-Dichloroethene	<0.1	mg/Kg	0.1	<0.1	07/17/18 09:02	8260B	---	---	---	0	77.2
1,2-Dichloroethane	<0.1	mg/Kg	0.1	<0.1	07/17/18 09:02	8260B	---	---	---	0.3	101.9
1,4-Dichlorobenzene	<0.1	mg/Kg	0.1	<0.1	07/17/18 09:02	8260B	---	---	---	0.1	93.8
2-Butanone (MEK)	<0.2	mg/Kg	0.2	<0.2	07/17/18 09:02	8260B	---	---	---	10.1	60.6
Benzene	1.99	mg/Kg	0.1	<0.1	07/17/18 09:02	8260B	---	10	---	1.6	85.2
Carbon tetrachloride	<0.1	mg/Kg	0.1	<0.1	07/17/18 09:02	8260B	---	---	C,	3.4	117.2
Chlorobenzene	<0.1	mg/Kg	0.1	<0.1	07/17/18 09:02	8260B	---	---	J,	2	96.4
Chloroform (Trichloromethane)	<0.1	mg/Kg	0.1	<0.1	07/17/18 09:02	8260B	---	---	J,	0.2	88.6
Ethylbenzene	1.33	mg/Kg	0.1	<0.1	07/17/18 09:02	8260B	---	10	---	2.7	98.9
m,p-Xylenes	4.13	mg/Kg	0.2	<0.2	07/17/18 09:02	8260B	---	---	---	3	100.3
o-Xylene	2.5	mg/Kg	0.1	<0.1	07/17/18 09:02	8260B	---	15	---	2.6	98.9
Tetrachloroethene (Perchlorethylene)	<0.1	mg/Kg	0.1	<0.1	07/17/18 09:02	8260B	---	---	---	3.1	101.8
Toluene	0.789	mg/Kg	0.1	<0.1	07/17/18 09:02	8260B	---	10	---	2.3	93.9
Trichloroethene	<0.1	mg/Kg	0.1	<0.1	07/17/18 09:02	8260B	---	---	---	2.4	98
Vinyl chloride	<0.1	mg/Kg	0.1	<0.1	07/17/18 09:02	8260B	---	---	---	0.8	75.5
Extractable Organics-625/8270	---	---	---	---	07/17/18	8270c	---	---	---	---	---
2-Methylphenol (o-Cresol)	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	---	---	24.1	51.5
2,4-Dimethylphenol	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	---	---	24.6	49.2
2,4-Dinitrotoluene	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	---	---	23	63.1
2,4,5-Trichlorophenol	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	---	---	15.5	58.3
2,4,6-Trichlorophenol	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	---	---	28.7	53.6
3&4 Methylphenol (m&p-Cresol)	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	---	---	21.6	54.2
Acenaphthene	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	0.059	J,	22.3	52.6
Anthracene	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	3.4	---	23.7	59.1
Benzo[a]anthracene	<10	mg/Kg	10	<10	07/17/18 12:05	8270c	---	3.4	J,	28.2	55.8
Benzo[a]pyrene	<10	mg/Kg	10	<10	07/17/18 12:05	8270c	---	3.4	J,	17.6	65.1
Benzo[g,h,i]perylene	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	---	---	13.3	67.2
bis(2-Ethylhexyl)phthalate	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	28	---	17.6	51.4
Chrysene	10.2	mg/Kg	10	<10	07/17/18 12:05	8270c	---	3.4	---	10.8	82.1
Di-n-butyl phthalate (Dibutylphthalate)	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	28	---	23.6	63.6
Fluorene	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	0.059	J,	17.3	61.1
Hexachlorobenzene	<10	mg/Kg	10	<10	07/17/18 12:05	8270c	---	---	---	24.5	64.3
Hexachlorobutadiene	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	---	---	23.3	47.2
Hexachloroethane	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	---	---	16.2	42.3

ANALYSYS LABORATORIES

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Client: US Ecology Texas
Attn: Jose Salazar

Project ID:
Sample Name: 090067188-0

Report#/Lab ID#: 447939
Sample Matrix: soil

REPORT OF ANALYSIS **QUALITY ASSURANCE DATA** [1]

Parameter	Result	Units	RQL [5]	Blank	Date/Time Analyzed	Method [6]	TCLP Limit	TCEQ Limit	Data Qual.[7]	Prec.[2]	Recov.[3]
Naphthalene	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	5.6	J,	21.4	48
Nitrobenzene	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	---	J,C,	18.5	46.1
Pentachlorophenol	<10	mg/Kg	10	<10	07/17/18 12:05	8270c	---	---	P,	44.6	22.1
Phenanthrene	23.1	mg/Kg	20	<20	07/17/18 12:05	8270c	---	5.6	---	23.1	61.3
Phenol	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	5.6	C,	22.9	46.9
Pyrene	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	8.2	J,	21.3	70.6
Pyridine	<20	mg/Kg	20	<20	07/17/18 12:05	8270c	---	---	C,	9.8	38.5
Total Cresol	<40	mg/Kg	40	<40	07/17/18 12:05	calc.	---	---	---	-NA-	-NA-
Extractable Organics-Herbicides	---	---	---	---	07/17/18	8151a	---	---	---	---	---
Extractable Organics-Pesticides(SIM)	---	---	---	---	07/18/18	8270c	---	---	---	---	---
2,4-D	<4	mg/Kg	4	<4	07/17/18 20:36	8151a	---	---	---	20.7	38.6
2,4,5-TP (Silvex)	<0.4	mg/Kg	0.4	<0.4	07/17/18 20:36	8151a	---	---	---	1.1	46
alpha-Chlordane (cis-Chlordane)	<5	mg/Kg	5	<5	07/18/18 18:58	8270c	---	---	C,	1.3	91.9
Endrin	<2	mg/Kg	2	<2	07/18/18 18:58	8270c	---	---	---	16.2	95.7
gamma-Chlordane (trans-Chlordane)	<5	mg/Kg	5	<5	07/18/18 18:58	8270c	---	---	C,	0.8	103.3
Heptachlor	<1	mg/Kg	1	<1	07/18/18 18:58	8270c	---	---	---	0.8	57.8
Lindane (gamma-Hexachlorocyclohexane)	<2	mg/Kg	2	<2	07/18/18 18:58	8270c	---	---	---	7.7	62.3
Methoxychlor	<20	mg/Kg	20	<20	07/18/18 18:58	8270c	---	---	---	1.3	78.3
Toxaphene	<30	mg/Kg	30	<30	07/18/18 18:58	8270c	---	---	---	9.4	74.3

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2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 919-4141

T104704268-18-15

Client: US Ecology Texas	**Project ID:**	**Report#/Lab ID#:** 447939
Attn: Jose Salazar	**Sample Name:** 090067188-0	**Sample Matrix:** soil

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Date Analyzed	Data Qualifiers
2,4-Dichlorophenyl acetic acid	8151a & 615	none/diluted	diluted @ 40000X	07/17/18	D
1,2-Dichloroethane-d4	8260B & 624	61.6	55-130	07/17/18	---
4-Bromofluorobenzene	8260B & 624	35.8	50-160	07/17/18	X
Toluene-d8	8260B & 624	33.7	55-145	07/17/18	X
2-Fluorobiphenyl	8270c & 625	none/diluted	diluted @ 100X	07/17/18	D
2-Fluorophenol	8270c & 625	none/diluted	diluted @ 100X	07/17/18	D
2,4,5,6-Tetrachloro-m-xylene	8270c & 625	none/diluted	diluted @ 5000X	07/18/18	D
2,4,6-Tribromophenol	8270c & 625	none/diluted	diluted @ 100X	07/17/18	D
Decachlorobiphenyl	8270c & 625	none/diluted	diluted @ 5000X	07/18/18	D
Nitrobenzene-d5	8270c & 625	none/diluted	diluted @ 100X	07/17/18	D
Phenol-d6	8270c & 625	none/diluted	diluted @ 100X	07/17/18	D
Terphenyl-d14	8270c & 625	none/diluted	diluted @ 100X	07/17/18	D

Data Qualifiers: D= Surrogates diluted and X= Surrogates outside advisory recovery limits.

Exceptions Report (FINAL SECTION / END-OF-REPORT):

Report #/Lab ID#: 447939 **Matrix:** soil
Client: US Ecology Texas **Attn:** Jose Salazar
Project ID:
Sample Name: 090067188-0

Unless otherwise identified by data qualifier "N" or by an exception report, all reported results represent parameters and tests for which AnalySys maintains NELAP certification; or results provided by a subcontractor with NELAP certification for the test

T104704268-18-15

Sample Temperature/Condition: ≤6°C

The typical sample temperature criteria (except for metals by ICP, GFAA and AA and a very few other tests) is <= 6°C. Possible exceptions include samples submitted to laboratory within such a short time after sampling that cooling measures used in the field and during transport had insufficient time to achieve desired temperatures in the samples (see sample collection and sample receipt times) and samples where the temperature could not be measured due to sample submission in a manner precluding temperature measurement without impacting sample integrity (ex. in a bottle with no cooler).

Standard sample acceptability conditions met? : **YES**

Sample received in appropriate container(s), at appropriate temperature and pH.

J flag Discussion:

A J-flag data qualifier indicates that the raw calculated analyte concentration in the sample (uncorrected for background levels/blanks and other potential sources of sampling and analytical contamination), though less than the Reported Quantitation Limit (RQL) is greater than the Detection Limit. Because the reported result is below the quantitation limit for this project/sample (or test procedure), GC/MS organics results may or MAY NOT have been verified as to the presence and relative ratio of target ions (eg. the material causing the J flag "hit" in such situations may be nothing more than background ion-fragment noise.)

Comments pertaining to Data Qualifiers and QC data (where applicable):

Parameter	Qualif.	Comments
Ignitability/Flash Point	N	NELAP accreditation for this analyte not available from TCEQ. 30 TAC§25.6(4) applies.
Lead/ICPMS	S2	Spike (MS,MSD) recovery issue. MS & MSD recovery outside acceptance range. LCS recovery OK. Probable matrix interference.
TCLP-Barium/ICPMS	J	See J-flag discussion above.
TCLP-Barium/ICPMS	B1	ICP/ICPMS prep blank (PB) issue. PB>2.2*MDL. Sample result may be impacted.
TCLP-Lead/ICPMS	J	See J-flag discussion above.
TCLP-Nickel/ICPMS	J	See J-flag discussion above.
TCLP-Selenium/ICPMS	J	See J-flag discussion above.
TCLP-Selenium/ICPMS	B	Calib. blank (CCB) issue. CCB meets all method reqired criteria but > RQL.
TCLP-Selenium/ICPMS	B1	ICP/ICPMS prep blank (PB) issue. PB>2.2*MDL. Sample result may be impacted.
TCLP-Selenium/ICPMS	L	Lab control sample (LCS or spiked blank). LCS recov-high (high bias). Sample quantitation may be impacted.
Carbon tetrachloride	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
Chlorobenzene	J	See J-flag discussion above.
Chloroform (Trichloromethane)	J	See J-flag discussion above.
4-Bromofluorobenzene 4-Bromofluorobenzene 4-Bromofluorobenzene	X X X	Typically verified by reanalysis or reextraction & reanalysis. In some well known matrices (sample sources with known interferences) and for some conditions (high/interfering organic levels), reextraction and/or reanalysis may be at analysts discretion. Minimally elevated surrog. recovery indicating the potential for a slightly high bias is typically considered acceptable where there are no quantifiable target analytes found.
Toluene-d8 Toluene-d8 Toluene-d8	X X X	Typically verified by reanalysis or reextraction & reanalysis. In some well known matrices (sample sources with known interferences) and for some conditions (high/interfering organic levels), reextraction and/or reanalysis may be at analysts discretion. Minimally elevated surrog. recovery indicating the potential for a slightly high bias is typically considered acceptable where there are no quantifiable target analytes found.
Acenaphthene	J	See J-flag discussion above.

Exceptions Report (FINAL SECTION / END-OF-REPORT):

Report #/Lab ID#: 447939 **Matrix:** soil
Client: US Ecology Texas **Attn:** Jose Salazar
Project ID:
Sample Name: 090067188-0

Unless otherwise identified by data qualifier "N" or by an exception report, all reported results represent parameters and tests for which AnalySys maintains NELAP certification; or results provided by a subcontractor with NELAP certification for the test

T104704268-18-15

Benzo[a]anthracene	J	See J-flag discussion above.
Benzo[a]pyrene	J	See J-flag discussion above.
Fluorene	J	See J-flag discussion above.
Naphthalene	J	See J-flag discussion above.
Nitrobenzene	J	See J-flag discussion above.
Nitrobenzene	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). MQL>sample result>MDL. Possible J-flag interference issue.
Pentachlorophenol	P	Precision issue. Precision of MS & MSD or Sample & duplicate high.
Phenol	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
Pyrene	J	See J-flag discussion above.
Pyridine	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
2-Fluorobiphenyl	D	Surrogate recoveries not accurately quantifiable.
2-Fluorophenol	D	Surrogate recoveries not accurately quantifiable.
2,4,6-Tribromophenol	D	Surrogate recoveries not accurately quantifiable.
Nitrobenzene-d5	D	Surrogate recoveries not accurately quantifiable.
Phenol-d6	D	Surrogate recoveries not accurately quantifiable.
Terphenyl-d14	D	Surrogate recoveries not accurately quantifiable.
alpha-Chlordane (cis-Chlordane)	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
gamma-Chlordane (trans-Chlordane)	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
2,4-Dichlorophenyl acetic acid	D	Surrogate recoveries not accurately quantifiable.
2,4,5,6-Tetrachloro-m-xylene	D	Surrogate recoveries not accurately quantifiable.
Decachlorobiphenyl	D	Surrogate recoveries not accurately quantifiable.

ANALYSYS LABORATORIES

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(512) 385-5886 • FAX (512) 919-4141

Client: US Ecology Texas
Attn: Jose Salazar
Address: 3277 County Rd 69
Robstown TX 78380
Phone: 361-887-3518 **FAX:**

NELAP ACCREDITED TNI LABORATORY
T104704268-18-15

Report#/Lab ID#: 447940 **Report Date:** 07/19/18
Project ID:
Sample Name: 090101989-1
Sample Matrix: soil
Date Received: 07/13/2018 **Time:** 09:37
Date Sampled: 07/13/2018 **Time:** 07:20

REPORT OF ANALYSIS **QUALITY ASSURANCE DATA** [1]

Parameter	Result	Units	RQL [5]	Blank	Date/Time Analyzed	Method [6]	TCLP Limit	TCEQ Limit	Data Qual.[7]	Prec.[2]	Recov.[3]
A/BN extraction-625/8270	---	---	---	---	07/16/18 11:45	3550	---	---	---	---	---
A/BN extraction-Herbicides	---	---	---	---	07/17/18 08:45	8151	---	---	---	---	---
A/BN extraction-Pesticides	---	---	---	---	07/18/18 09:02	3550	---	---	---	---	---
Ignitability/Flash Point	Not Ignitable	---	---	---	07/16/18 11:00	40CFR 261.21	---	---	N,	-NA-	-NA-
Metals Dig.-Hg/TCLP	---	---	---	---	07/16/18 12:10	7470	---	---	---	---	---
Metals Dig.-Total	---	---	---	---	07/16/18 09:00	3050B	---	---	---	---	---
Metals Dig.-Total/TCLP	---	---	---	---	07/16/18 10:05	3005A	---	---	---	---	---
pH (@T=22.9°C)	8	pH units	---	---	07/16/18 11:42	9045D	---	---	---	0.03	-NA-
TCLP extraction-metals	---	---	---	---	07/15/18 16:02	1311	---	---	---	---	---
Lead/ICPMS	63	mg/Kg	1	<1	07/17/18 13:34	6020A	---	---	S1,M,	0	52.2
TCLP-Arsenic/ICPMS	<0.5	mg/L	0.5	<0.5	07/17/18 06:46	6020A	5	1.8	---	0.3	101.9
TCLP-Barium/ICPMS	<5	mg/L	5	<5	07/17/18 06:46	6020A	100	100	J,	1	96.5
TCLP-Cadmium/ICPMS	<0.1	mg/L	0.1	<0.1	07/17/18 06:46	6020A	1	0.5	---	1.6	97.4
TCLP-Chromium/ICPMS	<0.5	mg/L	0.5	<0.5	07/17/18 20:18	6020A	5	5	---	2.2	104
TCLP-Lead/ICPMS	<0.2	mg/L	0.2	<0.2	07/17/18 06:46	6020A	5	1.5	---	1.2	94.8
TCLP-Mercury/CVAA	<0.004	mg/L	0.004	<0.004	07/16/18 15:10	7470	0.2	0.2	---	3.69	98.3
TCLP-Nickel/ICPMS	<1	mg/L	1	<1	07/17/18 06:46	6020A	70	70	J,	0.1	96
TCLP-Selenium/ICPMS	<0.1	mg/L	0.1	<0.1	07/17/18 06:46	6020A	1	1	---	0.4	102.7
TCLP-Silver/ICPMS	<0.1	mg/L	0.1	<0.1	07/17/18 06:46	6020A	5	5	---	1.1	101.7
Cyanide	<0.05	mg/Kg	0.05	<0.05	07/16/18 10:47	9014	---	590	---	5.94	117.7
Reactivity cyanide	<1	mg/Kg	1	<1	07/17/18 10:00	9014/SW846-S.7.3	---	---	---	1.29	113.88

This analytical report is respectfully submitted by AnalySys, Inc. The enclosed results reflect only the sample identified above.The results have been carefully reviewed and to the best of my knowledge, unless otherwise indicated, meet NELAP requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program. © Copyright 2003, AnalySys, Inc., Austin, TX. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means without the express written consent of AnalySys, Inc.

Respectfully Submitted, Respectfully Submitted,

Quality Manager Assistant Quality Manager

Numbers in RED are above our MDLs and may or may not indicate a permit exceedance.
1. Quality assurance data for the sample batch which included this sample. 2. Precision (PREC) is the absolute value of the relative percent difference between duplicate results. 3. Recovery (Recov.) is the percent of analyte recovered from a spiked sample. 4. Calibration Verification (CCV) and Laboratory Control Sample (LCS) results are expressed as the percent recovery of analyte. 5. Reporting Quantitation Limits (RQL), typically at or above the Practical Quantitation Limit (PQL) of the analytical method. 6. Method numbers typically denote USEPA procedures. Less than ("<") values reflect nominal quantitation limits adjusted for any required dilutions. 7. Data Qualifiers are J = analyte detected between the RQL and the MDL. B =Analyte detected in associated method blank(s). C=poor CCV recovery. L=poor LCS recovery. S & S1 =MS and/or MSD recovery exceed advisory limits. S2 =Post digestion spike (PDS) recovery exceeds advisory limit. S3 =MS and/or MSD and PDS recoveries exceed advisory limits. P =Precision higher than advisory limit. M =Matrix interference. N=not NELAP certified. N1=subcontract result enquire concerning NELAP certification. Solid sample results for all metals, except Mercury, reported on a dry weght basis (DWB)s. All other results for solid samples reported on an as received basis unless specifically identified as DWB.

ANALYSYS LABORATORIES

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 919-4141

Client: US Ecology Texas
Attn: Jose Salazar

Project ID:
Sample Name: 090101989-1

Report#/Lab ID#: 447940
Sample Matrix: soil

REPORT OF ANALYSIS **QUALITY ASSURANCE DATA** [1]

Parameter	Result	Units	RQL [5]	Blank	Date/Time Analyzed	Method [6]	TCLP Limit	TCEQ Limit	Data Qual.[7]	Prec.[2]	Recov.[3]
Reactivity sulfide	**56**	mg/Kg	20	<20	07/16/18 15:00	9034/SW846 S.7.3	---	---	---	2.3	88.17
Volatile Organics-8260	---	---	---	---	07/16/18	8260b(5030/5035)	---	---	---	---	---
1,1-Dichloroethene	<5	mg/Kg	5	<5	07/16/18 20:30	8260B	---	---	---	0	77.2
1,2-Dichloroethane	<5	mg/Kg	5	<5	07/16/18 20:30	8260B	---	---	---	0.3	101.9
1,4-Dichlorobenzene	<5	mg/Kg	5	<5	07/16/18 20:30	8260B	---	---	---	0.1	93.8
2-Butanone (MEK)	<10	mg/Kg	10	<10	07/16/18 20:30	8260B	---	---	---	10.1	60.6
Benzene	**22.1**	mg/Kg	5	<5	07/16/18 20:30	8260B	---	10	---	1.6	85.2
Carbon tetrachloride	<5	mg/Kg	5	<5	07/16/18 20:30	8260B	---	---	C,	3.4	117.2
Chlorobenzene	<5	mg/Kg	5	<5	07/16/18 20:30	8260B	---	---	---	2	96.4
Chloroform (Trichloromethane)	<5	mg/Kg	5	<5	07/16/18 20:30	8260B	---	---	J,	0.2	88.6
Ethylbenzene	**58.3**	mg/Kg	5	<5	07/16/18 20:30	8260B	---	10	---	2.7	98.9
m,p-Xylenes	**241**	mg/Kg	10	<10	07/16/18 20:30	8260B	---	---	---	3	100.3
o-Xylene	**101**	mg/Kg	5	<5	07/16/18 20:30	8260B	---	15	---	2.6	98.9
Tetrachloroethene (Perchlorethylene)	<5	mg/Kg	5	<5	07/16/18 20:30	8260B	---	---	---	3.1	101.8
Toluene	**102**	mg/Kg	5	<5	07/16/18 20:30	8260B	---	10	---	2.3	93.9
Trichloroethene	<5	mg/Kg	5	<5	07/16/18 20:30	8260B	---	---	---	2.4	98
Vinyl chloride	<5	mg/Kg	5	<5	07/16/18 20:30	8260B	---	---	---	0.8	75.5
Extractable Organics-625/8270	---	---	---	---	07/17/18	8270c	---	---	---	---	---
2-Methylphenol (o-Cresol)	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	---	---	24.1	51.5
2,4-Dinitrotoluene	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	---	---	23	63.1
2,4,5-Trichlorophenol	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	---	---	15.5	58.3
2,4,6-Trichlorophenol	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	---	---	28.7	53.6
3&4 Methylphenol (m&p-Cresol)	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	---	---	21.6	54.2
Acenaphthene	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	0.059	J,	22.3	52.6
Anthracene	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	3.4	---	23.7	59.1
Benzo[a]anthracene	<100	mg/Kg	100	<100	07/17/18 12:51	8270c	---	3.4	---	28.2	55.8
Benzo[a]pyrene	<100	mg/Kg	100	<100	07/17/18 12:51	8270c	---	3.4	---	17.6	65.1
bis(2-Ethylhexyl)phthalate	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	28	---	17.6	51.4
Chrysene	<100	mg/Kg	100	<100	07/17/18 12:51	8270c	---	3.4	J,	10.8	82.1
Di-n-butyl phthalate (Dibutylphthalate)	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	28	---	23.6	63.6
Fluorene	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	0.059	J,	17.3	61.1
Hexachlorobenzene	<100	mg/Kg	100	<100	07/17/18 12:51	8270c	---	---	---	24.5	64.3
Hexachlorobutadiene	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	---	---	23.3	47.2
Hexachloroethane	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	---	---	16.2	42.3
Naphthalene	**201**	mg/Kg	200	<200	07/17/18 12:51	8270c	---	5.6	---	21.4	48
Nitrobenzene	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	---	C,	18.5	46.1

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Client: US Ecology Texas
Attn: Jose Salazar

Project ID:
Sample Name: 090101989-1

Report#/Lab ID#: 447940
Sample Matrix: soil

REPORT OF ANALYSIS **QUALITY ASSURANCE DATA** [1]

Parameter	Result	Units	RQL [5]	Blank	Date/Time Analyzed	Method [6]	TCLP Limit	TCEQ Limit	Data Qual.[7]	Prec.[2]	Recov.[3]
Pentachlorophenol	<100	mg/Kg	100	<100	07/17/18 12:51	8270c	---	---	P,	44.6	22.1
Phenanthrene	213	mg/Kg	200	<200	07/17/18 12:51	8270c	---	5.6	---	23.1	61.3
Phenol	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	5.6	C,	22.9	46.9
Pyrene	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	8.2	J,	21.3	70.6
Pyridine	<200	mg/Kg	200	<200	07/17/18 12:51	8270c	---	---	C,	9.8	38.5
Total Cresol	<400	mg/Kg	400	<400	07/17/18 12:51	calc.	---	---	---	-NA-	-NA-
Extractable Organics-Herbicides	---	---	---	---	07/17/18	8151a	---	---	---	---	---
Extractable Organics-Pesticides(SIM)	---	---	---	---	07/18/18	8270c	---	---	---	---	---
2,4-D	<4	mg/Kg	4	<4	07/17/18 21:08	8151a	---	---	---	20.7	38.6
2,4,5-TP (Silvex)	<0.4	mg/Kg	0.4	<0.4	07/17/18 21:08	8151a	---	---	---	1.1	46
alpha-Chlordane (cis-Chlordane)	<10	mg/Kg	10	<10	07/18/18 20:30	8270c	---	---	C,	1.3	91.9
Endrin	<4	mg/Kg	4	<4	07/18/18 20:30	8270c	---	---	---	16.2	95.7
gamma-Chlordane (trans-Chlordane)	<10	mg/Kg	10	<10	07/18/18 20:30	8270c	---	---	C,	0.8	103.3
Heptachlor	<2	mg/Kg	2	<2	07/18/18 20:30	8270c	---	---	J,	0.8	57.8
Lindane (gamma-Hexachlorocyclohexane)	<4	mg/Kg	4	<4	07/18/18 20:30	8270c	---	---	---	7.7	62.3
Methoxychlor	<40	mg/Kg	40	<40	07/18/18 20:30	8270c	---	---	---	1.3	78.3
Toxaphene	<60	mg/Kg	60	<60	07/18/18 20:30	8270c	---	---	---	9.4	74.3

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T104704268-18-15

Client: US Ecology Texas	**Project ID:**	**Report#/Lab ID#:** 447940
Attn: Jose Salazar	**Sample Name:** 090101989-1	**Sample Matrix:** soil

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Date Analyzed	Data Qualifiers
2,4-Dichlorophenyl acetic acid	8151a & 615	none/diluted	diluted @ 40000X	07/17/18	D
1,2-Dichloroethane-d4	8260B & 624	none/diluted	diluted @ 50X	07/16/18	D
4-Bromofluorobenzene	8260B & 624	none/diluted	diluted @ 50X	07/16/18	D
Toluene-d8	8260B & 624	none/diluted	diluted @ 50X	07/16/18	D
2-Fluorobiphenyl	8270c & 625	none/diluted	diluted @ 1000X	07/17/18	D
2-Fluorophenol	8270c & 625	none/diluted	diluted @ 1000X	07/17/18	D
2,4,5,6-Tetrachloro-m-xylene	8270c & 625	none/diluted	diluted @ 10000X	07/18/18	D
2,4,6-Tribromophenol	8270c & 625	none/diluted	diluted @ 1000X	07/17/18	D
Decachlorobiphenyl	8270c & 625	none/diluted	diluted @ 10000X	07/18/18	D
Nitrobenzene-d5	8270c & 625	none/diluted	diluted @ 1000X	07/17/18	D
Phenol-d6	8270c & 625	none/diluted	diluted @ 1000X	07/17/18	D
Terphenyl-d14	8270c & 625	none/diluted	diluted @ 1000X	07/17/18	D

Data Qualifiers: D= Surrogates diluted and X= Surrogates outside advisory recovery limits.

Exceptions Report (FINAL SECTION / END-OF-REPORT):

Report #/Lab ID#: 447940 **Matrix:** soil
Client: US Ecology Texas **Attn:** Jose Salazar
Project ID:
Sample Name: 090101989-1

Unless otherwise identified by data qualifier "N" or by an exception report, all reported results represent parameters and tests for which AnalySys maintains NELAP certification; or results provided by a subcontractor with NELAP certification for the test

T104704268-18-15

Sample Temperature/Condition: ≤6°C

The typical sample temperature criteria (except for metals by ICP, GFAA and AA and a very few other tests) is <= 6°C. Possible exceptions include samples submitted to laboratory within such a short time after sampling that cooling measures used in the field and during transport had insufficient time to achieve desired temperatures in the samples (see sample collection and sample receipt times) and samples where the temperature could not be measured due to sample submission in a manner precluding temperature measurement without impacting sample integrity (ex. in a bottle with no cooler).

Standard sample acceptability conditions met? : **YES**

Sample received in appropriate container(s), at appropriate temperature and pH.

J flag Discussion:

A J-flag data qualifier indicates that the raw calculated analyte concentration in the sample (uncorrected for background levels/blanks and other potential sources of sampling and analytical contamination), though less than the Reported Quantitation Limit (RQL) is greater than the Detection Limit. Because the reported result is below the quantitation limit for this project/sample (or test procedure), GC/MS organics results may or MAY NOT have been verified as to the presence and relative ratio of target ions (eg. the material causing the J flag "hit" in such situations may be nothing more than background ion-fragment noise.)

Comments pertaining to Data Qualifiers and QC data (where applicable):

Parameter	Qualif.	Comments
Ignitability/Flash Point	N	NELAP accreditation for this analyte not available from TCEQ. 30 TAC§25.6(4) applies.
Lead/ICPMS	S2	Spike (MS,MSD) recovery issue. MS & MSD recovery outside acceptance range. LCS recovery OK. Probable matrix interference.
TCLP-Barium/ICPMS	J	See J-flag discussion above.
TCLP-Nickel/ICPMS	J	See J-flag discussion above.
Carbon tetrachloride	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
Chloroform (Trichloromethane)	J	See J-flag discussion above.
1,2-Dichloroethane-d4	D	Surrogate recoveries not accurately quantifiable.
4-Bromofluorobenzene	D	Surrogate recoveries not accurately quantifiable.
Toluene-d8	D	Surrogate recoveries not accurately quantifiable.
Acenaphthene	J	See J-flag discussion above.
Chrysene	J	See J-flag discussion above.
Fluorene	J	See J-flag discussion above.
Nitrobenzene	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
Pentachlorophenol	P	Precision issue. Precision of MS & MSD or Sample & duplicate high.
Phenol	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
Pyrene	J	See J-flag discussion above.
Pyridine	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
2-Fluorobiphenyl	D	Surrogate recoveries not accurately quantifiable.
2-Fluorophenol	D	Surrogate recoveries not accurately quantifiable.

Exceptions Report (FINAL SECTION / END-OF-REPORT):

Report #/Lab ID#: 447940 **Matrix:** soil
Client: US Ecology Texas **Attn:** Jose Salazar
Project ID:
Sample Name: 090101989-1

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T104704268-18-15

2,4,6-Tribromophenol	D	Surrogate recoveries not accurately quantifiable.
Nitrobenzene-d5	D	Surrogate recoveries not accurately quantifiable.
Phenol-d6	D	Surrogate recoveries not accurately quantifiable.
Terphenyl-d14	D	Surrogate recoveries not accurately quantifiable.
alpha-Chlordane (cis-Chlordane)	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
gamma-Chlordane (trans-Chlordane)	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
Heptachlor	J	See J-flag discussion above.
2,4-Dichlorophenyl acetic acid	D	Surrogate recoveries not accurately quantifiable.
2,4,5,6-Tetrachloro-m-xylene	D	Surrogate recoveries not accurately quantifiable.
Decachlorobiphenyl	D	Surrogate recoveries not accurately quantifiable.

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Client: US Ecology Texas
Attn: Jose Salazar
Address: 3277 County Rd 69
Robstown TX 78380
Phone: 361-887-3518 **FAX:**

NELAP ACCREDITED TNI LABORATORY
T104704268-18-15

Report#/Lab ID#: 447941 **Report Date:** 07/19/18
Project ID:
Sample Name: 090054592-1
Sample Matrix: soil
Date Received: 07/13/2018 **Time:** 09:37
Date Sampled: 07/13/2018 **Time:** 07:35

REPORT OF ANALYSIS **QUALITY ASSURANCE DATA** [1]

Parameter	Result	Units	RQL [5]	Blank	Date/Time Analyzed	Method [6]	TCLP Limit	TCEQ Limit	Data Qual.[7]	Prec.[2]	Recov.[3]
A/BN extraction-625/8270	---	---	---	---	07/16/18 11:45	3550	---	---	---	---	---
A/BN extraction-Herbicides	---	---	---	---	07/17/18 08:45	8151	---	---	---	---	---
A/BN extraction-Pesticides	---	---	---	---	07/18/18 09:02	3550	---	---	---	---	---
Ignitability/Flash Point	Not Ignitable	---	---	---	07/16/18 11:00	40CFR 261.21	---	---	N,	-NA-	-NA-
Metals Dig.-Hg/TCLP	---	---	---	---	07/16/18 12:10	7470	---	---	---	---	---
Metals Dig.-Total	---	---	---	---	07/17/18 08:00	3050B	---	---	---	---	---
Metals Dig.-Total/TCLP	---	---	---	---	07/16/18 10:05	3005A	---	---	---	---	---
pH (@T=22.4°C)	7.7	pH units	---	---	07/16/18 11:46	9045D	---	---	---	0.03	-NA-
TCLP extraction-metals	---	---	---	---	07/15/18 16:02	1311	---	---	---	---	---
Lead/ICPMS	109	mg/Kg	1	<1	07/17/18 13:42	6020A	---	---	S1,M,	0	52.2
TCLP-Arsenic/ICPMS	<0.5	mg/L	0.5	<0.5	07/17/18 07:07	6020A	5	1.8	---	0.3	101.9
TCLP-Barium/ICPMS	<5	mg/L	5	<5	07/17/18 07:07	6020A	100	100	J,	1	96.5
TCLP-Cadmium/ICPMS	<0.1	mg/L	0.1	<0.1	07/17/18 07:07	6020A	1	0.5	---	1.6	97.4
TCLP-Chromium/ICPMS	<0.5	mg/L	0.5	<0.5	07/17/18 20:39	6020A	5	5	---	2.2	104
TCLP-Lead/ICPMS	<0.2	mg/L	0.2	<0.2	07/17/18 07:07	6020A	5	1.5	---	1.2	94.8
TCLP-Mercury/CVAA	<0.004	mg/L	0.004	<0.004	07/16/18 15:11	7470	0.2	0.2	---	3.69	98.3
TCLP-Nickel/ICPMS	<1	mg/L	1	<1	07/17/18 07:07	6020A	70	70	J,	0.1	96
TCLP-Selenium/ICPMS	<0.1	mg/L	0.1	<0.1	07/17/18 07:07	6020A	1	1	---	0.4	102.7
TCLP-Silver/ICPMS	<0.1	mg/L	0.1	<0.1	07/17/18 07:07	6020A	5	5	---	1.1	101.7
Cyanide	<0.05	mg/Kg	0.05	<0.05	07/16/18 10:49	9014	---	590	J,	5.94	117.7
Reactivity cyanide	<1	mg/Kg	1	<1	07/17/18 10:00	9014/SW846-S.7.3	---	---	---	1.29	113.88

This analytical report is respectfully submitted by AnalySys, Inc. The enclosed results reflect only the sample identified above.The results have been carefully reviewed and to the best of my knowledge, unless otherwise indicated, meet NELAP requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program. © Copyright 2003, AnalySys, Inc., Austin, TX. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means without the express written consent of AnalySys, Inc.

Respectfully Submitted, Respectfully Submitted,

Quality Manager Assistant Quality Manager

Numbers in RED are above our MDLs and may or may not indicate a permit exceedance.
1. Quality assurance data for the sample batch which included this sample. 2. Precision (PREC) is the absolute value of the relative percent difference between duplicate results. 3. Recovery (Recov.) is the percent of analyte recovered from a spiked sample. 4. Calibration Verification (CCV) and Laboratory Control Sample (LCS) results are expressed as the percent recovery of analyte. 5. Reporting Quantitation Limits (RQL), typically at or above the Practical Quantitation Limit (PQL) of the analytical method. 6. Method numbers typically denote USEPA procedures. Less than ("<") values reflect nominal quantitation limits adjusted for any required dilutions. 7. Data Qualifiers are J = analyte detected between the RQL and the MDL. B =Analyte detected in associated method blank(s). C=poor CCV recovery. L=poor LCS recovery. S & S1 =MS and/or MSD recovery exceed advisory limits. S2 =Post digestion spike (PDS) recovery exceeds advisory limit. S3 =MS and/or MSD and PDS recoveries exceed advisory limits. P =Precision higher than advisory limit. M =Matrix interference. N=not NELAP certified. N1=subcontract result enquire concerning NELAP certification. Solid sample results for all metals, except Mercury, reported on a dry weght basis (DWB)s. All other results for solid samples reported on an as received basis unless specifically identified as DWB.

ANALYSYS LABORATORIES

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(512) 385-5886 • FAX (512) 919-4141

Client: US Ecology Texas
Attn: Jose Salazar

Project ID:
Sample Name: 090054592-1

Report#/Lab ID#: 447941
Sample Matrix: soil

REPORT OF ANALYSIS **QUALITY ASSURANCE DATA** [1]

Parameter	Result	Units	RQL [5]	Blank	Date/Time Analyzed	Method [6]	TCLP Limit	TCEQ Limit	Data Qual.[7]	Prec.[2]	Recov.[3]
Reactivity sulfide	<20	mg/Kg	20	<20	07/16/18 15:00	9034/SW846 S.7.3	---	---	---	2.3	88.17
Volatile Organics-8260	---	---	---	---	07/16/18	8260b(5030/5035)	---	---	---	---	---
Volatile Organics-8260	---	---	---	---	07/17/18	8260b(5030/5035)	---	---	---	---	---
1,1-Dichloroethene	<0.2	mg/Kg	0.2	<0.2	07/17/18 09:23	8260B	---	---	---	0	77.2
1,2-Dichloroethane	<0.2	mg/Kg	0.2	<0.2	07/17/18 09:23	8260B	---	---	---	0.3	101.9
1,4-Dichlorobenzene	<0.2	mg/Kg	0.2	<0.2	07/17/18 09:23	8260B	---	---	---	0.1	93.8
2-Butanone (MEK)	<0.4	mg/Kg	0.4	<0.4	07/17/18 09:23	8260B	---	---	---	10.1	60.6
Benzene	**0.868**	mg/Kg	0.2	<0.2	07/17/18 09:23	8260B	---	10	---	1.6	85.2
Carbon disulfide	<0.4	mg/Kg	0.4	<0.4	07/17/18 09:23	8260B	---	---	---	0.4	70.7
Carbon tetrachloride	<0.2	mg/Kg	0.2	<0.2	07/17/18 09:23	8260B	---	---	C,	3.4	117.2
Chlorobenzene	<0.2	mg/Kg	0.2	<0.2	07/17/18 09:23	8260B	---	---	---	2	96.4
Chloroform (Trichloromethane)	<0.2	mg/Kg	0.2	<0.2	07/17/18 09:23	8260B	---	---	J,	0.2	88.6
Ethylbenzene	**0.689**	mg/Kg	0.2	<0.2	07/17/18 09:23	8260B	---	10	---	2.7	98.9
m,p-Xylenes	**22.2**	mg/Kg	0.4	<0.4	07/17/18 09:23	8260B	---	---	---	3	100.3
o-Xylene	**39.5**	mg/Kg	5	<5	07/16/18 20:51	8260B	---	15	---	2.6	98.9
Tetrachloroethene (Perchlorethylene)	<0.2	mg/Kg	0.2	<0.2	07/17/18 09:23	8260B	---	---	---	3.1	101.8
Toluene	**5.09**	mg/Kg	0.2	<0.2	07/17/18 09:23	8260B	---	10	---	2.3	93.9
Trichloroethene	<0.2	mg/Kg	0.2	<0.2	07/17/18 09:23	8260B	---	---	---	2.4	98
Vinyl chloride	<0.2	mg/Kg	0.2	<0.2	07/17/18 09:23	8260B	---	---	---	0.8	75.5
Extractable Organics-625/8270	---	---	---	---	07/17/18	8270c	---	---	---	---	---
2-Methylphenol (o-Cresol)	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	---	---	24.1	51.5
2,4-Dimethylphenol	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	---	---	24.6	49.2
2,4-Dinitrotoluene	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	---	---	23	63.1
2,4,5-Trichlorophenol	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	---	---	15.5	58.3
2,4,6-Trichlorophenol	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	---	---	28.7	53.6
3&4 Methylphenol (m&p-Cresol)	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	---	---	21.6	54.2
Acenaphthene	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	0.059	J,	22.3	52.6
Anthracene	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	3.4	---	23.7	59.1
Benzo[a]anthracene	<25	mg/Kg	25	<25	07/17/18 14:33	8270c	---	3.4	J,	28.2	55.8
Benzo[a]pyrene	<25	mg/Kg	25	<25	07/17/18 14:33	8270c	---	3.4	J,	17.6	65.1
Benzo[g,h,i]perylene	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	---	---	13.3	67.2
bis(2-Ethylhexyl)phthalate	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	28	---	17.6	51.4
Chrysene	**39**	mg/Kg	25	<25	07/17/18 14:33	8270c	---	3.4	---	10.8	82.1
Di-n-butyl phthalate (Dibutylphthalate)	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	28	---	23.6	63.6
Fluorene	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	0.059	J,	17.3	61.1
Hexachlorobenzene	<25	mg/Kg	25	<25	07/17/18 14:33	8270c	---	---	---	24.5	64.3

ANALYSYS LABORATORIES

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 919-4141

Client: US Ecology Texas
Attn: Jose Salazar

Project ID:
Sample Name: 090054592-1

Report#/Lab ID#: 447941
Sample Matrix: soil

REPORT OF ANALYSIS **QUALITY ASSURANCE DATA** [1]

Parameter	Result	Units	RQL [5]	Blank	Date/Time Analyzed	Method [6]	TCLP Limit	TCEQ Limit	Data Qual.[7]	Prec.[2]	Recov.[3]
Hexachlorobutadiene	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	---	---	23.3	47.2
Hexachloroethane	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	---	---	16.2	42.3
Naphthalene	67.3	mg/Kg	50	<50	07/17/18 14:33	8270c	---	5.6	---	21.4	48
Nitrobenzene	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	---	C,	18.5	46.1
Pentachlorophenol	<25	mg/Kg	25	<25	07/17/18 14:33	8270c	---	---	P,	44.6	22.1
Phenanthrene	66.7	mg/Kg	50	<50	07/17/18 14:33	8270c	---	5.6	---	23.1	61.3
Phenol	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	5.6	C,	22.9	46.9
Pyrene	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	8.2	J,	21.3	70.6
Pyridine	<50	mg/Kg	50	<50	07/17/18 14:33	8270c	---	---	C,	9.8	38.5
Total Cresol	<100	mg/Kg	100	<100	07/17/18 14:33	calc.	---	---	---	-NA-	-NA-
Extractable Organics-Herbicides	---	---	---	---	07/17/18	8151a	---	---	---	---	---
Extractable Organics-Pesticides(SIM)	---	---	---	---	07/18/18	8270c	---	---	---	---	---
2,4-D	<4	mg/Kg	4	<4	07/17/18 21:40	8151a	---	---	---	20.7	38.6
2,4,5-TP (Silvex)	<0.4	mg/Kg	0.4	<0.4	07/17/18 21:40	8151a	---	---	---	1.1	46
alpha-Chlordane (cis-Chlordane)	<5	mg/Kg	5	<5	07/18/18 21:16	8270c	---	---	C,	1.3	91.9
Endrin	<2	mg/Kg	2	<2	07/18/18 21:16	8270c	---	---	---	16.2	95.7
gamma-Chlordane (trans-Chlordane)	<5	mg/Kg	5	<5	07/18/18 21:16	8270c	---	---	C,	0.8	103.3
Heptachlor	<1	mg/Kg	1	<1	07/18/18 21:16	8270c	---	---	---	0.8	57.8
Lindane (gamma-Hexachlorocyclohexane)	<2	mg/Kg	2	<2	07/18/18 21:16	8270c	---	---	---	7.7	62.3
Methoxychlor	<20	mg/Kg	20	<20	07/18/18 21:16	8270c	---	---	---	1.3	78.3
Toxaphene	<30	mg/Kg	30	<30	07/18/18 21:16	8270c	---	---	---	9.4	74.3

ANALYSYS LABORATORIES

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(512) 385-5886 • FAX (512) 919-4141

T104704268-18-15

Client: US Ecology Texas	**Project ID:**	**Report#/Lab ID#:** 447941
Attn: Jose Salazar	**Sample Name:** 090054592-1	**Sample Matrix:** soil

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Date Analyzed	Data Qualifiers
2,4-Dichlorophenyl acetic acid	8151a & 615	none/diluted	diluted @ 40000X	07/17/18	D
1,2-Dichloroethane-d4	8260B & 624	none/diluted	diluted @ 50X	07/16/18	D
1,2-Dichloroethane-d4	8260B & 624	**51.6**	55-130	07/17/18	X
4-Bromofluorobenzene	8260B & 624	none/diluted	diluted @ 50X	07/16/18	D
4-Bromofluorobenzene	8260B & 624	**21.6**	50-160	07/17/18	X
Toluene-d8	8260B & 624	none/diluted	diluted @ 50X	07/16/18	D
Toluene-d8	8260B & 624	**21.2**	55-145	07/17/18	X
2-Fluorobiphenyl	8270c & 625	none/diluted	diluted @ 250X	07/17/18	D
2-Fluorophenol	8270c & 625	none/diluted	diluted @ 250X	07/17/18	D
2,4,5,6-Tetrachloro-m-xylene	8270c & 625	none/diluted	diluted @ 5000X	07/18/18	D
2,4,6-Tribromophenol	8270c & 625	none/diluted	diluted @ 250X	07/17/18	D
Decachlorobiphenyl	8270c & 625	none/diluted	diluted @ 5000X	07/18/18	D
Nitrobenzene-d5	8270c & 625	none/diluted	diluted @ 250X	07/17/18	D
Phenol-d6	8270c & 625	none/diluted	diluted @ 250X	07/17/18	D
Terphenyl-d14	8270c & 625	none/diluted	diluted @ 250X	07/17/18	D

Data Qualifiers: D= Surrogates diluted and X= Surrogates outside advisory recovery limits.

Exceptions Report (FINAL SECTION / END-OF-REPORT):

Report #/Lab ID#: 447941 **Matrix:** soil
Client: US Ecology Texas **Attn:** Jose Salazar
Project ID:
Sample Name: 090054592-1

Unless otherwise identified by data qualifier "N" or by an exception report, all reported results represent parameters and tests for which AnalySys maintains NELAP certification; or results provided by a subcontractor with NELAP certification for the test

T104704268-18-15

Sample Temperature/Condition: ≤6°C

The typical sample temperature criteria (except for metals by ICP, GFAA and AA and a very few other tests) is <= 6°C. Possible exceptions include samples submitted to laboratory within such a short time after sampling that cooling measures used in the field and during transport had insufficient time to achieve desired temperatures in the samples (see sample collection and sample receipt times) and samples where the temperature could not be measured due to sample submission in a manner precluding temperature measurement without impacting sample integrity (ex. in a bottle with no cooler).

Standard sample acceptability conditions met? : **YES**

Sample received in appropriate container(s), at appropriate temperature and pH.

J flag Discussion:

A J-flag data qualifier indicates that the raw calculated analyte concentration in the sample (uncorrected for background levels/blanks and other potential sources of sampling and analytical contamination), though less than the Reported Quantitation Limit (RQL) is greater than the Detection Limit. Because the reported result is below the quantitation limit for this project/sample (or test procedure), GC/MS organics results may or MAY NOT have been verified as to the presence and relative ratio of target ions (eg. the material causing the J flag "hit" in such situations may be nothing more than background ion-fragment noise.)

Comments pertaining to Data Qualifiers and QC data (where applicable):

Parameter	Qualif.	Comments
Ignitability/Flash Point	N	NELAP accreditation for this analyte not available from TCEQ. 30 TAC§25.6(4) applies.
Lead/ICPMS	S2	Spike (MS,MSD) recovery issue. MS & MSD recovery outside acceptance range. LCS recovery OK. Probable matrix interference.
TCLP-Barium/ICPMS	J	See J-flag discussion above.
TCLP-Nickel/ICPMS	J	See J-flag discussion above.
Cyanide	J	See J-flag discussion above.
Carbon tetrachloride	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
Chloroform (Trichloromethane)	J	See J-flag discussion above.
1,2-Dichloroethane-d4	D	Surrogate recoveries not accurately quantifiable.
1,2-Dichloroethane-d4 1,2-Dichloroethane-d4 1,2-Dichloroethane-d4	X X X	Typically verified by reanalysis or reextraction & reanalysis. In some well known matrices (sample sources with known interferences) and for some conditions (high/interfering organic levels), reextraction and/or reanalysis may be at analysts discretion. Minimally elevated surrog. recovery indicating the potential for a slightly high bias is typically considered acceptable where there are no quantifiable target analytes found.
4-Bromofluorobenzene	D	Surrogate recoveries not accurately quantifiable.
4-Bromofluorobenzene 4-Bromofluorobenzene 4-Bromofluorobenzene	X X X	Typically verified by reanalysis or reextraction & reanalysis. In some well known matrices (sample sources with known interferences) and for some conditions (high/interfering organic levels), reextraction and/or reanalysis may be at analysts discretion. Minimally elevated surrog. recovery indicating the potential for a slightly high bias is typically considered acceptable where there are no quantifiable target analytes found.
Toluene-d8	D	Surrogate recoveries not accurately quantifiable.
Toluene-d8 Toluene-d8 Toluene-d8	X X X	Typically verified by reanalysis or reextraction & reanalysis. In some well known matrices (sample sources with known interferences) and for some conditions (high/interfering organic levels), reextraction and/or reanalysis may be at analysts discretion. Minimally elevated surrog. recovery indicating the potential for a slightly high bias is typically considered acceptable where there are no quantifiable target analytes found.
Acenaphthene	J	See J-flag discussion above.
Benzo[a]anthracene	J	See J-flag discussion above.

Exceptions Report (FINAL SECTION / END-OF-REPORT):

Report #/Lab ID#: 447941 **Matrix:** soil
Client: US Ecology Texas **Attn:** Jose Salazar
Project ID:
Sample Name: 090054592-1

Unless otherwise identified by data qualifier "N" or by an exception report, all reported results represent parameters and tests for which AnalySys maintains NELAP certification; or results provided by a subcontractor with NELAP certification for the test

T104704268-18-15

Benzo[a]pyrene	J	See J-flag discussion above.
Fluorene	J	See J-flag discussion above.
Nitrobenzene	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
Pentachlorophenol	P	Precision issue. Precision of MS & MSD or Sample & duplicate high.
Phenol	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
Pyrene	J	See J-flag discussion above.
Pyridine	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
2-Fluorobiphenyl	D	Surrogate recoveries not accurately quantifiable.
2-Fluorophenol	D	Surrogate recoveries not accurately quantifiable.
2,4,6-Tribromophenol	D	Surrogate recoveries not accurately quantifiable.
Nitrobenzene-d5	D	Surrogate recoveries not accurately quantifiable.
Phenol-d6	D	Surrogate recoveries not accurately quantifiable.
Terphenyl-d14	D	Surrogate recoveries not accurately quantifiable.
alpha-Chlordane (cis-Chlordane)	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
gamma-Chlordane (trans-Chlordane)	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
2,4-Dichlorophenyl acetic acid	D	Surrogate recoveries not accurately quantifiable.
2,4,5,6-Tetrachloro-m-xylene	D	Surrogate recoveries not accurately quantifiable.
Decachlorobiphenyl	D	Surrogate recoveries not accurately quantifiable.

ANALYSYS LABORATORIES

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(512) 385-5886 • FAX (512) 919-4141

Client: US Ecology Texas
Attn: Jose Salazar
Address: 3277 County Rd 69
Robstown TX 78380
Phone: 361-887-3518 **FAX:**

NELAP ACCREDITED TNI LABORATORY
T104704268-18-15

Report#/Lab ID#: 447942 **Report Date:** 07/19/18
Project ID:
Sample Name: Centrifuged Solids
Sample Matrix: soil
Date Received: 07/13/2018 **Time:** 09:37
Date Sampled: 07/13/2018 **Time:** 07:45

REPORT OF ANALYSIS **QUALITY ASSURANCE DATA** [1]

Parameter	Result	Units	RQL [5]	Blank	Date/Time Analyzed	Method [6]	TCLP Limit	TCEQ Limit	Data Qual.[7]	Prec.[2]	Recov.[3]
A/BN extraction-625/8270	---	---	---	---	07/16/18 11:45	3550	---	---	---	---	---
A/BN extraction-Herbicides	---	---	---	---	07/17/18 08:45	8151	---	---	---	---	---
A/BN extraction-Pesticides	---	---	---	---	07/18/18 09:02	3550	---	---	---	---	---
Ignitability/Flash Point	Not Ignitable	---	---	---	07/16/18 11:00	40CFR 261.21	---	---	N,	-NA-	-NA-
Metals Dig.-Hg/TCLP	---	---	---	---	07/17/18 11:30	7470	---	---	---	---	---
Metals Dig.-Total	---	---	---	---	07/17/18 08:00	3050B	---	---	---	---	---
Metals Dig.-Total/TCLP	---	---	---	---	07/17/18 09:50	3005A	---	---	---	---	---
pH (@T=23°C)	5.6	pH units	---	---	07/16/18 11:50	9045D	---	---	---	0.03	-NA-
TCLP extraction-metals	---	---	---	---	07/16/18 17:45	1311	---	---	---	---	---
Lead/ICPMS	282	mg/Kg	1	<1	07/17/18 13:49	6020A	---	---	S1,M,	0	52.2
TCLP-Antimony/ICPMS	<0.5	mg/L	0.5	<0.5	07/17/18 20:53	6020A	1	1	J,	7.1	98.3
TCLP-Arsenic/ICPMS	<0.5	mg/L	0.5	<0.5	07/17/18 20:53	6020A	5	1.8	J,	0.1	108
TCLP-Barium/ICPMS	<5	mg/L	5	<5	07/17/18 20:53	6020A	100	100	J,B1,	6.1	101.3
TCLP-Cadmium/ICPMS	<0.1	mg/L	0.1	<0.1	07/17/18 20:53	6020A	1	0.5	---	4	108.3
TCLP-Chromium/ICPMS	<0.5	mg/L	0.5	<0.5	07/17/18 20:53	6020A	5	5	---	2.2	104
TCLP-Lead/ICPMS	<0.2	mg/L	0.2	<0.2	07/17/18 20:53	6020A	5	1.5	---	5.3	94.1
TCLP-Mercury/CVAA	<0.004	mg/L	0.004	<0.004	07/17/18 14:20	7470	0.2	0.2	---	1.74	98.8
TCLP-Nickel/ICPMS	<1	mg/L	1	<1	07/17/18 20:53	6020A	70	70	J,	0.1	104.8
TCLP-Selenium/ICPMS	<0.1	mg/L	0.1	<0.1	07/17/18 20:53	6020A	1	1	J,B,B1,L,	0.1	115.6
TCLP-Silver/ICPMS	<0.1	mg/L	0.1	<0.1	07/17/18 20:53	6020A	5	5	---	6.7	103.6
TCLP-Vanadium/ICPMS	<1	mg/L	1	<1	07/17/18 20:53	6020A	---	30	---	3	100.1

This analytical report is respectfully submitted by AnalySys, Inc. The enclosed results reflect only the sample identified above.The results have been carefully reviewed and to the best of my knowledge, unless otherwise indicated, meet NELAP requirements as described by AnalySys, Inc.'s Quality Assurance/Quality Control Program. © Copyright 2003, AnalySys, Inc., Austin, TX. All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means without the express written consent of AnalySys, Inc.

Respectfully Submitted, Respectfully Submitted,
Quality Manager Assistant Quality Manager

Numbers in RED are above our MDLs and may or may not indicate a permit exceedance.
1. Quality assurance data for the sample batch which included this sample. 2. Precision (PREC) is the absolute value of the relative percent difference between duplicate results. 3. Recovery (Recov.) is the percent of analyte recovered from a spiked sample. 4. Calibration Verification (CCV) and Laboratory Control Sample (LCS) results are expressed as the percent recovery of analyte. 5. Reporting Quantitation Limits (RQL), typically at or above the Practical Quantitation Limit (PQL) of the analytical method. 6. Method numbers typically denote USEPA procedures. Less than ("<") values reflect nominal quantitation limits adjusted for any required dilutions. 7. Data Qualifiers are J = analyte detected between the RQL and the MDL. B =Analyte detected in associated method blank(s). C=poor CCV recovery. L=poor LCS recovery. S & S1 =MS and/or MSD recovery exceed advisory limits. S2 =Post digestion spike (PDS) recovery exceeds advisory limit. S3 =MS and/or MSD and PDS recoveries exceed advisory limits. P =Precision higher than advisory limit. M =Matrix interference. N=not NELAP certified. N1=subcontract result enquire concerning NELAP certification. Solid sample results for all metals, except Mercury, reported on a dry weght basis (DWB)s. All other results for solid samples reported on an as received basis unless specifically identified as DWB.

ANALYSYS LABORATORIES

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(512) 385-5886 • FAX (512) 919-4141

Client: US Ecology Texas
Attn: Jose Salazar

Project ID:
Sample Name: Centrifuged Solids

Report#/Lab ID#: 447942
Sample Matrix: soil

REPORT OF ANALYSIS — **QUALITY ASSURANCE DATA** [1]

Parameter	Result	Units	RQL [5]	Blank	Date/Time Analyzed	Method [6]	TCLP Limit	TCEQ Limit	Data Qual.[7]	Prec.[2]	Recov.[3]
Cyanide	0.251	mg/Kg	0.05	<0.05	07/16/18 10:51	9014	---	590	---	5.94	117.7
Reactivity cyanide	<1	mg/Kg	1	<1	07/17/18 10:00	9014/SW846-S.7.3	---	---	---	1.29	113.88
Reactivity sulfide	<20	mg/Kg	20	<20	07/16/18 15:00	9034/SW846 S.7.3	---	---	---	2.3	88.17
Volatile Organics-8260	---	---	---	---	07/16/18	8260b(5030/5035)	---	---	---	---	---
1,1-Dichloroethene	<25	mg/Kg	25	<25	07/16/18 21:12	8260B	---	---	---	0	77.2
1,2-Dichloroethane	<25	mg/Kg	25	<25	07/16/18 21:12	8260B	---	---	---	0.3	101.9
1,4-Dichlorobenzene	<25	mg/Kg	25	<25	07/16/18 21:12	8260B	---	---	---	0.1	93.8
2-Butanone (MEK)	<50	mg/Kg	50	<50	07/16/18 21:12	8260B	---	---	---	10.1	60.6
Benzene	920	mg/Kg	25	<25	07/16/18 21:12	8260B	---	10	---	1.6	85.2
Carbon disulfide	<50	mg/Kg	50	<50	07/16/18 21:12	8260B	---	---	---	0.4	70.7
Carbon tetrachloride	<25	mg/Kg	25	<25	07/16/18 21:12	8260B	---	---	C,	3.4	117.2
Chlorobenzene	<25	mg/Kg	25	<25	07/16/18 21:12	8260B	---	---	---	2	96.4
Chloroform (Trichloromethane)	<25	mg/Kg	25	<25	07/16/18 21:12	8260B	---	---	J,	0.2	88.6
Ethylbenzene	243	mg/Kg	25	<25	07/16/18 21:12	8260B	---	10	---	2.7	98.9
m,p-Xylenes	464	mg/Kg	50	<50	07/16/18 21:12	8260B	---	---	---	3	100.3
o-Xylene	214	mg/Kg	25	<25	07/16/18 21:12	8260B	---	15	---	2.6	98.9
Tetrachloroethene (Perchlorethylene)	<25	mg/Kg	25	<25	07/16/18 21:12	8260B	---	---	---	3.1	101.8
Toluene	917	mg/Kg	25	<25	07/16/18 21:12	8260B	---	10	---	2.3	93.9
Trichloroethene	<25	mg/Kg	25	<25	07/16/18 21:12	8260B	---	---	---	2.4	98
Vinyl chloride	<25	mg/Kg	25	<25	07/16/18 21:12	8260B	---	---	---	0.8	75.5
Extractable Organics-625/8270	---	---	---	---	07/16/18	8270c	---	---	---	---	---
2-Methylphenol (o-Cresol)	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	---	J,	24.1	51.5
2,4-Dimethylphenol	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	---	---	24.6	49.2
2,4-Dinitrotoluene	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	---	---	23	63.1
2,4,5-Trichlorophenol	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	---	---	15.5	58.3
2,4,6-Trichlorophenol	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	---	---	28.7	53.6
3&4 Methylphenol (m&p-Cresol)	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	---	---	21.6	54.2
Acenaphthene	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	0.059	J,	22.3	52.6
Anthracene	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	3.4	---	23.7	59.1
Benzo[a]anthracene	<125	mg/Kg	125	<125	07/16/18 21:02	8270c	---	3.4	J,	28.2	55.8
Benzo[a]pyrene	<125	mg/Kg	125	<125	07/16/18 21:02	8270c	---	3.4	---	17.6	65.1
Benzo[g,h,i]perylene	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	---	---	13.3	67.2
bis(2-Ethylhexyl)phthalate	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	28	---	17.6	51.4
Chrysene	169	mg/Kg	125	<125	07/16/18 21:02	8270c	---	3.4	---	10.8	82.1
Di-n-butyl phthalate (Dibutylphthalate)	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	28	---	23.6	63.6
Dibenz[a,h]anthracene	<125	mg/Kg	125	<125	07/16/18 21:02	8270c	---	---	---	15.3	63.4

ANALYSYS LABORATORIES

3512 Montopolis Drive, Austin, TX 78744 &
2209 N. Padre Island Dr., Corpus Christi, TX 78408
(512) 385-5886 • FAX (512) 919-4141

Client: US Ecology Texas
Attn: Jose Salazar

Project ID:
Sample Name: Centrifuged Solids

Report#/Lab ID#: 447942
Sample Matrix: soil

REPORT OF ANALYSIS **QUALITY ASSURANCE DATA** [1]

Parameter	Result	Units	RQL [5]	Blank	Date/Time Analyzed	Method [6]	TCLP Limit	TCEQ Limit	Data Qual.[7]	Prec.[2]	Recov.[3]
Fluorene	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	0.059	J,	17.3	61.1
Hexachlorobenzene	<125	mg/Kg	125	<125	07/16/18 21:02	8270c	---	---	---	24.5	64.3
Hexachlorobutadiene	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	---	---	23.3	47.2
Hexachloroethane	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	---	---	16.2	42.3
Indeno[1,2,3-cd]pyrene	<125	mg/Kg	125	<125	07/16/18 21:02	8270c	---	---	---	16.4	65.8
Naphthalene	2490	mg/Kg	250	<250	07/16/18 21:02	8270c	---	5.6	---	21.4	48
Nitrobenzene	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	---	---	18.5	46.1
Pentachlorophenol	<125	mg/Kg	125	<125	07/16/18 21:02	8270c	---	---	P,	44.6	22.1
Phenanthrene	342	mg/Kg	250	<250	07/16/18 21:02	8270c	---	5.6	---	23.1	61.3
Phenol	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	5.6	---	22.9	46.9
Pyrene	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	8.2	J,	21.3	70.6
Pyridine	<250	mg/Kg	250	<250	07/16/18 21:02	8270c	---	---	C,	9.8	38.5
Total Cresol	<500	mg/Kg	500	<500	07/16/18 21:02	calc.	---	---	---	-NA-	-NA-
Extractable Organics-Herbicides	---	---	---	---	07/17/18	8151a	---	---	---	---	---
Extractable Organics-Pesticides(SIM)	---	---	---	---	07/18/18	8270c	---	---	---	---	---
2,4-D	<4	mg/Kg	4	<4	07/17/18 22:11	8151a	---	---	---	20.7	38.6
2,4,5-TP (Silvex)	<0.4	mg/Kg	0.4	<0.4	07/17/18 22:11	8151a	---	---	---	1.1	46
alpha-Chlordane (cis-Chlordane)	<10	mg/Kg	10	<10	07/18/18 19:44	8270c	---	---	C,	1.3	91.9
Endrin	<4	mg/Kg	4	<4	07/18/18 19:44	8270c	---	---	---	16.2	95.7
gamma-Chlordane (trans-Chlordane)	<10	mg/Kg	10	<10	07/18/18 19:44	8270c	---	---	C,	0.8	103.3
Heptachlor	<2	mg/Kg	2	<2	07/18/18 19:44	8270c	---	---	---	0.8	57.8
Lindane (gamma-Hexachlorocyclohexane)	<4	mg/Kg	4	<4	07/18/18 19:44	8270c	---	---	---	7.7	62.3
Methoxychlor	<40	mg/Kg	40	<40	07/18/18 19:44	8270c	---	---	---	1.3	78.3
Toxaphene	<60	mg/Kg	60	<60	07/18/18 19:44	8270c	---	---	---	9.4	74.3

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(512) 385-5886 • FAX (512) 919-4141

T104704268-18-15

Client: US Ecology Texas	**Project ID:**	**Report#/Lab ID#:** 447942
Attn: Jose Salazar	**Sample Name:** Centrifuged Solids	**Sample Matrix:** soil

REPORT OF SURROGATE RECOVERY

Surrogate Compound	Method	Recovery	Recovery Limits	Date Analyzed	Data Qualifiers
2,4-Dichlorophenyl acetic acid	8151a & 615	none/diluted	diluted @ 40000X	07/17/18	D
1,2-Dichloroethane-d4	8260B & 624	none/diluted	diluted @ 250X	07/16/18	D
4-Bromofluorobenzene	8260B & 624	none/diluted	diluted @ 250X	07/16/18	D
Toluene-d8	8260B & 624	none/diluted	diluted @ 250X	07/16/18	D
2-Fluorobiphenyl	8270c & 625	none/diluted	diluted @ 1250X	07/16/18	D
2-Fluorophenol	8270c & 625	none/diluted	diluted @ 1250X	07/16/18	D
2,4,5,6-Tetrachloro-m-xylene	8270c & 625	none/diluted	diluted @ 10000X	07/18/18	D
2,4,6-Tribromophenol	8270c & 625	none/diluted	diluted @ 1250X	07/16/18	D
Decachlorobiphenyl	8270c & 625	none/diluted	diluted @ 10000X	07/18/18	D
Nitrobenzene-d5	8270c & 625	none/diluted	diluted @ 1250X	07/16/18	D
Phenol-d6	8270c & 625	none/diluted	diluted @ 1250X	07/16/18	D
Terphenyl-d14	8270c & 625	none/diluted	diluted @ 1250X	07/16/18	D

Data Qualifiers: D= Surrogates diluted and X= Surrogates outside advisory recovery limits.

Exceptions Report (FINAL SECTION / END-OF-REPORT):

Report #/Lab ID#: 447942 **Matrix:** soil
Client: US Ecology Texas **Attn:** Jose Salazar
Project ID:
Sample Name: Centrifuged Solids

Unless otherwise identified by data qualifier "N" or by an exception report, all reported results represent parameters and tests for which AnalySys maintains NELAP certification; or results provided by a subcontractor with NELAP certification for the test

T104704268-18-15

Sample Temperature/Condition: ≤6°C

The typical sample temperature criteria (except for metals by ICP, GFAA and AA and a very few other tests) is <= 6°C. Possible exceptions include samples submitted to laboratory within such a short time after sampling that cooling measures used in the field and during transport had insufficient time to achieve desired temperatures in the samples (see sample collection and sample receipt times) and samples where the temperature could not be measured due to sample submission in a manner precluding temperature measurement without impacting sample integrity (ex. in a bottle with no cooler).

Standard sample acceptability conditions met? : **YES**

Sample received in appropriate container(s), at appropriate temperature and pH.

J flag Discussion:

A J-flag data qualifier indicates that the raw calculated analyte concentration in the sample (uncorrected for background levels/blanks and other potential sources of sampling and analytical contamination), though less than the Reported Quantitation Limit (RQL) is greater than the Detection Limit. Because the reported result is below the quantitation limit for this project/sample (or test procedure), GC/MS organics results may or MAY NOT have been verified as to the presence and relative ratio of target ions (eg. the material causing the J flag "hit" in such situations may be nothing more than background ion-fragment noise.)

Comments pertaining to Data Qualifiers and QC data (where applicable):

Parameter	Qualif.	Comments
Ignitability/Flash Point	N	NELAP accreditation for this analyte not available from TCEQ. 30 TAC§25.6(4) applies.
Lead/ICPMS	S2	Spike (MS,MSD) recovery issue. MS & MSD recovery outside acceptance range. LCS recovery OK. Probable matrix interference.
TCLP-Antimony/ICPMS	J	See J-flag discussion above.
TCLP-Arsenic/ICPMS	J	See J-flag discussion above.
TCLP-Barium/ICPMS	J	See J-flag discussion above.
TCLP-Barium/ICPMS	B1	ICP/ICPMS prep blank (PB) issue. PB>2.2*MDL. Sample result may be impacted.
TCLP-Nickel/ICPMS	J	See J-flag discussion above.
TCLP-Selenium/ICPMS	J	See J-flag discussion above.
TCLP-Selenium/ICPMS	B	Calib. blank (CCB) issue. CCB meets all method reqired criteria but > RQL.
TCLP-Selenium/ICPMS	B1	ICP/ICPMS prep blank (PB) issue. PB>2.2*MDL. Sample result may be impacted.
TCLP-Selenium/ICPMS	L	Lab control sample (LCS or spiked blank). LCS recov-high (high bias). Sample quantitation may be impacted.
Carbon tetrachloride	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
Chloroform (Trichloromethane)	J	See J-flag discussion above.
1,2-Dichloroethane-d4	D	Surrogate recoveries not accurately quantifiable.
4-Bromofluorobenzene	D	Surrogate recoveries not accurately quantifiable.
Toluene-d8	D	Surrogate recoveries not accurately quantifiable.
2-Methylphenol (o-Cresol)	J	See J-flag discussion above.
Acenaphthene	J	See J-flag discussion above.
Benzo[a]anthracene	J	See J-flag discussion above.

Exceptions Report (FINAL SECTION / END-OF-REPORT):

Report #/Lab ID#: 447942 **Matrix:** soil
Client: US Ecology Texas **Attn:** Jose Salazar
Project ID:
Sample Name: Centrifuged Solids

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T104704268-18-15

Fluorene	J	See J-flag discussion above.
Pentachlorophenol	P	Precision issue. Precision of MS & MSD or Sample & duplicate high.
Pyrene	J	See J-flag discussion above.
Pyridine	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
2-Fluorobiphenyl	D	Surrogate recoveries not accurately quantifiable.
2-Fluorophenol	D	Surrogate recoveries not accurately quantifiable.
2,4,6-Tribromophenol	D	Surrogate recoveries not accurately quantifiable.
Nitrobenzene-d5	D	Surrogate recoveries not accurately quantifiable.
Phenol-d6	D	Surrogate recoveries not accurately quantifiable.
Terphenyl-d14	D	Surrogate recoveries not accurately quantifiable.
alpha-Chlordane (cis-Chlordane)	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
gamma-Chlordane (trans-Chlordane)	C	Cont. Calib. Verification (CCV). CCV recov-high (high bias). Sample result < MDL. No impact.
2,4-Dichlorophenyl acetic acid	D	Surrogate recoveries not accurately quantifiable.
2,4,5,6-Tetrachloro-m-xylene	D	Surrogate recoveries not accurately quantifiable.
Decachlorobiphenyl	D	Surrogate recoveries not accurately quantifiable.

ANALYSYS LABORATORIES

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CHAIN-OF-CUSTODY

Web: www.analysysinc.com
E-Mail: analysys@analysysinc.com

COMPANY NAME: US Ecology Texas
ADDRESS: 3277 County Rd 69
CITY: Robstown STATE: TX ZIP: 78380
ATTN: Jose Salazar
PHONE: 3613873518 FAX/EMAIL: jsalazar@hxassociates.com

BILL TO COMPANY: US Ecology Texas PAGE 1 OF 1
BILL TO ADDRESS: P.O. Box 307 Robstown, TX 78380
PO #:
PROJECT NAME:
PROJECT NUMBER: SAMPLER: Jose Salazar

Special Reporting
- TRRP Report ☐
- TRRP with no QC ☐
- EDD Spreadsheet ☐
- Dry Weight Basis ☐

5035 Requirements
- Petroleum Storage Tank Rule ☐
- No Hydrocarbons in C6-C12 Range ☐

Client Sample No. Description/Identification	Date Sampled	Time Sampled (CB 7-13-18)	# of Containers	Grab	Composite	Lab I.D. # (Lab Only)	Ice	HNO3	HCL	ZnAc/NaOH	H2SO4 Glass	Unpreserved	Other (Specify)	Matrix: Water-W, Soil-S, Air-A, Waste-WST, Liquid Waste-LW, Other-Specify	PARAMETERS(1): D001-D043	TAT*: 24hr / 48hr / 72hr / Standard
090067188-0	7/13/18	0855	2		✓	447939	✓							S	✓	✓
090101989-1	"	~~8~~ 87 20	2		✓	447940	✓							S	✓	✓
090054592-1	"	~~8~~ 87 35	2		✓	447941	✓							S	✓	✓
Centrifuged Solids	"	~~8~~ 87 45	2		✓	447942	✓							S	✓	✓

Special Instructions (such as special QC requirements, lists, methods, etc...)

Additional reports to:

(1)Unless specifically requested otherwise on this Chain-of-custody and/or attached documentation, all analyses will be conducted using ASI's method of choice and all data will be reported to ASI's normal reporting limits (MDL/PQL). For GC/MS volatiles and extractables, unless specific analytical parameter lists are specified on this chain-of-custody or attached to this chain-of-custody, ASI will default to Priority Pollutants or ASI's HSL list at ASI's option. Specific compound lists must be supplied for all GC procedures.

Custody Seal
☐ Intact ☐ Broken ☐ Absent
☐ Absent/Hand Delivered

Temperature upon receipt

°C-observed	°C-corrected	T#:
2.7°C	2.6°C	106
Temp Blank ☑		Ambient ☐
Lab ID #		

Sample Relinquished By				Sample Received By			
Name	Affiliation	Date	Time	Name	Affiliation	Date	Time
Jose Salazar	USET	7/13/18	9:37	CHAdams	ASI	7/13/18	9:37

[Tendering of above described samples to AnalySys, Inc. for analytical testing constitutes agreement by buyer/sampler to AnalySys, Inc.'s standard terms.]
* By selecting RUSH/Accelerated TAT, client agrees to additional fees. Please call your Project Manager. ASI will make all reasonable efforts to meet rush requests.

F-0026 V11-081516
Effective Date: 08/15/16
1 of 1

From: Jose Salazar jsalazar@tdxassociates.com
Subject: D Code Samples
Date: July 13, 2018 at 1:08 PM
To: Elizabeth Prokop eprokop@analysysinc.com

Elizabeth,

I spoke to Micheal Leva this morning about the 4 samples that we are submitting for analysis for D001-D0043. I went through each D code to ensure the results are reported in the correct units which I have included below:

D001-Igniability
D002 -Corrosivity
D003 -Reactivity
D004 - Arsenic (mg/l TCLP)
D005 - Barium (mg/l TCLP)
D006 - Cadmium (mg/l TCLP)
D007 - Chromium (mg/l TCLP)
D008 - Lead (mg/l TCLP)
D009 - Mercury (mg/l TCLP)
D010 - Selenium (mg/l TCLP)
D011 - Silver (mg/l TCLP)
D012 - Endrin (mg/kg)
D013 - Lindane (mg/kg)
D014 - Methoxychlor (mg/kg)
D015 - Toxaphene (mg/kg)
D016 - 2,4 Dichlorophenoxyacetic acid (mg/kg)
D017 - 2,4,5 -TP (Silvex) (mg/kg)
D018 - Benzene (mg/kg)
D019 - Carbon tetrachloride (mg/kg)
D020 - Chlordane (mg/kg)
D021 - Chlorobenzene (mg/kg)
D022 - Chloroform (mg/kg)
D023 - o- Cresol (mg/kg)
D024 - m- Cresol (mg/kg)
D025 - p - Cresol (mg/kg)
D026 - Cresols (Total) (mg/kg)
D027 - p-Dichloroethane (mg/kg)
D028 - 1,2 Dichloroethylene (mg/kg)
D029 - 1,1 Dichlorethylene (mg/kg)
D030 - 2,4 Dinitrotoluene (mg/kg)
D031 - Heptachlor (mg/kg)
D032 - Hexachlorobenzene (mg/kg)
D033 - Hexachlorobutadiene (mg/kg)
D034 - Hexachloroethane (mg/kg)
D035 - Methyl Ethyl Ketone (mg/kg)
D036 - Nitrobenzene (mg/kg)
D037 - Pentachlorophenol (mg/kg)
D038 - Pyridine (mg/kg)
D039 - Tetrachloroethylene (mg/kg)
D040 - Trichloroethylene (mg/kg)
D041 - 2,4,5 Trichlorophenol (mg/kg)
D042 - 2,4,6 Trichlorophenol (mg/kg)
D043 - Vinyl Chloride

In addition to analyzing these samples for all D codes , we would also like to add these to each individual sample. All constituents will be reported in mg/kg unless noted otherwise next to the compound. Some of these compounds might be repeats of D codes. They only need to be run once.

090054592-1
Acenaphtene
Anthracene
Benzene
Benz (a) anthracene
Benzo (a) pyrene
bis (2-ethylhexyl)
Phthalate
Chrysene
Di-n-butyl-phthalate
Ethylbenzene
Fluorene
Naphthalene
Phenanthrene
Phenol
Pyrene
Toluene
Xylenes
Chromium (mg/l TCLP)
Cyanides
Lead
Nickel (mg/l TCLP)
Carbon Disulfide
2,4 - Dimethylphenol
Benzo (g,h,i) perylene

090067188-0
Acenaphtene
Anthracene
Benzene
Benz (a) anthracene

Benzo (a) pyrene
bis (2-ethylhexyl)
Phthalate
Chrysene
Di-n-butyl-phthalate
Ethylbenzene
Fluorene
Naphthalene
Phenanthrene
Phenol
Pyrene
Toluene
Xylenes
Chromium (TCLP)
Cyanides
Lead
Nickel (TCLP)

090101989-1
Acenaphtene
Anthracene
Benzene
Benz (a) anthracene
Benzo (a) pyrene
bis (2-ethylhexyl)
Phthalate
Chrysene
Di-n-butyl-phthalate
Ethylbenzene
Fluorene
Naphthalene
Phenanthrene
Phenol
Pyrene
Toluene
Xylenes
Chromium (TCLP)
Cyanides
Lead
Nickel (TCLP)

Centrifuged Solids
Acenaphtene
Anthracene
Benzene
Benz (a) anthracene
Benzo (a) pyrene
bis (2-ethylhexyl)
Phthalate
Chrysene
Di-n-butyl-phthalate
Ethylbenzene
Fluorene
Naphthalene
Phenanthrene
Phenol
Pyrene
Toluene
Xylenes
Chromium (TCLP)
Cyanides
Lead
Nickel (TCLP)
Carbon disulfide
2,4 Dimethylphenol
O-Cresol
M-Cresol
P- Cresol
Benzo (g,h,i) perylene
Dibenz (a,h) anthracene
Indeno (1,2,3,cd) pyrene
Vanadium (TCLP)
Reactive sulfides
Antimony (mg/l TCLP)
Arsenic (mg/l TCLP)

The samples are ready for pickup now. Please let me know if there are any questions.

Thank you

Jose Salazar
Process Engineer
*TD*X Associates*

3613873518 ext 2264

SAMPLE CHECK-IN

Date: 7-13-18 Sample IDs: 447939-942 Samples Checked by: JB

COC Entry Line	1	2	3	4	5	6	7	8	9	10
a 4 oz soil jar										
b 8 oz soil jar										
c 16 oz soil jar	1	1	1	1						
d 32 oz soil jar										
e Soil VOA vials w/Stir Bar										
f Soil VOA vials (unpres)										
VOA Vials	if Headspace Present (+#s)	if Headspace Present (+#s)	if Headspace Present (+#s)	if Headspace Present (+#s)	if Headspace Present (+#s)	if Headspace Present (+#s)	if Headspace Present (+#s)	if Headspace Present (+#s)	if Headspace Present (+#s)	if Headspace Present (+#s)
g 40 mL VOA vials (unpres)										
h 40 mL VOA vials (HCl)										
Unpreserved Bottles										
i 500 mL amber (unpres)										
j 950 mL amber (unpres)										
k 8 oz HDPE (unpres)										
l 16 oz HDPE (unpres)										
m 32 oz HDPE (unpres)										
Preserved Bottles										
Acid pH paper CL#	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH
n 120 mL amber (H2SO4)										
o 250 mL amber (H2SO4)										
p 500 mL amber (H2SO4)										
q 8 oz Nalgene (HNO3)										
r 16 oz Nalgene (HNO3)										
s 32 oz Nalgene (HNO3)										
Base pH paper CL#	pH	pH	pH	pH	pH	pH	pH	pH	pH	pH
t 8 oz HDPE (NaOH)										
u 8 oz HDPE (ZnAc/NaOH)										
v 16 oz HDPE (Ascorbic acid)										
Air										
w Tedlar bag										
x SUMA canister										
Miscellaneous										
y Sterile Bottle										
z Other										
Bottles in Austin	c	c	c	c						
Bottles in Corpus Christi	a	a	a	a						
Bottles to Subcontract Lab(s)										

Sample Split/Composite

Date: 7-13-18 Acid pH paper CL: _____

Name/Initials: JB Base pH paper CL: _____

Lab ID	Comp	Split	Initial Bottle Type	Initial Bottle #of bottles	Final Bottle Type	Final Bottle #of bottles	Final pH (if required) Acid	Final pH (if required) Base
447939		✓	c	1	a	1	2	10
447940		✓	c	1	a	1	2	10
447941		✓	c	1	a	1	2	10
447942		✓	c	1	a	1	2	10
							2	10
							2	10
							2	10
							2	10
							2	10
							2	10
							2	10
							2	10
							2	10
							2	10
							2	10
							2	10
							2	10
							2	10
							2	10

Keys for Bottle Types	
a	4 oz soil jar
b	8 oz soil jar
c	16 oz soil jar
d	32 oz soil jar
e	Soil VOA vials w/Stir Bar
f	Soil VOA vials (unpres)
g	40 mL VOA vials (unpres)
h	40 mL VOA vials (HCl)
i	500 mL amber (unpres)
j	950 mL amber (unpres)
k	8 oz HDPE (unpres)
l	16 oz HDPE (unpres)
m	32 oz HDPE (unpres)
n	120 mL amber (H2SO4)
o	250 mL amber (H2SO4)
p	500 mL amber (H2SO4)
q	8 oz Nalgene (HNO3)
r	16 oz Nalgene (HNO3)
s	32 oz Nalgene (HNO3)
t	8 oz HDPE (ZnAc/NaOH)
u	16 oz HDPE (Ascorbic acid)
v	Tedlar bag
w	SUMA canister
x	Sterile Bottle
y	Other

F-0056 V1

1.4/1.5
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MZ

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ANALYSYS, INC.
2209 N. PADRE ISLAND DR
SUITE K
CORPUS CHRISTI, TX 78408
3612896384

S AUS **LSO SATURDAY**

PRINT DATE: 7/13/2018
QUICKCODE: ANALYSYS AUSTIN
REF 1: 1D00V.0000 REF 2:

WEIGHT: 65.00LBS

ASI Sample Evaluation

F-0029 V7-052715
Effective Date: 6/1/15

Date: 7-13-18 **Sample IDs:** 447939-942 **# of C-O-Cs:** 1

Samples Delievery by: Client ☐ Bus ☐ LSO ☐ UPS ☐ Fed-Ex ☐ ASI/PU ☑ Courier ☐ Carrier Bill #_____

Sample Receiving

intitals: JB

Item	Cooler	Y	N
1	Cooler temperature appropriate	✓	
2	Samples on ice/from fridge	✓	
3	Custody Seal Present (if shipped)		
3a	*custody seal was intact*		
3b	*custody seal was signed/dated*		

Cooler Comment

Item	COC	Y	N
4	COC received	✓	
5	COC Complete		
5a	*Sample identification*	✓	
5b	*Date Collected*	✓	
5c	*Time Collected*	✓	
5d	*Number of containers*	✓	
5e	*Preservation type*	✓	
5f	*Matrix*	✓	
5g	*Parameters*	✓	
5h	*Relinquished by Client*	✓	
6	COC info match sample labels	✓	
7	Assist with completion of COC	☐	
8	Additional information supplied by client	☐	

COC Comment

Item	Sample Containers	Y	N
9	Bottles Intact/Integrity OK	✓	
10	Samples properly labelled/identifiable	✓	
11	VOA vials headspace OK (if required)		
12	Samples Properly pH Preserved (if required)		
12a	*Dissolved Metals field filtered and preserved*		
12b	*Acid Preserved (pH OK)*		
12c	*Base Preserved (pH OK)*		

Sample Container Comments
if no for item 9-10 comment req.

Project Management

intitals: EP

Item	Hold Time	Y	N
13	Samples received within hold-time	/	
14	Samples received with time to complete analysis within hold-time	/	

List of affected parameters:

Item	Water VOC-VOAs	Y	N
15	Special compounds required		
	If required indicate if received in proper container		
15a	*Acrolein (unpreserved-3d)*		
15b	*Acrolein/Acrylonitrile (pH 4-5)*		
15c	*Vinyl chloride/Styrene/2-chloroethyl vinyl ether (unpreserved)*		

Item	Bulk Soil Sampling (TPH/VOC/BTEX)	Y	N
16	Bulk soil samples received		
16a	*Petroleum Storage Tank Rule*		
16b	*Client indicated no hydrocarbons in C6-C12 for TPH or high level VOC*		
16c	*Client indicated VOA not used due to sampling difficulty*		
16d	*ASI assesed VOA not used due to sample physical characteristics*		

Item	Sample Containers	Y	N
17	Samples in proper containers excluding items 15 and 16	/	

Item	COC	
7	Assist with completion of COC	☐
8	Additional information supplied by client	☑
18	Hold requested	☐
19	Sub-contract analysis required	☐

Client notification required due to sample integrity issue identified on the COC or ASI Sample Evaluation Form (F-0029) ☐

Method of notification to client: Phone ☐ E-Mail ☐

Client response: Proceed with analysis ☐ Resample and re-submit ☐ Method of response: Phone ☐ E-Mail ☐

Request

intitals: EP

Special report formats

TRRP ☐ Landfill ☐ NPDES (2) ☐ SW-846 (3) ☐
Dry-Weight(9) ☐ TRRP (no QC) ☐ Other 5
QC Pages ☐ Unit Conversion ☐

EDD Required

Gereral ☐ TRRP ☐ Client Specific ☐

TAT Request

5-day ☐ Standard ☐ Rush ☑
Requested Due Date _____

Client Requested Changes

TAT Change Request to

Standard ☐ Rush ☐
Requested Due Date _____
Date of change Initials
Method of notification: phone ☐ email ☐

Parameter Change Request

Add _____
Remove _____
Date of change Initials
Method of notification: phone ☐ email ☐

COC Correction Notes

Date of change Initials
Method of notification: phone ☐ email ☐

COC and Sample Information Tracking Form

Date	Initials	Comments/Discussion/Resolution/Action Observed
7-13-18	JB	Corrected the time sampled on COC for sample 447940-942
		447940 -0720
		447941 - 0735
		447942 - 0745
		These are the correct times per Jose Salazar at USET

F-0029a

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-156147-1
Client Project/Site: Waste Analysis
Revision: 1

For:
US Ecology, Inc.
PO BOX 307
Robstown, Texas 78380

Attn: Ramiro Hinojosa

Cathy Gartner

Authorized for release by:
7/30/2018 1:07:00 PM

Cathy Gartner, Project Manager II
(615)301-5041
cathy.gartner@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: US Ecology, Inc.
Project/Site: Waste Analysis

TestAmerica Job ID: 490-156147-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-156147-1	54592-1-180724	Solid	07/24/18 11:10	07/25/18 07:00
490-156147-2	67188-0-180724	Solid	07/24/18 11:23	07/25/18 07:00
490-156147-3	101989-1-180724	Solid	07/24/18 11:36	07/25/18 07:00
490-156147-4	Centrifuged Solids-180724	Solid	07/24/18 11:46	07/25/18 07:00

Job ID: 490-156147-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-156147-1

Receipt
The samples were received on 7/25/2018 7:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 0.8º C.

Samples were analyzed for total VOA's and SVOA's for the compounds required. Due to the matrix effects of the samples they had to be analyzed at a dilution.
The VOA analyses were subjected to medium level extractions followed by dilutions. Presence of non-target analytes in the matrix required dilutions of samples. Thus several compounds were not detected at the reporting limits.
The SVOA analysis of the samples showed the presence of non-target compounds and unresolved complex mixtures (UCM"s) in the chromatographic elution patterns. The samples were diluted due to the matrix effects. The extracts were viscous in solution and black in color. Thus several of the target compounds were not detected at the reporting limits.

GC/MS VOA
Method(s) 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 490-531297.

Method(s) 8260B: The following samples were diluted due to the nature of the sample matrix: 54592-1-180724 (490-156147-1), 101989-1-180724 (490-156147-3) and Centrifuged Solids-180724 (490-156147-4). Elevated reporting limits (RLs) are provided.

Method(s) 8260B: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 490-531583.

Method(s) 8260B: The TCLP leachate blank for batch 490-532009 contained a target analyte above the reporting limit (RL). None of the samples associated with this leachate blank contained this target analyte; therefore, re-extraction of the samples was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA
Method(s) 8270C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 490-531135 and analytical batch 490-531260.

Method(s) 8270C: The following samples were diluted due to the nature of the sample matrix: 54592-1-180724 (490-156147-1), 67188-0-180724 (490-156147-2), 101989-1-180724 (490-156147-3) and Centrifuged Solids-180724 (490-156147-4). Elevated reporting limits (RLs) are provided.

Method(s) 8270C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 490-531857 and analytical batch 490-532140.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
Method(s) 9012B: The matrix spike duplicate (MSD) recovery for preparation batch 490-531651 and analytical batch 490-532344 was outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Qualifiers

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client Sample Results

Client: US Ecology, Inc.
Project/Site: Waste Analysis

TestAmerica Job ID: 490-156147-1

Client Sample ID: 54592-1-180724 | **Lab Sample ID: 490-156147-1**
Date Collected: 07/24/18 11:10 | **Matrix: Solid**
Date Received: 07/25/18 07:00 | **Percent Solids: 71.8**

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**1.79**		0.845		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
2-Butanone (MEK)	ND		21.1		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
Carbon disulfide	ND		2.11		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
Carbon tetrachloride	ND		0.845		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
Chlorobenzene	ND		0.845		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
Chloroform	ND		0.845		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
1,2-Dichloroethane	ND		0.845		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
1,1-Dichloroethene	ND		0.845		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
1,2-Dichloroethene, Total	ND		0.845		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
Ethylbenzene	**3.01**		0.845		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
p-Dichlorobenzene	ND		0.845		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
Tetrachloroethene	ND		0.845		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
Toluene	**13.7**		0.845		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
Trichloroethene	ND		0.845		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
Vinyl chloride	ND		0.845		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5
Xylenes, Total	**107**		2.54		mg/Kg	☼	07/25/18 12:57	07/26/18 14:44	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*07/25/18 12:57*	*07/26/18 14:44*	*5*
Dibromofluoromethane (Surr)	*103*		*70 - 130*	*07/25/18 12:57*	*07/26/18 14:44*	*5*
1,2-Dichloroethane-d4 (Surr)	*106*		*70 - 130*	*07/25/18 12:57*	*07/26/18 14:44*	*5*
Toluene-d8 (Surr)	*91*		*70 - 130*	*07/25/18 12:57*	*07/26/18 14:44*	*5*

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0100		mg/L			07/28/18 15:36	10
2-Butanone (MEK)	ND		0.500		mg/L			07/28/18 15:36	10
Carbon tetrachloride	ND		0.0100		mg/L			07/28/18 15:36	10
Chlorobenzene	ND		0.0100		mg/L			07/28/18 15:36	10
Chloroform	ND		0.0100		mg/L			07/28/18 15:36	10
p-Dichlorobenzene	ND		0.0100		mg/L			07/28/18 15:36	10
1,2-Dichloroethane	ND		0.0100		mg/L			07/28/18 15:36	10
1,1-Dichloroethene	ND		0.0100		mg/L			07/28/18 15:36	10
1,2-Dichloroethene, Total	ND		0.0100		mg/L			07/28/18 15:36	10
Tetrachloroethene	ND		0.0100		mg/L			07/28/18 15:36	10
Trichloroethene	ND		0.0100		mg/L			07/28/18 15:36	10
Vinyl chloride	ND		0.0100		mg/L			07/28/18 15:36	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*07/28/18 15:36*	*10*
Dibromofluoromethane (Surr)	*91*		*70 - 130*		*07/28/18 15:36*	*10*
1,2-Dichloroethane-d4 (Surr)	*78*		*70 - 130*		*07/28/18 15:36*	*10*
Toluene-d8 (Surr)	*99*		*70 - 130*		*07/28/18 15:36*	*10*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**11.1**		5.59		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Anthracene	ND		5.59		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Benzo[a]anthracene	**8.13**		5.59		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Benzo[a]pyrene	**7.04**		5.59		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10

Client Sample ID: 54592-1-180724

Lab Sample ID: 490-156147-1
Date Collected: 07/24/18 11:10
Matrix: Solid
Date Received: 07/25/18 07:00
Percent Solids: 71.8

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	ND		5.59		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Bis(2-ethylhexyl) phthalate	ND		27.8		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Chrysene	**16.7**		5.59		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Cresols	ND		55.5		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
2,4-Dimethylphenol	ND		55.9		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Di-n-butyl phthalate	ND		27.8		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
2,4-Dinitrotoluene	ND		27.8		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Fluorene	**12.1**		5.59		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Hexachlorobenzene	ND		27.8		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Hexachlorobutadiene	ND		27.8		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Hexachloroethane	ND		27.8		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Indeno[1,2,3-cd]pyrene	ND		5.59		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
m & p - Cresol	ND		27.8		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Naphthalene	**11.6**		5.59		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Nitrobenzene	ND		27.8		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
o-Cresol	ND		27.8		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Pentachlorophenol	ND		55.9		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Phenanthrene	**37.0**		5.59		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Phenol	ND		27.8		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Pyrene	**19.5**		5.59		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Pyridine	ND		55.9		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
2,4,5-Trichlorophenol	ND		27.8		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
2,4,6-Trichlorophenol	ND		27.8		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10
Dibenz(a,h)anthracene	ND		5.59		mg/Kg	☼	07/25/18 14:28	07/26/18 19:13	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*54*		*29 - 120*	*07/25/18 14:28*	*07/26/18 19:13*	*10*
2-Fluorophenol (Surr)	*33*		*10 - 120*	*07/25/18 14:28*	*07/26/18 19:13*	*10*
Nitrobenzene-d5 (Surr)	*34*		*27 - 120*	*07/25/18 14:28*	*07/26/18 19:13*	*10*
Phenol-d5 (Surr)	*46*		*10 - 120*	*07/25/18 14:28*	*07/26/18 19:13*	*10*
Terphenyl-d14 (Surr)	*53*		*13 - 120*	*07/25/18 14:28*	*07/26/18 19:13*	*10*
2,4,6-Tribromophenol (Surr)	*45*		*10 - 120*	*07/25/18 14:28*	*07/26/18 19:13*	*10*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cresols	ND		0.0400		mg/L		07/27/18 09:20	07/28/18 15:30	2
2,4-Dinitrotoluene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:30	2
Hexachlorobenzene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:30	2
Hexachlorobutadiene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:30	2
Hexachloroethane	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:30	2
m & p - Cresol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:30	2
Nitrobenzene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:30	2
o-Cresol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:30	2
Pentachlorophenol	ND		0.0600		mg/L		07/27/18 09:20	07/28/18 15:30	2
Pyridine	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:30	2
2,4,5-Trichlorophenol	ND		0.0600		mg/L		07/27/18 09:20	07/28/18 15:30	2
2,4,6-Trichlorophenol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:30	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*73*		*29 - 120*	*07/27/18 09:20*	*07/28/18 15:30*	*2*

Client Sample ID: 54592-1-180724

Lab Sample ID: 490-156147-1

Date Collected: 07/24/18 11:10
Date Received: 07/25/18 07:00

Matrix: Solid
Percent Solids: 71.8

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*64*		*10 - 120*	*07/27/18 09:20*	*07/28/18 15:30*	*2*
Nitrobenzene-d5 (Surr)	*62*		*27 - 120*	*07/27/18 09:20*	*07/28/18 15:30*	*2*
Phenol-d5 (Surr)	*70*		*10 - 120*	*07/27/18 09:20*	*07/28/18 15:30*	*2*
Terphenyl-d14 (Surr)	*85*		*13 - 120*	*07/27/18 09:20*	*07/28/18 15:30*	*2*
2,4,6-Tribromophenol (Surr)	*80*		*10 - 120*	*07/27/18 09:20*	*07/28/18 15:30*	*2*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		2.73		mg/Kg	☼	07/26/18 11:52	07/29/18 14:56	1
Sulfide	ND		27.8		mg/Kg	☼	07/28/18 11:00	07/28/18 12:50	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**71.8**		0.1		%			07/25/18 15:07	1

Client Sample Results

Client: US Ecology, Inc.
Project/Site: Waste Analysis

TestAmerica Job ID: 490-156147-1

Client Sample ID: 67188-0-180724 | **Lab Sample ID: 490-156147-2**
Date Collected: 07/24/18 11:23 | Matrix: Solid
Date Received: 07/25/18 07:00 | Percent Solids: 93.3

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.685**		0.532		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
2-Butanone (MEK)	ND		13.3		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
Carbon disulfide	ND		1.33		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
Carbon tetrachloride	ND		0.532		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
Chlorobenzene	ND		0.532		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
Chloroform	ND		0.532		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
1,2-Dichloroethane	ND		0.532		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
1,1-Dichloroethene	ND		0.532		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
1,2-Dichloroethene, Total	ND		0.532		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
Ethylbenzene	ND		0.532		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
p-Dichlorobenzene	ND		0.532		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
Tetrachloroethene	ND		0.532		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
Toluene	**0.970**		0.532		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
Trichloroethene	ND		0.532		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
Vinyl chloride	ND		0.532		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5
Xylenes, Total	**1.88**		1.59		mg/Kg	☼	07/25/18 12:57	07/26/18 14:18	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*	*07/25/18 12:57*	*07/26/18 14:18*	*5*
Dibromofluoromethane (Surr)	*109*		*70 - 130*	*07/25/18 12:57*	*07/26/18 14:18*	*5*
1,2-Dichloroethane-d4 (Surr)	*99*		*70 - 130*	*07/25/18 12:57*	*07/26/18 14:18*	*5*
Toluene-d8 (Surr)	*94*		*70 - 130*	*07/25/18 12:57*	*07/26/18 14:18*	*5*

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0100		mg/L			07/28/18 15:08	10
2-Butanone (MEK)	ND		0.500		mg/L			07/28/18 15:08	10
Carbon tetrachloride	ND		0.0100		mg/L			07/28/18 15:08	10
Chlorobenzene	ND		0.0100		mg/L			07/28/18 15:08	10
Chloroform	ND		0.0100		mg/L			07/28/18 15:08	10
p-Dichlorobenzene	ND		0.0100		mg/L			07/28/18 15:08	10
1,2-Dichloroethane	ND		0.0100		mg/L			07/28/18 15:08	10
1,1-Dichloroethene	ND		0.0100		mg/L			07/28/18 15:08	10
1,2-Dichloroethene, Total	ND		0.0100		mg/L			07/28/18 15:08	10
Tetrachloroethene	ND		0.0100		mg/L			07/28/18 15:08	10
Trichloroethene	ND		0.0100		mg/L			07/28/18 15:08	10
Vinyl chloride	ND		0.0100		mg/L			07/28/18 15:08	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*07/28/18 15:08*	*10*
Dibromofluoromethane (Surr)	*91*		*70 - 130*		*07/28/18 15:08*	*10*
1,2-Dichloroethane-d4 (Surr)	*78*		*70 - 130*		*07/28/18 15:08*	*10*
Toluene-d8 (Surr)	*98*		*70 - 130*		*07/28/18 15:08*	*10*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		1.01		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Anthracene	ND		1.01		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Benzo[a]anthracene	ND		1.01		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Benzo[a]pyrene	**2.17**		1.01		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5

Client Sample ID: 67188-0-180724

Lab Sample ID: 490-156147-2
Date Collected: 07/24/18 11:23
Matrix: Solid
Date Received: 07/25/18 07:00
Percent Solids: 93.3

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	**1.35**		1.01		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Bis(2-ethylhexyl) phthalate	ND		5.02		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Chrysene	**3.35**		1.01		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Cresols	ND		10.0		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
2,4-Dimethylphenol	ND		10.1		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Di-n-butyl phthalate	ND		5.02		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
2,4-Dinitrotoluene	ND		5.02		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Fluorene	ND		1.01		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Hexachlorobenzene	ND		5.02		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Hexachlorobutadiene	ND		5.02		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Hexachloroethane	ND		5.02		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Indeno[1,2,3-cd]pyrene	ND		1.01		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
m & p - Cresol	ND		5.02		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Naphthalene	**2.32**		1.01		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Nitrobenzene	ND		5.02		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
o-Cresol	ND		5.02		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Pentachlorophenol	ND		10.1		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Phenanthrene	ND		1.01		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Phenol	ND		5.02		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Pyrene	**2.93**		1.01		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Pyridine	ND		10.1		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
2,4,5-Trichlorophenol	ND		5.02		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
2,4,6-Trichlorophenol	ND		5.02		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5
Dibenz(a,h)anthracene	ND		1.01		mg/Kg	☼	07/25/18 14:28	07/26/18 19:35	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*51*		*29 - 120*	*07/25/18 14:28*	*07/26/18 19:35*	*5*
2-Fluorophenol (Surr)	*42*		*10 - 120*	*07/25/18 14:28*	*07/26/18 19:35*	*5*
Nitrobenzene-d5 (Surr)	*51*		*27 - 120*	*07/25/18 14:28*	*07/26/18 19:35*	*5*
Phenol-d5 (Surr)	*60*		*10 - 120*	*07/25/18 14:28*	*07/26/18 19:35*	*5*
Terphenyl-d14 (Surr)	*72*		*13 - 120*	*07/25/18 14:28*	*07/26/18 19:35*	*5*
2,4,6-Tribromophenol (Surr)	*65*		*10 - 120*	*07/25/18 14:28*	*07/26/18 19:35*	*5*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cresols	ND		0.0400		mg/L		07/27/18 09:20	07/28/18 15:51	2
2,4-Dinitrotoluene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:51	2
Hexachlorobenzene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:51	2
Hexachlorobutadiene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:51	2
Hexachloroethane	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:51	2
m & p - Cresol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:51	2
Nitrobenzene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:51	2
o-Cresol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:51	2
Pentachlorophenol	ND		0.0600		mg/L		07/27/18 09:20	07/28/18 15:51	2
Pyridine	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:51	2
2,4,5-Trichlorophenol	ND		0.0600		mg/L		07/27/18 09:20	07/28/18 15:51	2
2,4,6-Trichlorophenol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 15:51	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*77*		*29 - 120*	*07/27/18 09:20*	*07/28/18 15:51*	*2*

Client Sample ID: 67188-0-180724

Lab Sample ID: 490-156147-2
Date Collected: 07/24/18 11:23
Matrix: Solid
Date Received: 07/25/18 07:00
Percent Solids: 93.3

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*68*		*10 - 120*	*07/27/18 09:20*	*07/28/18 15:51*	*2*
Nitrobenzene-d5 (Surr)	*69*		*27 - 120*	*07/27/18 09:20*	*07/28/18 15:51*	*2*
Phenol-d5 (Surr)	*66*		*10 - 120*	*07/27/18 09:20*	*07/28/18 15:51*	*2*
Terphenyl-d14 (Surr)	*86*		*13 - 120*	*07/27/18 09:20*	*07/28/18 15:51*	*2*
2,4,6-Tribromophenol (Surr)	*82*		*10 - 120*	*07/27/18 09:20*	*07/28/18 15:51*	*2*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND	F1	2.19		mg/Kg	☼	07/26/18 11:52	07/29/18 14:56	1
Sulfide	ND		21.4		mg/Kg	☼	07/28/18 11:00	07/28/18 12:50	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**93.3**		0.1		%			07/26/18 14:50	1

Client Sample Results

Client: US Ecology, Inc.
Project/Site: Waste Analysis

TestAmerica Job ID: 490-156147-1

Client Sample ID: 101989-1-180724 | **Lab Sample ID: 490-156147-3**
Date Collected: 07/24/18 11:36 | **Matrix: Solid**
Date Received: 07/25/18 07:00 | **Percent Solids: 64.6**

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**15.4**		8.09		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
2-Butanone (MEK)	ND		202		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
Carbon disulfide	ND		20.2		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
Carbon tetrachloride	ND		8.09		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
Chlorobenzene	ND		8.09		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
Chloroform	ND		8.09		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
1,2-Dichloroethane	ND		8.09		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
1,1-Dichloroethene	ND		8.09		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
1,2-Dichloroethene, Total	ND		8.09		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
Ethylbenzene	**33.2**		8.09		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
p-Dichlorobenzene	ND		8.09		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
Tetrachloroethene	ND		8.09		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
Toluene	**62.6**		8.09		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
Trichloroethene	ND		8.09		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
Vinyl chloride	ND		8.09		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40
Xylenes, Total	**748**		24.3		mg/Kg	☼	07/25/18 12:57	07/26/18 15:36	40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*	*07/25/18 12:57*	*07/26/18 15:36*	*40*
Dibromofluoromethane (Surr)	*103*		*70 - 130*	*07/25/18 12:57*	*07/26/18 15:36*	*40*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*	*07/25/18 12:57*	*07/26/18 15:36*	*40*
Toluene-d8 (Surr)	*92*		*70 - 130*	*07/25/18 12:57*	*07/26/18 15:36*	*40*

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.0748**		0.0100		mg/L			07/28/18 16:31	10
2-Butanone (MEK)	ND		0.500		mg/L			07/28/18 16:31	10
Carbon tetrachloride	ND		0.0100		mg/L			07/28/18 16:31	10
Chlorobenzene	ND		0.0100		mg/L			07/28/18 16:31	10
Chloroform	ND		0.0100		mg/L			07/28/18 16:31	10
p-Dichlorobenzene	ND		0.0100		mg/L			07/28/18 16:31	10
1,2-Dichloroethane	ND		0.0100		mg/L			07/28/18 16:31	10
1,1-Dichloroethene	ND		0.0100		mg/L			07/28/18 16:31	10
1,2-Dichloroethene, Total	ND		0.0100		mg/L			07/28/18 16:31	10
Tetrachloroethene	ND		0.0100		mg/L			07/28/18 16:31	10
Trichloroethene	ND		0.0100		mg/L			07/28/18 16:31	10
Vinyl chloride	ND		0.0100		mg/L			07/28/18 16:31	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*07/28/18 16:31*	*10*
Dibromofluoromethane (Surr)	*87*		*70 - 130*		*07/28/18 16:31*	*10*
1,2-Dichloroethane-d4 (Surr)	*78*		*70 - 130*		*07/28/18 16:31*	*10*
Toluene-d8 (Surr)	*99*		*70 - 130*		*07/28/18 16:31*	*10*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**35.2**		5.44		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Anthracene	ND		5.44		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Benzo[a]anthracene	**20.4**		5.44		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Benzo[a]pyrene	**19.1**		5.44		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10

Client Sample ID: 101989-1-180724

Lab Sample ID: 490-156147-3

Date Collected: 07/24/18 11:36
Date Received: 07/25/18 07:00

Matrix: Solid
Percent Solids: 64.6

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	**7.93**		5.44		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Bis(2-ethylhexyl) phthalate	ND		27.0		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Chrysene	**32.9**		5.44		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Cresols	ND		54.1		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
2,4-Dimethylphenol	ND		54.4		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Di-n-butyl phthalate	ND		27.0		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
2,4-Dinitrotoluene	ND		27.0		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Fluorene	**49.6**		5.44		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Hexachlorobenzene	ND		27.0		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Hexachlorobutadiene	ND		27.0		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Hexachloroethane	ND		27.0		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Indeno[1,2,3-cd]pyrene	ND		5.44		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
m & p - Cresol	ND		27.0		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Naphthalene	**94.5**		5.44		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Nitrobenzene	ND		27.0		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
o-Cresol	ND		27.0		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Pentachlorophenol	ND		54.4		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Phenanthrene	**153**		5.44		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Phenol	ND		27.0		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Pyrene	**64.9**		5.44		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Pyridine	ND		54.4		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
2,4,5-Trichlorophenol	ND		27.0		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
2,4,6-Trichlorophenol	ND		27.0		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10
Dibenz(a,h)anthracene	ND		5.44		mg/Kg	☼	07/25/18 14:28	07/26/18 19:57	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*40*		*29 - 120*	*07/25/18 14:28*	*07/26/18 19:57*	*10*
2-Fluorophenol (Surr)	*24*		*10 - 120*	*07/25/18 14:28*	*07/26/18 19:57*	*10*
Nitrobenzene-d5 (Surr)	*95*		*27 - 120*	*07/25/18 14:28*	*07/26/18 19:57*	*10*
Phenol-d5 (Surr)	*42*		*10 - 120*	*07/25/18 14:28*	*07/26/18 19:57*	*10*
Terphenyl-d14 (Surr)	*43*		*13 - 120*	*07/25/18 14:28*	*07/26/18 19:57*	*10*
2,4,6-Tribromophenol (Surr)	*41*		*10 - 120*	*07/25/18 14:28*	*07/26/18 19:57*	*10*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cresols	ND		0.0400		mg/L		07/27/18 09:20	07/28/18 16:13	2
2,4-Dinitrotoluene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:13	2
Hexachlorobenzene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:13	2
Hexachlorobutadiene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:13	2
Hexachloroethane	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:13	2
m & p - Cresol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:13	2
Nitrobenzene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:13	2
o-Cresol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:13	2
Pentachlorophenol	ND		0.0600		mg/L		07/27/18 09:20	07/28/18 16:13	2
Pyridine	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:13	2
2,4,5-Trichlorophenol	ND		0.0600		mg/L		07/27/18 09:20	07/28/18 16:13	2
2,4,6-Trichlorophenol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:13	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*69*		*29 - 120*	*07/27/18 09:20*	*07/28/18 16:13*	*2*

Client Sample ID: 101989-1-180724

Lab Sample ID: 490-156147-3

Date Collected: 07/24/18 11:36
Date Received: 07/25/18 07:00

Matrix: Solid
Percent Solids: 64.6

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*65*		*10 - 120*	*07/27/18 09:20*	*07/28/18 16:13*	*2*
Nitrobenzene-d5 (Surr)	*67*		*27 - 120*	*07/27/18 09:20*	*07/28/18 16:13*	*2*
Phenol-d5 (Surr)	*66*		*10 - 120*	*07/27/18 09:20*	*07/28/18 16:13*	*2*
Terphenyl-d14 (Surr)	*83*		*13 - 120*	*07/27/18 09:20*	*07/28/18 16:13*	*2*
2,4,6-Tribromophenol (Surr)	*77*		*10 - 120*	*07/27/18 09:20*	*07/28/18 16:13*	*2*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		3.10		mg/Kg	☼	07/26/18 11:52	07/29/18 14:56	1
Sulfide	ND		31.0		mg/Kg	☼	07/28/18 11:00	07/28/18 12:50	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**64.6**		0.1		%			07/26/18 14:50	1

Client Sample Results

Client: US Ecology, Inc.
Project/Site: Waste Analysis

TestAmerica Job ID: 490-156147-1

Client Sample ID: Centrifuged Solids-180724

Lab Sample ID: 490-156147-4
Date Collected: 07/24/18 11:46
Matrix: Solid
Date Received: 07/25/18 07:00
Percent Solids: 60.2

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**46.8**		2.12		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
2-Butanone (MEK)	ND		53.1		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
Carbon disulfide	ND		5.31		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
Carbon tetrachloride	ND		2.12		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
Chlorobenzene	ND		2.12		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
Chloroform	ND		2.12		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
1,2-Dichloroethane	ND		2.12		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
1,1-Dichloroethene	ND		2.12		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
1,2-Dichloroethene, Total	ND		2.12		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
Ethylbenzene	**58.0**		2.12		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
p-Dichlorobenzene	ND		2.12		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
Tetrachloroethene	ND		2.12		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
Toluene	**145**		2.12		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
Trichloroethene	ND		2.12		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
Vinyl chloride	ND		2.12		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10
Xylenes, Total	**235**		6.37		mg/Kg	☼	07/25/18 12:57	07/26/18 15:10	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*	*07/25/18 12:57*	*07/26/18 15:10*	*10*
Dibromofluoromethane (Surr)	*103*		*70 - 130*	*07/25/18 12:57*	*07/26/18 15:10*	*10*
1,2-Dichloroethane-d4 (Surr)	*100*		*70 - 130*	*07/25/18 12:57*	*07/26/18 15:10*	*10*
Toluene-d8 (Surr)	*93*		*70 - 130*	*07/25/18 12:57*	*07/26/18 15:10*	*10*

Method: 8260B - Volatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.146**		0.0100		mg/L			07/28/18 16:03	10
2-Butanone (MEK)	ND		0.500		mg/L			07/28/18 16:03	10
Carbon tetrachloride	ND		0.0100		mg/L			07/28/18 16:03	10
Chlorobenzene	ND		0.0100		mg/L			07/28/18 16:03	10
Chloroform	ND		0.0100		mg/L			07/28/18 16:03	10
p-Dichlorobenzene	ND		0.0100		mg/L			07/28/18 16:03	10
1,2-Dichloroethane	ND		0.0100		mg/L			07/28/18 16:03	10
1,1-Dichloroethene	ND		0.0100		mg/L			07/28/18 16:03	10
1,2-Dichloroethene, Total	ND		0.0100		mg/L			07/28/18 16:03	10
Tetrachloroethene	ND		0.0100		mg/L			07/28/18 16:03	10
Trichloroethene	ND		0.0100		mg/L			07/28/18 16:03	10
Vinyl chloride	ND		0.0100		mg/L			07/28/18 16:03	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*		*07/28/18 16:03*	*10*
Dibromofluoromethane (Surr)	*83*		*70 - 130*		*07/28/18 16:03*	*10*
1,2-Dichloroethane-d4 (Surr)	*79*		*70 - 130*		*07/28/18 16:03*	*10*
Toluene-d8 (Surr)	*100*		*70 - 130*		*07/28/18 16:03*	*10*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**65.3**		3.27		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Anthracene	**49.9**		3.27		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Benzo[a]anthracene	**24.5**		3.27		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Benzo[a]pyrene	**9.34**		3.27		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5

Client Sample ID: Centrifuged Solids-180724

Lab Sample ID: 490-156147-4

Date Collected: 07/24/18 11:46
Date Received: 07/25/18 07:00

Matrix: Solid
Percent Solids: 60.2

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzo[g,h,i]perylene	**5.63**		3.27		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Bis(2-ethylhexyl) phthalate	ND		16.2		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Chrysene	**47.1**		3.27		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Cresols	ND		32.5		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
2,4-Dimethylphenol	ND		32.7		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Di-n-butyl phthalate	ND		16.2		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
2,4-Dinitrotoluene	ND		16.2		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Fluorene	**149**		3.27		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Hexachlorobenzene	ND		16.2		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Hexachlorobutadiene	ND		16.2		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Hexachloroethane	ND		16.2		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Indeno[1,2,3-cd]pyrene	ND		3.27		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
m & p - Cresol	**18.8**		16.2		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Naphthalene	**471**		32.7		mg/Kg	☼	07/25/18 14:28	07/27/18 10:45	50
Nitrobenzene	ND		16.2		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
o-Cresol	ND		16.2		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Pentachlorophenol	ND		32.7		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Phenanthrene	**266**		32.7		mg/Kg	☼	07/25/18 14:28	07/27/18 10:45	50
Phenol	**21.9**		16.2		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Pyrene	**131**		3.27		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Pyridine	ND		32.7		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
2,4,5-Trichlorophenol	ND		16.2		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
2,4,6-Trichlorophenol	ND		16.2		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5
Dibenz(a,h)anthracene	ND		3.27		mg/Kg	☼	07/25/18 14:28	07/26/18 20:19	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*58*		*29 - 120*	*07/25/18 14:28*	*07/26/18 20:19*	*5*
2-Fluorophenol (Surr)	*37*		*10 - 120*	*07/25/18 14:28*	*07/26/18 20:19*	*5*
Nitrobenzene-d5 (Surr)	*62*		*27 - 120*	*07/25/18 14:28*	*07/26/18 20:19*	*5*
Phenol-d5 (Surr)	*32*		*10 - 120*	*07/25/18 14:28*	*07/26/18 20:19*	*5*
Terphenyl-d14 (Surr)	*56*		*13 - 120*	*07/25/18 14:28*	*07/26/18 20:19*	*5*
2,4,6-Tribromophenol (Surr)	*50*		*10 - 120*	*07/25/18 14:28*	*07/26/18 20:19*	*5*

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cresols	ND		0.0400		mg/L		07/27/18 09:20	07/28/18 16:34	2
2,4-Dinitrotoluene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:34	2
Hexachlorobenzene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:34	2
Hexachlorobutadiene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:34	2
Hexachloroethane	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:34	2
m & p - Cresol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:34	2
Nitrobenzene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:34	2
o-Cresol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:34	2
Pentachlorophenol	ND		0.0600		mg/L		07/27/18 09:20	07/28/18 16:34	2
Pyridine	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:34	2
2,4,5-Trichlorophenol	ND		0.0600		mg/L		07/27/18 09:20	07/28/18 16:34	2
2,4,6-Trichlorophenol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 16:34	2

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*66*		*29 - 120*	*07/27/18 09:20*	*07/28/18 16:34*	*2*

Client Sample ID: Centrifuged Solids-180724

Lab Sample ID: 490-156147-4

Date Collected: 07/24/18 11:46
Date Received: 07/25/18 07:00

Matrix: Solid
Percent Solids: 60.2

Method: 8270C - Semivolatile Organic Compounds (GC/MS) - TCLP (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*18*		*10 - 120*	*07/27/18 09:20*	*07/28/18 16:34*	*2*
Nitrobenzene-d5 (Surr)	*65*		*27 - 120*	*07/27/18 09:20*	*07/28/18 16:34*	*2*
Phenol-d5 (Surr)	*12*		*10 - 120*	*07/27/18 09:20*	*07/28/18 16:34*	*2*
Terphenyl-d14 (Surr)	*69*		*13 - 120*	*07/27/18 09:20*	*07/28/18 16:34*	*2*
2,4,6-Tribromophenol (Surr)	*67*		*10 - 120*	*07/27/18 09:20*	*07/28/18 16:34*	*2*

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		3.26		mg/Kg	☼	07/26/18 11:52	07/29/18 14:56	1
Sulfide	ND		33.2		mg/Kg	☼	07/28/18 11:00	07/28/18 12:50	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Solids	**60.2**		0.1		%			07/26/18 14:50	1

QC Sample Results

Client: US Ecology, Inc.
Project/Site: Waste Analysis

TestAmerica Job ID: 490-156147-1

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 490-531583/9
Matrix: Solid
Analysis Batch: 531583

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.100		mg/Kg			07/26/18 13:53	1
2-Butanone (MEK)	ND		2.50		mg/Kg			07/26/18 13:53	1
Carbon disulfide	ND		0.250		mg/Kg			07/26/18 13:53	1
Carbon tetrachloride	ND		0.100		mg/Kg			07/26/18 13:53	1
Chlorobenzene	ND		0.100		mg/Kg			07/26/18 13:53	1
Chloroform	ND		0.100		mg/Kg			07/26/18 13:53	1
1,2-Dichloroethane	ND		0.100		mg/Kg			07/26/18 13:53	1
1,1-Dichloroethene	ND		0.100		mg/Kg			07/26/18 13:53	1
1,2-Dichloroethene, Total	ND		0.100		mg/Kg			07/26/18 13:53	1
Ethylbenzene	ND		0.100		mg/Kg			07/26/18 13:53	1
p-Dichlorobenzene	ND		0.100		mg/Kg			07/26/18 13:53	1
Tetrachloroethene	ND		0.100		mg/Kg			07/26/18 13:53	1
Toluene	ND		0.100		mg/Kg			07/26/18 13:53	1
Trichloroethene	ND		0.100		mg/Kg			07/26/18 13:53	1
Vinyl chloride	ND		0.100		mg/Kg			07/26/18 13:53	1
Xylenes, Total	ND		0.300		mg/Kg			07/26/18 13:53	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*		*07/26/18 13:53*	*1*
Dibromofluoromethane (Surr)	*103*		*70 - 130*		*07/26/18 13:53*	*1*
1,2-Dichloroethane-d4 (Surr)	*98*		*70 - 130*		*07/26/18 13:53*	*1*
Toluene-d8 (Surr)	*96*		*70 - 130*		*07/26/18 13:53*	*1*

Lab Sample ID: LCS 490-531583/5
Matrix: Solid
Analysis Batch: 531583

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	1.00	0.9686		mg/Kg		97	70 - 130
2-Butanone (MEK)	5.00	5.110		mg/Kg		102	50 - 149
Carbon disulfide	1.00	0.9219		mg/Kg		92	66 - 138
Carbon tetrachloride	1.00	1.010		mg/Kg		101	70 - 131
Chlorobenzene	1.00	0.8388		mg/Kg		84	70 - 130
Chloroform	1.00	0.8884		mg/Kg		89	70 - 130
1,2-Dichloroethane	1.00	0.9812		mg/Kg		98	65 - 134
1,1-Dichloroethene	1.00	0.8532		mg/Kg		85	70 - 131
1,2-Dichloroethene, Total	2.00	1.900		mg/Kg		95	70 - 130
Ethylbenzene	1.00	0.8232		mg/Kg		82	70 - 130
p-Dichlorobenzene	1.00	0.8247		mg/Kg		82	66 - 134
Tetrachloroethene	1.00	0.8658		mg/Kg		87	70 - 130
Toluene	1.00	0.8168		mg/Kg		82	70 - 130
Trichloroethene	1.00	0.9703		mg/Kg		97	70 - 130
Vinyl chloride	1.00	0.8706		mg/Kg		87	63 - 150
Xylenes, Total	2.00	1.603		mg/Kg		80	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 490-531583/5
Matrix: Solid
Analysis Batch: 531583

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*98*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*90*		*70 - 130*
Toluene-d8 (Surr)	*90*		*70 - 130*

Lab Sample ID: LCSD 490-531583/6
Matrix: Solid
Analysis Batch: 531583

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	1.00	0.9828		mg/Kg		98	70 - 130	1	37
2-Butanone (MEK)	5.00	5.430		mg/Kg		109	50 - 149	6	39
Carbon disulfide	1.00	0.9233		mg/Kg		92	66 - 138	0	41
Carbon tetrachloride	1.00	1.040		mg/Kg		104	70 - 131	3	41
Chlorobenzene	1.00	0.8813		mg/Kg		88	70 - 130	5	40
Chloroform	1.00	0.8911		mg/Kg		89	70 - 130	0	15
1,2-Dichloroethane	1.00	0.9835		mg/Kg		98	65 - 134	0	16
1,1-Dichloroethene	1.00	0.8051		mg/Kg		81	70 - 131	6	43
1,2-Dichloroethene, Total	2.00	1.922		mg/Kg		96	70 - 130	1	41
Ethylbenzene	1.00	0.8490		mg/Kg		85	70 - 130	3	38
p-Dichlorobenzene	1.00	0.8600		mg/Kg		86	66 - 134	4	41
Tetrachloroethene	1.00	0.8873		mg/Kg		89	70 - 130	2	41
Toluene	1.00	0.8382		mg/Kg		84	70 - 130	3	40
Trichloroethene	1.00	0.9780		mg/Kg		98	70 - 130	1	41
Vinyl chloride	1.00	0.8945		mg/Kg		89	63 - 150	3	46
Xylenes, Total	2.00	1.647		mg/Kg		82	70 - 130	3	38

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*
Dibromofluoromethane (Surr)	*98*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*93*		*70 - 130*
Toluene-d8 (Surr)	*90*		*70 - 130*

Lab Sample ID: MB 490-532148/6
Matrix: Solid
Analysis Batch: 532148

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00100		mg/L			07/28/18 13:18	1
2-Butanone (MEK)	ND		0.0500		mg/L			07/28/18 13:18	1
Carbon tetrachloride	ND		0.00100		mg/L			07/28/18 13:18	1
Chlorobenzene	ND		0.00100		mg/L			07/28/18 13:18	1
Chloroform	ND		0.00100		mg/L			07/28/18 13:18	1
1,2-Dichloroethane	ND		0.00100		mg/L			07/28/18 13:18	1
1,1-Dichloroethene	ND		0.00100		mg/L			07/28/18 13:18	1
1,2-Dichloroethene, Total	ND		0.00100		mg/L			07/28/18 13:18	1
p-Dichlorobenzene	ND		0.00100		mg/L			07/28/18 13:18	1
Tetrachloroethene	ND		0.00100		mg/L			07/28/18 13:18	1
Trichloroethene	ND		0.00100		mg/L			07/28/18 13:18	1

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 490-532148/6 — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532148

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Vinyl chloride	ND		0.00100		mg/L			07/28/18 13:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*		*07/28/18 13:18*	*1*
Dibromofluoromethane (Surr)	*88*		*70 - 130*		*07/28/18 13:18*	*1*
1,2-Dichloroethane-d4 (Surr)	*77*		*70 - 130*		*07/28/18 13:18*	*1*
Toluene-d8 (Surr)	*100*		*70 - 130*		*07/28/18 13:18*	*1*

Lab Sample ID: LCS 490-532148/3 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532148

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.0200	0.01928		mg/L		96	70 - 130
2-Butanone (MEK)	0.100	0.07981		mg/L		80	55 - 143
Carbon tetrachloride	0.0200	0.01613		mg/L		81	70 - 147
Chlorobenzene	0.0200	0.01909		mg/L		95	70 - 130
Chloroform	0.0200	0.01690		mg/L		84	70 - 130
1,2-Dichloroethane	0.0200	0.01556		mg/L		78	70 - 130
1,1-Dichloroethene	0.0200	0.01880		mg/L		94	70 - 132
1,2-Dichloroethene, Total	0.0400	0.03609		mg/L		90	70 - 130
p-Dichlorobenzene	0.0200	0.01927		mg/L		96	70 - 130
Tetrachloroethene	0.0200	0.01914		mg/L		96	70 - 130
Trichloroethene	0.0200	0.01867		mg/L		93	70 - 130
Vinyl chloride	0.0200	0.01911		mg/L		96	57 - 137

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
Dibromofluoromethane (Surr)	*86*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*74*		*70 - 130*
Toluene-d8 (Surr)	*98*		*70 - 130*

Lab Sample ID: LCSD 490-532148/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532148

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0200	0.01887		mg/L		94	70 - 130	2	12
2-Butanone (MEK)	0.100	0.08690		mg/L		87	55 - 143	9	19
Carbon tetrachloride	0.0200	0.01581		mg/L		79	70 - 147	2	16
Chlorobenzene	0.0200	0.01871		mg/L		94	70 - 130	2	12
Chloroform	0.0200	0.01684		mg/L		84	70 - 130	0	14
1,2-Dichloroethane	0.0200	0.01544		mg/L		77	70 - 130	1	13
1,1-Dichloroethene	0.0200	0.01807		mg/L		90	70 - 132	4	20
1,2-Dichloroethene, Total	0.0400	0.03478		mg/L		87	70 - 130	4	14
p-Dichlorobenzene	0.0200	0.01917		mg/L		96	70 - 130	1	12
Tetrachloroethene	0.0200	0.01868		mg/L		93	70 - 130	2	17
Trichloroethene	0.0200	0.01801		mg/L		90	70 - 130	4	14

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 490-532148/4 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532148

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Vinyl chloride			0.0200	0.01791		mg/L		90	57 - 137	7	15

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
Dibromofluoromethane (Surr)	*89*		*70 - 130*
1,2-Dichloroethane-d4 (Surr)	*77*		*70 - 130*
Toluene-d8 (Surr)	*99*		*70 - 130*

Lab Sample ID: LB 490-532009/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 532148

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00100		mg/L			07/28/18 13:45	1
2-Butanone (MEK)	ND		0.0500		mg/L			07/28/18 13:45	1
Carbon tetrachloride	ND		0.00100		mg/L			07/28/18 13:45	1
Chlorobenzene	ND		0.00100		mg/L			07/28/18 13:45	1
Chloroform	0.003480		0.00100		mg/L			07/28/18 13:45	1
1,2-Dichloroethane	ND		0.00100		mg/L			07/28/18 13:45	1
1,1-Dichloroethene	ND		0.00100		mg/L			07/28/18 13:45	1
1,2-Dichloroethene, Total	ND		0.00100		mg/L			07/28/18 13:45	1
p-Dichlorobenzene	ND		0.00100		mg/L			07/28/18 13:45	1
Tetrachloroethene	ND		0.00100		mg/L			07/28/18 13:45	1
Trichloroethene	ND		0.00100		mg/L			07/28/18 13:45	1
Vinyl chloride	ND		0.00100		mg/L			07/28/18 13:45	1

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*96*		*70 - 130*		*07/28/18 13:45*	*1*
Dibromofluoromethane (Surr)	*89*		*70 - 130*		*07/28/18 13:45*	*1*
1,2-Dichloroethane-d4 (Surr)	*77*		*70 - 130*		*07/28/18 13:45*	*1*
Toluene-d8 (Surr)	*99*		*70 - 130*		*07/28/18 13:45*	*1*

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 490-531135/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 531260 — **Prep Batch: 531135**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.0670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Anthracene	ND		0.0670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Benzo[a]anthracene	ND		0.0670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Benzo[a]pyrene	ND		0.0670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Benzo[g,h,i]perylene	ND		0.0670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Bis(2-ethylhexyl) phthalate	ND		0.333		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Chrysene	ND		0.0670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Cresols	ND		0.666		mg/Kg		07/24/18 13:50	07/25/18 10:16	1

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 490-531135/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 531260 — **Prep Batch: 531135**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dimethylphenol	ND		0.670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Di-n-butyl phthalate	ND		0.333		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
2,4-Dinitrotoluene	ND		0.333		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Fluorene	ND		0.0670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Hexachlorobenzene	ND		0.333		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Hexachlorobutadiene	ND		0.333		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Hexachloroethane	ND		0.333		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Indeno[1,2,3-cd]pyrene	ND		0.0670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
m & p - Cresol	ND		0.333		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Naphthalene	ND		0.0670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Nitrobenzene	ND		0.333		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
o-Cresol	ND		0.333		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Pentachlorophenol	ND		0.670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Phenanthrene	ND		0.0670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Phenol	ND		0.333		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Pyrene	ND		0.0670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Pyridine	ND		0.670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
2,4,5-Trichlorophenol	ND		0.333		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
2,4,6-Trichlorophenol	ND		0.333		mg/Kg		07/24/18 13:50	07/25/18 10:16	1
Dibenz(a,h)anthracene	ND		0.0670		mg/Kg		07/24/18 13:50	07/25/18 10:16	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*75*		*29 - 120*	*07/24/18 13:50*	*07/25/18 10:16*	*1*
2-Fluorophenol (Surr)	*58*		*10 - 120*	*07/24/18 13:50*	*07/25/18 10:16*	*1*
Nitrobenzene-d5 (Surr)	*77*		*27 - 120*	*07/24/18 13:50*	*07/25/18 10:16*	*1*
Phenol-d5 (Surr)	*66*		*10 - 120*	*07/24/18 13:50*	*07/25/18 10:16*	*1*
Terphenyl-d14 (Surr)	*85*		*13 - 120*	*07/24/18 13:50*	*07/25/18 10:16*	*1*
2,4,6-Tribromophenol (Surr)	*37*		*10 - 120*	*07/24/18 13:50*	*07/25/18 10:16*	*1*

Lab Sample ID: LCS 490-531135/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 531260 — **Prep Batch: 531135**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	1.67	1.482		mg/Kg		89	36 - 120
Anthracene	1.67	1.517		mg/Kg		91	46 - 124
Benzo[a]anthracene	1.67	1.490		mg/Kg		89	45 - 120
Benzo[a]pyrene	1.67	1.730		mg/Kg		104	45 - 120
Benzo[g,h,i]perylene	1.67	1.534		mg/Kg		92	38 - 120
Bis(2-ethylhexyl) phthalate	1.67	1.602		mg/Kg		96	43 - 120
Chrysene	1.67	1.508		mg/Kg		90	43 - 120
2,4-Dimethylphenol	1.67	1.375		mg/Kg		83	32 - 120
Di-n-butyl phthalate	1.67	1.559		mg/Kg		94	46 - 127
2,4-Dinitrotoluene	1.67	1.483		mg/Kg		89	43 - 120
Fluorene	1.67	1.530		mg/Kg		92	42 - 120
Hexachlorobenzene	1.67	1.465		mg/Kg		88	44 - 120
Hexachlorobutadiene	1.67	1.300		mg/Kg		78	31 - 120
Hexachloroethane	1.67	1.398		mg/Kg		84	33 - 120

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 490-531135/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 531260 — **Prep Batch: 531135**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Indeno[1,2,3-cd]pyrene	1.67	1.450		mg/Kg		87	41 - 121
m & p - Cresol	1.67	1.409		mg/Kg		85	37 - 120
Naphthalene	1.67	1.317		mg/Kg		79	32 - 120
Nitrobenzene	1.67	1.367		mg/Kg		82	26 - 120
o-Cresol	1.67	1.389		mg/Kg		83	36 - 120
Pentachlorophenol	3.33	2.670		mg/Kg		80	44 - 134
Phenanthrene	1.67	1.472		mg/Kg		88	45 - 120
Phenol	1.67	1.422		mg/Kg		85	30 - 120
Pyrene	1.67	1.556		mg/Kg		93	43 - 120
Pyridine	1.67	1.122		mg/Kg		67	20 - 120
2,4,5-Trichlorophenol	1.67	1.362		mg/Kg		82	39 - 120
2,4,6-Trichlorophenol	1.67	1.511		mg/Kg		91	39 - 120
Dibenz(a,h)anthracene	1.67	1.580		mg/Kg		95	32 - 128

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*80*		*29 - 120*
2-Fluorophenol (Surr)	*72*		*10 - 120*
Nitrobenzene-d5 (Surr)	*79*		*27 - 120*
Phenol-d5 (Surr)	*80*		*10 - 120*
Terphenyl-d14 (Surr)	*88*		*13 - 120*
2,4,6-Tribromophenol (Surr)	*74*		*10 - 120*

Lab Sample ID: LCSD 490-531135/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 531260 — **Prep Batch: 531135**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acenaphthene	1.67	1.344		mg/Kg		81	36 - 120	10	50
Anthracene	1.67	1.381		mg/Kg		83	46 - 124	9	49
Benzo[a]anthracene	1.67	1.378		mg/Kg		83	45 - 120	8	50
Benzo[a]pyrene	1.67	1.612		mg/Kg		97	45 - 120	7	50
Benzo[g,h,i]perylene	1.67	1.442		mg/Kg		87	38 - 120	6	50
Bis(2-ethylhexyl) phthalate	1.67	1.455		mg/Kg		87	43 - 120	10	50
Chrysene	1.67	1.394		mg/Kg		84	43 - 120	8	49
2,4-Dimethylphenol	1.67	1.272		mg/Kg		76	32 - 120	8	50
Di-n-butyl phthalate	1.67	1.401		mg/Kg		84	46 - 127	11	49
2,4-Dinitrotoluene	1.67	1.314		mg/Kg		79	43 - 120	12	50
Fluorene	1.67	1.354		mg/Kg		81	42 - 120	12	50
Hexachlorobenzene	1.67	1.330		mg/Kg		80	44 - 120	10	50
Hexachlorobutadiene	1.67	1.196		mg/Kg		72	31 - 120	8	50
Hexachloroethane	1.67	1.266		mg/Kg		76	33 - 120	10	50
Indeno[1,2,3-cd]pyrene	1.67	1.368		mg/Kg		82	41 - 121	6	50
m & p - Cresol	1.67	1.297		mg/Kg		78	37 - 120	8	50
Naphthalene	1.67	1.238		mg/Kg		74	32 - 120	6	50
Nitrobenzene	1.67	1.283		mg/Kg		77	26 - 120	6	50
o-Cresol	1.67	1.255		mg/Kg		75	36 - 120	10	50
Pentachlorophenol	3.33	2.511		mg/Kg		75	44 - 134	6	50
Phenanthrene	1.67	1.364		mg/Kg		82	45 - 120	8	50

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 490-531135/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 531260 — **Prep Batch: 531135**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenol	1.67	1.320		mg/Kg		79	30 - 120	7	50
Pyrene	1.67	1.440		mg/Kg		86	43 - 120	8	50
Pyridine	1.67	1.040		mg/Kg		62	20 - 120	8	50
2,4,5-Trichlorophenol	1.67	1.324		mg/Kg		79	39 - 120	3	50
2,4,6-Trichlorophenol	1.67	1.338		mg/Kg		80	39 - 120	12	50
Dibenz(a,h)anthracene	1.67	1.488		mg/Kg		89	32 - 128	6	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*72*		*29 - 120*
2-Fluorophenol (Surr)	*66*		*10 - 120*
Nitrobenzene-d5 (Surr)	*75*		*27 - 120*
Phenol-d5 (Surr)	*75*		*10 - 120*
Terphenyl-d14 (Surr)	*81*		*13 - 120*
2,4,6-Tribromophenol (Surr)	*68*		*10 - 120*

Lab Sample ID: LCS 490-531857/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532140 — **Prep Batch: 531857**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-Dinitrotoluene	0.200	0.1206		mg/L		60	36 - 138
Hexachlorobenzene	0.200	0.1156		mg/L		58	36 - 140
Hexachlorobutadiene	0.200	0.1052		mg/L		53	18 - 136
Hexachloroethane	0.200	0.09448		mg/L		47	23 - 120
m & p - Cresol	0.200	0.1148		mg/L		57	10 - 135
Nitrobenzene	0.200	0.1076		mg/L		54	10 - 150
o-Cresol	0.200	0.1122		mg/L		56	10 - 133
Pentachlorophenol	0.400	0.2108		mg/L		53	10 - 150
Pyridine	0.200	0.06973		mg/L		35	10 - 110
2,4,5-Trichlorophenol	0.200	0.1201		mg/L		60	10 - 150
2,4,6-Trichlorophenol	0.200	0.1211		mg/L		61	10 - 150

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*54*		*29 - 120*
2-Fluorophenol (Surr)	*42*		*10 - 120*
Nitrobenzene-d5 (Surr)	*51*		*27 - 120*
Phenol-d5 (Surr)	*48*		*10 - 120*
Terphenyl-d14 (Surr)	*63*		*13 - 120*
2,4,6-Tribromophenol (Surr)	*53*		*10 - 120*

Lab Sample ID: LCSD 490-531857/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532140 — **Prep Batch: 531857**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
2,4-Dinitrotoluene	0.200	0.1702		mg/L		85	36 - 138	34	50
Hexachlorobenzene	0.200	0.1543		mg/L		77	36 - 140	29	50
Hexachlorobutadiene	0.200	0.1465		mg/L		73	18 - 136	33	50

Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 490-531857/3-A
Matrix: Solid
Analysis Batch: 532140

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 531857

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hexachloroethane	0.200	0.1416		mg/L		71	23 - 120	40	50
m & p - Cresol	0.200	0.1488		mg/L		74	10 - 135	26	46
Nitrobenzene	0.200	0.1445		mg/L		72	10 - 150	29	50
o-Cresol	0.200	0.1564		mg/L		78	10 - 133	33	45
Pentachlorophenol	0.400	0.3058		mg/L		76	10 - 150	37	50
Pyridine	0.200	0.09546		mg/L		48	10 - 110	31	50
2,4,5-Trichlorophenol	0.200	0.1710		mg/L		85	10 - 150	35	50
2,4,6-Trichlorophenol	0.200	0.1670		mg/L		84	10 - 150	32	50

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*73*		*29 - 120*
2-Fluorophenol (Surr)	*60*		*10 - 120*
Nitrobenzene-d5 (Surr)	*68*		*27 - 120*
Phenol-d5 (Surr)	*58*		*10 - 120*
Terphenyl-d14 (Surr)	*77*		*13 - 120*
2,4,6-Tribromophenol (Surr)	*69*		*10 - 120*

Lab Sample ID: LB 490-531470/1-D
Matrix: Solid
Analysis Batch: 532140

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 531857

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cresols	ND		0.0400		mg/L		07/27/18 09:20	07/28/18 14:27	2
2,4-Dinitrotoluene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 14:27	2
Hexachlorobenzene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 14:27	2
Hexachlorobutadiene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 14:27	2
Hexachloroethane	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 14:27	2
m & p - Cresol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 14:27	2
Nitrobenzene	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 14:27	2
o-Cresol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 14:27	2
Pentachlorophenol	ND		0.0600		mg/L		07/27/18 09:20	07/28/18 14:27	2
Pyridine	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 14:27	2
2,4,5-Trichlorophenol	ND		0.0600		mg/L		07/27/18 09:20	07/28/18 14:27	2
2,4,6-Trichlorophenol	ND		0.0200		mg/L		07/27/18 09:20	07/28/18 14:27	2

Surrogate	*LB %Recovery*	*LB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*74*		*29 - 120*	*07/27/18 09:20*	*07/28/18 14:27*	*2*
2-Fluorophenol (Surr)	*64*		*10 - 120*	*07/27/18 09:20*	*07/28/18 14:27*	*2*
Nitrobenzene-d5 (Surr)	*65*		*27 - 120*	*07/27/18 09:20*	*07/28/18 14:27*	*2*
Phenol-d5 (Surr)	*61*		*10 - 120*	*07/27/18 09:20*	*07/28/18 14:27*	*2*
Terphenyl-d14 (Surr)	*84*		*13 - 120*	*07/27/18 09:20*	*07/28/18 14:27*	*2*
2,4,6-Tribromophenol (Surr)	*73*		*10 - 120*	*07/27/18 09:20*	*07/28/18 14:27*	*2*

Method: 9012B - Cyanide, Total andor Amenable

Lab Sample ID: MB 490-531651/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532344 — **Prep Batch: 531651**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cyanide, Total	ND		2.00		mg/Kg		07/26/18 11:52	07/29/18 14:56	1

Lab Sample ID: LCS 490-531651/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532344 — **Prep Batch: 531651**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	5.00	4.845		mg/Kg		97	80 - 120

Lab Sample ID: LCSD 490-531651/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532344 — **Prep Batch: 531651**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	5.00	5.350		mg/Kg		107	80 - 120	10	30

Lab Sample ID: 490-156147-2 MS — **Client Sample ID: 67188-0-180724**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532344 — **Prep Batch: 531651**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyanide, Total	ND	F1	5.42	5.903		mg/Kg	☼	109	69 - 135

Lab Sample ID: 490-156147-2 MSD — **Client Sample ID: 67188-0-180724**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532344 — **Prep Batch: 531651**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Cyanide, Total	ND	F1	5.58	ND	F1	mg/Kg	☼	0	69 - 135	NC	50

Lab Sample ID: 490-156147-1 DU — **Client Sample ID: 54592-1-180724**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532344 — **Prep Batch: 531651**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cyanide, Total	ND		3.301		mg/Kg	☼	NC	20

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric)

Lab Sample ID: MB 490-532207/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532209 — **Prep Batch: 532207**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfide	ND		20.0		mg/Kg		07/28/18 11:00	07/28/18 12:50	1

Method: 9034 - Sulfide, Acid soluble and Insoluble (Titrimetric) (Continued)

Lab Sample ID: LCS 490-532207/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532209 — **Prep Batch: 532207**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	200	192.8		mg/Kg		96	70 - 130

Lab Sample ID: LCSD 490-532207/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532209 — **Prep Batch: 532207**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	200	190.4		mg/Kg		95	70 - 130	1	20

Lab Sample ID: 490-156147-1 MS — **Client Sample ID: 54592-1-180724**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532209 — **Prep Batch: 532207**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfide	ND		279	241.8		mg/Kg	☼	87	70 - 130

Lab Sample ID: 490-156147-1 MSD — **Client Sample ID: 54592-1-180724**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532209 — **Prep Batch: 532207**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfide	ND		279	239.6		mg/Kg	☼	86	70 - 130	1	20

Lab Sample ID: 490-156147-4 DU — **Client Sample ID: Centrifuged Solids-180724**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 532209 — **Prep Batch: 532207**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfide	ND		ND		mg/Kg	☼	NC	20

QC Association Summary

Client: US Ecology, Inc.
Project/Site: Waste Analysis

TestAmerica Job ID: 490-156147-1

GC/MS VOA

Prep Batch: 531374

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-1	54592-1-180724	Total/NA	Solid	5030B	
490-156147-2	67188-0-180724	Total/NA	Solid	5030B	
490-156147-3	101989-1-180724	Total/NA	Solid	5030B	
490-156147-4	Centrifuged Solids-180724	Total/NA	Solid	5030B	

Analysis Batch: 531583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-1	54592-1-180724	Total/NA	Solid	8260B	531374
490-156147-2	67188-0-180724	Total/NA	Solid	8260B	531374
490-156147-3	101989-1-180724	Total/NA	Solid	8260B	531374
490-156147-4	Centrifuged Solids-180724	Total/NA	Solid	8260B	531374
MB 490-531583/9	Method Blank	Total/NA	Solid	8260B	
LCS 490-531583/5	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 490-531583/6	Lab Control Sample Dup	Total/NA	Solid	8260B	

Leach Batch: 532009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-1	54592-1-180724	TCLP	Solid	1311	
490-156147-2	67188-0-180724	TCLP	Solid	1311	
490-156147-3	101989-1-180724	TCLP	Solid	1311	
490-156147-4	Centrifuged Solids-180724	TCLP	Solid	1311	
LB 490-532009/1-A	Method Blank	TCLP	Solid	1311	

Analysis Batch: 532148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-1	54592-1-180724	TCLP	Solid	8260B	532009
490-156147-2	67188-0-180724	TCLP	Solid	8260B	532009
490-156147-3	101989-1-180724	TCLP	Solid	8260B	532009
490-156147-4	Centrifuged Solids-180724	TCLP	Solid	8260B	532009
LB 490-532009/1-A	Method Blank	TCLP	Solid	8260B	532009
MB 490-532148/6	Method Blank	Total/NA	Solid	8260B	
LCS 490-532148/3	Lab Control Sample	Total/NA	Solid	8260B	
LCSD 490-532148/4	Lab Control Sample Dup	Total/NA	Solid	8260B	

GC/MS Semi VOA

Prep Batch: 531135

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-1	54592-1-180724	Total/NA	Solid	3550C	
490-156147-2	67188-0-180724	Total/NA	Solid	3550C	
490-156147-3	101989-1-180724	Total/NA	Solid	3550C	
490-156147-4	Centrifuged Solids-180724	Total/NA	Solid	3550C	
MB 490-531135/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 490-531135/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 490-531135/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	

Analysis Batch: 531260

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 490-531135/1-A	Method Blank	Total/NA	Solid	8270C	531135
LCS 490-531135/2-A	Lab Control Sample	Total/NA	Solid	8270C	531135

GC/MS Semi VOA (Continued)

Analysis Batch: 531260 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 490-531135/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C	531135

Leach Batch: 531470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-1	54592-1-180724	TCLP	Solid	1311	
490-156147-2	67188-0-180724	TCLP	Solid	1311	
490-156147-3	101989-1-180724	TCLP	Solid	1311	
490-156147-4	Centrifuged Solids-180724	TCLP	Solid	1311	
LB 490-531470/1-D	Method Blank	TCLP	Solid	1311	

Analysis Batch: 531519

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-1	54592-1-180724	Total/NA	Solid	8270C	531135
490-156147-2	67188-0-180724	Total/NA	Solid	8270C	531135
490-156147-3	101989-1-180724	Total/NA	Solid	8270C	531135
490-156147-4	Centrifuged Solids-180724	Total/NA	Solid	8270C	531135

Analysis Batch: 531815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-4	Centrifuged Solids-180724	Total/NA	Solid	8270C	531135

Prep Batch: 531857

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-1	54592-1-180724	TCLP	Solid	3510C	531470
490-156147-2	67188-0-180724	TCLP	Solid	3510C	531470
490-156147-3	101989-1-180724	TCLP	Solid	3510C	531470
490-156147-4	Centrifuged Solids-180724	TCLP	Solid	3510C	531470
LB 490-531470/1-D	Method Blank	TCLP	Solid	3510C	531470
LCS 490-531857/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 490-531857/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

Analysis Batch: 532140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-1	54592-1-180724	TCLP	Solid	8270C	531857
490-156147-2	67188-0-180724	TCLP	Solid	8270C	531857
490-156147-3	101989-1-180724	TCLP	Solid	8270C	531857
490-156147-4	Centrifuged Solids-180724	TCLP	Solid	8270C	531857
LB 490-531470/1-D	Method Blank	TCLP	Solid	8270C	531857
LCS 490-531857/2-A	Lab Control Sample	Total/NA	Solid	8270C	531857
LCSD 490-531857/3-A	Lab Control Sample Dup	Total/NA	Solid	8270C	531857

General Chemistry

Analysis Batch: 531423

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-1	54592-1-180724	Total/NA	Solid	Moisture	

Prep Batch: 531651

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-1	54592-1-180724	Total/NA	Solid	9012B	

General Chemistry (Continued)

Prep Batch: 531651 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-2	67188-0-180724	Total/NA	Solid	9012B	
490-156147-3	101989-1-180724	Total/NA	Solid	9012B	
490-156147-4	Centrifuged Solids-180724	Total/NA	Solid	9012B	
MB 490-531651/1-A	Method Blank	Total/NA	Solid	9012B	
LCS 490-531651/2-A	Lab Control Sample	Total/NA	Solid	9012B	
LCSD 490-531651/3-A	Lab Control Sample Dup	Total/NA	Solid	9012B	
490-156147-2 MS	67188-0-180724	Total/NA	Solid	9012B	
490-156147-2 MSD	67188-0-180724	Total/NA	Solid	9012B	
490-156147-1 DU	54592-1-180724	Total/NA	Solid	9012B	

Analysis Batch: 531701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-2	67188-0-180724	Total/NA	Solid	Moisture	
490-156147-3	101989-1-180724	Total/NA	Solid	Moisture	
490-156147-4	Centrifuged Solids-180724	Total/NA	Solid	Moisture	

Prep Batch: 532207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-1	54592-1-180724	Total/NA	Solid	9030B	
490-156147-2	67188-0-180724	Total/NA	Solid	9030B	
490-156147-3	101989-1-180724	Total/NA	Solid	9030B	
490-156147-4	Centrifuged Solids-180724	Total/NA	Solid	9030B	
MB 490-532207/1-A	Method Blank	Total/NA	Solid	9030B	
LCS 490-532207/2-A	Lab Control Sample	Total/NA	Solid	9030B	
LCSD 490-532207/3-A	Lab Control Sample Dup	Total/NA	Solid	9030B	
490-156147-1 MS	54592-1-180724	Total/NA	Solid	9030B	
490-156147-1 MSD	54592-1-180724	Total/NA	Solid	9030B	
490-156147-4 DU	Centrifuged Solids-180724	Total/NA	Solid	9030B	

Analysis Batch: 532209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-1	54592-1-180724	Total/NA	Solid	9034	532207
490-156147-2	67188-0-180724	Total/NA	Solid	9034	532207
490-156147-3	101989-1-180724	Total/NA	Solid	9034	532207
490-156147-4	Centrifuged Solids-180724	Total/NA	Solid	9034	532207
MB 490-532207/1-A	Method Blank	Total/NA	Solid	9034	532207
LCS 490-532207/2-A	Lab Control Sample	Total/NA	Solid	9034	532207
LCSD 490-532207/3-A	Lab Control Sample Dup	Total/NA	Solid	9034	532207
490-156147-1 MS	54592-1-180724	Total/NA	Solid	9034	532207
490-156147-1 MSD	54592-1-180724	Total/NA	Solid	9034	532207
490-156147-4 DU	Centrifuged Solids-180724	Total/NA	Solid	9034	532207

Analysis Batch: 532344

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-1	54592-1-180724	Total/NA	Solid	9012B	531651
490-156147-2	67188-0-180724	Total/NA	Solid	9012B	531651
490-156147-3	101989-1-180724	Total/NA	Solid	9012B	531651
490-156147-4	Centrifuged Solids-180724	Total/NA	Solid	9012B	531651
MB 490-531651/1-A	Method Blank	Total/NA	Solid	9012B	531651
LCS 490-531651/2-A	Lab Control Sample	Total/NA	Solid	9012B	531651
LCSD 490-531651/3-A	Lab Control Sample Dup	Total/NA	Solid	9012B	531651

General Chemistry (Continued)

Analysis Batch: 532344 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-156147-2 MS	67188-0-180724	Total/NA	Solid	9012B	531651
490-156147-2 MSD	67188-0-180724	Total/NA	Solid	9012B	531651
490-156147-1 DU	54592-1-180724	Total/NA	Solid	9012B	531651

Lab Chronicle

Client: US Ecology, Inc.
Project/Site: Waste Analysis

TestAmerica Job ID: 490-156147-1

Client Sample ID: 54592-1-180724 — Lab Sample ID: 490-156147-1

Date Collected: 07/24/18 11:10
Date Received: 07/25/18 07:00
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			25.01 g	500 mL	532009	07/27/18 14:20	MS	TAL NSH
TCLP	Analysis	8260B		10	10 mL	10 mL	532148	07/28/18 15:36	S1S	TAL NSH
TCLP	Leach	1311			100.04 g	2000 mL	531470	07/25/18 17:16	JDG	TAL NSH
TCLP	Prep	3510C			500 mL	1 mL	531857	07/27/18 09:20	MCO	TAL NSH
TCLP	Analysis	8270C		2			532140	07/28/18 15:30	RP	TAL NSH
Total/NA	Analysis	Moisture		1			531423	07/25/18 15:07	BAA	TAL NSH

Client Sample ID: 54592-1-180724 — Lab Sample ID: 490-156147-1

Date Collected: 07/24/18 11:10
Date Received: 07/25/18 07:00
Matrix: Solid
Percent Solids: 71.8

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.36 g	5.0 mL	531374	07/25/18 12:57	JLP	TAL NSH
Total/NA	Analysis	8260B		5	0.2 mL	10 mL	531583	07/26/18 14:44	RP	TAL NSH
Total/NA	Prep	3550C			5.01 g	1.00 mL	531135	07/25/18 14:28	AMD	TAL NSH
Total/NA	Analysis	8270C		10			531519	07/26/18 19:13	KME	TAL NSH
Total/NA	Prep	9012B			1.02 g	50 mL	531651	07/26/18 11:52	LDT	TAL NSH
Total/NA	Analysis	9012B		1			532344	07/29/18 14:56	SDL	TAL NSH
Total/NA	Prep	9030B			5 g	50 mL	532207	07/28/18 11:00	REM	TAL NSH
Total/NA	Analysis	9034		1			532209	07/28/18 12:50	REM	TAL NSH

Client Sample ID: 67188-0-180724 — Lab Sample ID: 490-156147-2

Date Collected: 07/24/18 11:23
Date Received: 07/25/18 07:00
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			25.01 g	500 mL	532009	07/27/18 14:20	MS	TAL NSH
TCLP	Analysis	8260B		10	10 mL	10 mL	532148	07/28/18 15:08	S1S	TAL NSH
TCLP	Leach	1311			99.99 g	2000 mL	531470	07/25/18 17:16	JDG	TAL NSH
TCLP	Prep	3510C			500 mL	1 mL	531857	07/27/18 09:20	MCO	TAL NSH
TCLP	Analysis	8270C		2			532140	07/28/18 15:51	RP	TAL NSH
Total/NA	Analysis	Moisture		1			531701	07/26/18 14:50	BAA	TAL NSH

Client Sample ID: 67188-0-180724 — Lab Sample ID: 490-156147-2

Date Collected: 07/24/18 11:23
Date Received: 07/25/18 07:00
Matrix: Solid
Percent Solids: 93.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.41 g	5.0 mL	531374	07/25/18 12:57	JLP	TAL NSH
Total/NA	Analysis	8260B		5	0.2 mL	10 mL	531583	07/26/18 14:18	RP	TAL NSH
Total/NA	Prep	3550C			10.66 g	1.00 mL	531135	07/25/18 14:28	AMD	TAL NSH
Total/NA	Analysis	8270C		5			531519	07/26/18 19:35	KME	TAL NSH
Total/NA	Prep	9012B			0.98 g	50 mL	531651	07/26/18 11:52	LDT	TAL NSH

Lab Chronicle

Client: US Ecology, Inc.
Project/Site: Waste Analysis

TestAmerica Job ID: 490-156147-1

Client Sample ID: 67188-0-180724 — Lab Sample ID: 490-156147-2

Date Collected: 07/24/18 11:23
Date Received: 07/25/18 07:00

Matrix: Solid
Percent Solids: 93.3

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9012B		1			532344	07/29/18 14:56	SDL	TAL NSH
Total/NA	Prep	9030B			5 g	50 mL	532207	07/28/18 11:00	REM	TAL NSH
Total/NA	Analysis	9034		1			532209	07/28/18 12:50	REM	TAL NSH

Client Sample ID: 101989-1-180724 — Lab Sample ID: 490-156147-3

Date Collected: 07/24/18 11:36
Date Received: 07/25/18 07:00

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			25.01 g	500 mL	532009	07/27/18 14:20	MS	TAL NSH
TCLP	Analysis	8260B		10	10 mL	10 mL	532148	07/28/18 16:31	S1S	TAL NSH
TCLP	Leach	1311			100.09 g	2000 mL	531470	07/25/18 17:16	JDG	TAL NSH
TCLP	Prep	3510C			500 mL	1 mL	531857	07/27/18 09:20	MCO	TAL NSH
TCLP	Analysis	8270C		2			532140	07/28/18 16:13	RP	TAL NSH
Total/NA	Analysis	Moisture		1			531701	07/26/18 14:50	BAA	TAL NSH

Client Sample ID: 101989-1-180724 — Lab Sample ID: 490-156147-3

Date Collected: 07/24/18 11:36
Date Received: 07/25/18 07:00

Matrix: Solid
Percent Solids: 64.6

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.25 g	5.0 mL	531374	07/25/18 12:57	JLP	TAL NSH
Total/NA	Analysis	8260B		40	0.2 mL	10 mL	531583	07/26/18 15:36	RP	TAL NSH
Total/NA	Prep	3550C			5.72 g	1.00 mL	531135	07/25/18 14:28	AMD	TAL NSH
Total/NA	Analysis	8270C		10			531519	07/26/18 19:57	KME	TAL NSH
Total/NA	Prep	9012B			1.00 g	50 mL	531651	07/26/18 11:52	LDT	TAL NSH
Total/NA	Analysis	9012B		1			532344	07/29/18 14:56	SDL	TAL NSH
Total/NA	Prep	9030B			5 g	50 mL	532207	07/28/18 11:00	REM	TAL NSH
Total/NA	Analysis	9034		1			532209	07/28/18 12:50	REM	TAL NSH

Client Sample ID: Centrifuged Solids-180724 — Lab Sample ID: 490-156147-4

Date Collected: 07/24/18 11:46
Date Received: 07/25/18 07:00

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
TCLP	Leach	1311			25.00 g	500 mL	532009	07/27/18 14:20	MS	TAL NSH
TCLP	Analysis	8260B		10	10 mL	10 mL	532148	07/28/18 16:03	S1S	TAL NSH
TCLP	Leach	1311			99.96 g	2000 mL	531470	07/25/18 17:16	JDG	TAL NSH
TCLP	Prep	3510C			500 mL	1 mL	531857	07/27/18 09:20	MCO	TAL NSH
TCLP	Analysis	8270C		2			532140	07/28/18 16:34	RP	TAL NSH
Total/NA	Analysis	Moisture		1			531701	07/26/18 14:50	BAA	TAL NSH

Lab Chronicle

Client: US Ecology, Inc.
Project/Site: Waste Analysis

TestAmerica Job ID: 490-156147-1

Client Sample ID: Centrifuged Solids-180724

Lab Sample ID: 490-156147-4

Date Collected: 07/24/18 11:46
Date Received: 07/25/18 07:00

Matrix: Solid
Percent Solids: 60.2

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			5.68 g	5.0 mL	531374	07/25/18 12:57	JLP	TAL NSH
Total/NA	Analysis	8260B		10	0.2 mL	10 mL	531583	07/26/18 15:10	RP	TAL NSH
Total/NA	Prep	3550C			5.11 g	1.00 mL	531135	07/25/18 14:28	AMD	TAL NSH
Total/NA	Analysis	8270C		5			531519	07/26/18 20:19	KME	TAL NSH
Total/NA	Prep	3550C			5.11 g	1.00 mL	531135	07/25/18 14:28	AMD	TAL NSH
Total/NA	Analysis	8270C		50			531815	07/27/18 10:45	KME	TAL NSH
Total/NA	Prep	9012B			1.02 g	50 mL	531651	07/26/18 11:52	LDT	TAL NSH
Total/NA	Analysis	9012B		1			532344	07/29/18 14:56	SDL	TAL NSH
Total/NA	Prep	9030B			5 g	50 mL	532207	07/28/18 11:00	REM	TAL NSH
Total/NA	Analysis	9034		1			532209	07/28/18 12:50	REM	TAL NSH

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Method Summary

Client: US Ecology, Inc.
Project/Site: Waste Analysis

TestAmerica Job ID: 490-156147-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL NSH
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL NSH
9012B	Cyanide, Total andor Amenable	SW846	TAL NSH
9034	Sulfide, Acid soluble and Insoluble (Titrimetric)	SW846	TAL NSH
Moisture	Percent Moisture	EPA	TAL NSH
1311	TCLP Extraction	SW846	TAL NSH
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL NSH
3550C	Ultrasonic Extraction	SW846	TAL NSH
5030B	Purge and Trap	SW846	TAL NSH
9012B	Cyanide, Total and/or Amenable, Distillation	SW846	TAL NSH
9030B	Sulfide, Distillation (Acid Soluble and Insoluble)	SW846	TAL NSH

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

Accreditation/Certification Summary

Client: US Ecology, Inc.
Project/Site: Waste Analysis

TestAmerica Job ID: 490-156147-1

Laboratory: TestAmerica Nashville

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Louisiana	NELAP	6	30613	06-30-18 *

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
8260B		Solid	1,2-Dichloroethene, Total
8260B	5030B	Solid	1,2-Dichloroethene, Total
Moisture		Solid	Percent Solids

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
Nashville, TN

490-156147 Chain of Custody

COOLER RECEIPT FORM

Cooler Received/Opened On 07-25-2018 @ 0700

Time Samples Removed From Cooler 0957 Time Samples Placed In Storage 1010 (2 Hour Window)

1. Tracking # 772805154119 (last 4 digits, FedEx) Courier: Fedex FO

   IR Gun ID 31470368 pH Strip Lot NA Chlorine Strip Lot NA

2. Temperature of rep. sample or temp blank when opened: 0.8 *Degrees Celsius*

3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA

4. Were custody seals on outside of cooler? YES...NO...NA

   If yes, how many and where: _____

5. Were the seals intact, signed, and dated correctly? YES...NO...NA

6. Were custody papers inside cooler? YES...NO...NA

I certify that I opened the cooler and answered questions 1-6 (intial) TR

7. Were custody seals on containers: YES NO and Intact YES...NO...NA

   Were these signed and dated correctly? YES...NO...NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES...NO...NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA

12. Did all container labels and tags agree with custody papers? YES...NO...NA

13a. Were VOA vials received? YES...NO...NA

   b. Was there any observable headspace present in any VOA vial? YES...NO...NA

Larger than this.

14. Was there a Trip Blank in this cooler? YES...NO...NA If multiple coolers, sequence #_____

I certify that I unloaded the cooler and answered questions 7-14 (intial) GH

15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO...NA

   b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA

16. Was residual chlorine present? YES...NO...NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (intial) GH

17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA

18. Did you sign the custody papers in the appropriate place? YES...NO...NA

19. Were correct containers used for the analysis requested? YES...NO...NA

20. Was sufficient amount of sample sent in each container? YES...NO...NA

I certify that I entered this project into LIMS and answered questions 17-20 (intial) GH

I certify that I attached a label with the unique LIMS number to each container (intial) GH

21. Were there Non-Conformance issues at login? YES...NO Was a NCM generated? YES...NO...#_____

BIS = Broken in shipment

USEcologyTexas

3277 County Rd 69, Robstown, Texas 78380
PO Box 307, Robstown, Texas 78380
Phone: 1-361-387-3518
Fax: 1-361-387-0794

VPP

Company: USET
Attention: Laboratory
Address: 3277 County Rd 69
Robstown, TX 78380

Phone Number:

Project Name:

Sampler Name: Jose Salazar (Print)

Loc: 490
156147

Sample ID Number (Lab only)	Sample Date	Sample Time	Grab/ Comp	Sample Description (i. e. work order, waste stream, customer, etc.)	# of Bottles	Analysis Requested	Box #	Temp @ Rec't	Comments (Time placed in refrigerator)
54592-1-180724	7/24/18	1110	Comp	Waste	2-16oz	See attachment	—	—	Rec. on Ice
67188-0-180724	"	1123	Comp	Waste	2-16oz	"	—	—	
101989-1-180724	"	1136	Comp	Waste	2-16oz	"	—	—	
Centrifuge Solids-180724	"	1146	Comp	Waste	2-16oz	"	—	—	

RC

Jose Salazar (Print) — Relinquished By:
JS — Signature:
7/24/18 1222 — Date/Time

Ramiro Hinojosa — Received By:
Ramiro Hinojosa 07.24.18 01222 — Signature:
TA-NAS — Date/Time: 7-25-18/0700

Laboratory observations of sample condition at time of receipt: 5x Temp on Receipt = 3.6°C 0.8°C

Courier Name: Date/Time of Shipment: Received By: Signature:

Parameter	F037 Regulated Hazardous Constituent	Listing Level (mg/l)	UTS	Units		Sample Number			
						090054592-1-180724	090067188-0-180724	090101989-1-180724	Centrifuged Solids-180724
D001-Igniability	-	<140	DEACT	-					
D002 -Corrosivity	-	<=2 - 12.5=<	DEACT	-					
D003 -Reactivity	-	Reactive	DEACT	-					
D004 - Arsenic	-	5	5	mg/l	<	TCLP	TCLP	TCLP	TCLP
D005 - Barium	-	100	21	mg/l	<	TCLP	TCLP	TCLP	TCLP
D006 - Cadmium	-	1	0.11	mg/l	<	TCLP	TCLP	TCLP	TCLP
D007 - Chromium	-	5	0.6	mg/l	<	TCLP	TCLP	TCLP	TCLP
D008 - Lead	-	5	0.75	mg/l	<	TCLP	TCLP	TCLP	TCLP
D009 - Mercury	-	0.2	0.2	mg/l	<	TCLP	TCLP	TCLP	TCLP
D010 - Selenium	-	1	5.7	mg/l	<	TCLP	TCLP	TCLP	TCLP
D011 - Silver	-	5	0.14	mg/l	<	TCLP	TCLP	TCLP	TCLP
D018 - Benzene	F037	0.5	10	mg/kg		TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D019 - Carbon tetrachloride	-	0.5	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D021 - Chlorobenzene	-	100	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D022 - Chloroform	-	6	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D023 - o- Cresol	-	200	5.6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D024 - m- Cresol	-	200	5.6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D025 - p - Cresol	-	200	5.6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D026 - Cresols (Total)	-	200	11.2	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D027 - p-Dichloroethane	-	7.5	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D028 - 1,2 Dichloroethylene	-	0.5	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D029 - 1,1 Dichlorethylene	-	0.7	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D030 - 2,4 Dinitrotoluene	-	0.13	140	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D032 - Hexachlorobenzene	-	0.13	10	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D033 - Hexachlorobutadiene	-	0.5	5.6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D034 - Hexachloroethane	-	3	30	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D035 - Methyl Ethyl Ketone	-	200	36	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D036 - Nitrobenzene	-	2	14	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D037 - Pentachlorophenol	-	100	7.4	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D038 - Pyridine	-	5	16	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D039 - Tetrachloroethylene	-	0.7	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D040 - Trichloroethylene	-	0.5	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D041 - 2,4,5 Trichlorophenol	-	400	7.4	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D042 - 2,4,6 Trichlorophenol	-	2	7.4	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D043 - Vinyl Chloride	-	0.2	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
Acenaphthene	F037	-	N/A	mg/kg	<	Totals	Totals	Totals	Totals
Anthracene	F037	-	3.4	mg/kg	<	Totals	Totals	Totals	Totals
Benzo (a) anthracene	F037	-	3.4	mg/kg	<	Totals	Totals	Totals	Totals
Benzo (a) pyrene	F037	-	3.4	mg/kg	<	Totals	Totals	Totals	Totals
bis (2-ethylhexyl) Phthalate	F037	-	28	mg/kg	<	Totals	Totals	Totals	Totals
Chrysene	F037	-	3.4	mg/kg		Totals	Totals	Totals	Totals
Di-n-butyl-phthalate	F037	-	28	mg/kg	<	Totals	Totals	Totals	Totals
Ethylbenzene	F037	-	10	mg/kg		Totals	Totals	Totals	Totals
Fluorene	F037	-	N/A	mg/kg	<	Totals	Totals	Totals	Totals
Naphthalene	F037	-	5.6	mg/kg		Totals	Totals	Totals	Totals
Phenanthrene	F037	-	5.6	mg/kg		Totals	Totals	Totals	Totals
Phenol	F037	-	6.2	mg/kg	<	Totals	Totals	Totals	Totals
Pyrene	F037	-	8.2	mg/kg	<	Totals	Totals	Totals	Totals
Toluene	F037	-	10	mg/kg		Totals	Totals	Totals	Totals
Xylenes	F037	-	30	mg/kg		Totals	Totals	Totals	Totals
Cyanides	F037	-	590	mg/kg	<	Totals	Totals	Totals	Totals
Lead	F037	-	N/A	mg/kg		Totals	Totals	Totals	Totals
Nickel	F037	-	11	mg/l	<	TCLP	TCLP	TCLP	TCLP
Carbon Disulfide	-	-	N/A	mg/kg	<	Totals	Totals	Totals	Totals
2,4-Dimethylphenol	-	-	N/A	mg/kg	<	Totals	Totals	Totals	Totals
Benzo (g,h,i) perylene	-	-	1.8	mg/kg	<	Totals	Totals	Totals	Totals

Loc: 490
156147

Dibenz (a,h) anthracene	-	-	8.2	mg/kg		Totals		Totals		Totals		Totals
Indeno (1,2,3,cd) pyrene	-	-	3.4	mg/kg		Totals		Totals		Totals		Totals
Vanadium	-	-	1.6	mg/l		TCLP		TCLP		TCLP		TCLP
Reactive sulfides	-	-	DEACT	mg/kg	<	Totals		Totals		Totals		Totals
Antimony	-	-	1.15	mg/l		TCLP		TCLP		TCLP		TCLP

Loc: 490
156147

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Corpus Christi
1733 N. Padre Island Drive
Corpus Christi, TX 78408
Tel: (361)289-2673

TestAmerica Job ID: 560-74858-1
Client Project/Site: Wastewater

For:
US Ecology, Inc.
PO BOX 307
Robstown, Texas 78380

Attn: Lois Bennett

Authorized for release by:
7/27/2018 3:16:38 PM

Lindy Maingot, Project Manager I
(210)344-9751
lindy.maingot@testamericainc.com

LINKS

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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 560-74858-1

Laboratory: TestAmerica Corpus Christi

Narrative

Job Narrative
560-74858-1

Comments
No additional comments.

Receipt
The samples were received on 7/24/2018 2:03 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 18.1° C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: US Ecology, Inc.
Project/Site: Wastewater

TestAmerica Job ID: 560-74858-1

Client Sample ID: 54592-1-180724 — Lab Sample ID: 560-74858-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0065	J	0.010	0.0035	mg/L	1		6010B	TCLP
Barium	0.99		0.010	0.0020	mg/L	1		6010B	TCLP
Cadmium	0.0035	J	0.0050	0.00034	mg/L	1		6010B	TCLP
Chromium	0.0025	J	0.010	0.0011	mg/L	1		6010B	TCLP
Selenium	0.013		0.010	0.0042	mg/L	1		6010B	TCLP
Antimony	0.032		0.010	0.0050	mg/L	1		6010B	TCLP
Nickel	0.35		0.010	0.0020	mg/L	1		6010B	TCLP
Vanadium	0.024		0.0050	0.00070	mg/L	1		6010B	TCLP

Client Sample ID: 67188-0-180724 — Lab Sample ID: 560-74858-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0037	J	0.010	0.0035	mg/L	1		6010B	TCLP
Barium	0.52		0.010	0.0020	mg/L	1		6010B	TCLP
Cadmium	0.00059	J	0.0050	0.00034	mg/L	1		6010B	TCLP
Chromium	0.0027	J	0.010	0.0011	mg/L	1		6010B	TCLP
Selenium	0.0099	J	0.010	0.0042	mg/L	1		6010B	TCLP
Antimony	0.0098	J	0.010	0.0050	mg/L	1		6010B	TCLP
Nickel	0.016		0.010	0.0020	mg/L	1		6010B	TCLP
Vanadium	0.0089		0.0050	0.00070	mg/L	1		6010B	TCLP

Client Sample ID: 101989-1-180724 — Lab Sample ID: 560-74858-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0085	J	0.010	0.0035	mg/L	1		6010B	TCLP
Barium	0.89		0.010	0.0020	mg/L	1		6010B	TCLP
Cadmium	0.0038	J	0.0050	0.00034	mg/L	1		6010B	TCLP
Chromium	0.0015	J	0.010	0.0011	mg/L	1		6010B	TCLP
Selenium	0.0094	J	0.010	0.0042	mg/L	1		6010B	TCLP
Antimony	0.056		0.010	0.0050	mg/L	1		6010B	TCLP
Nickel	1.3		0.010	0.0020	mg/L	1		6010B	TCLP
Vanadium	0.038		0.0050	0.00070	mg/L	1		6010B	TCLP

Client Sample ID: CentrifugeSolids-180724 — Lab Sample ID: 560-74858-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.27		0.010	0.0035	mg/L	1		6010B	TCLP
Barium	0.15		0.010	0.0020	mg/L	1		6010B	TCLP
Cadmium	0.021		0.0050	0.00034	mg/L	1		6010B	TCLP
Chromium	0.024		0.010	0.0011	mg/L	1		6010B	TCLP
Lead	0.030		0.010	0.0033	mg/L	1		6010B	TCLP
Selenium	0.0077	J	0.010	0.0042	mg/L	1		6010B	TCLP
Antimony	0.18		0.010	0.0050	mg/L	1		6010B	TCLP
Nickel	4.2		0.010	0.0020	mg/L	1		6010B	TCLP
Vanadium	0.15		0.0050	0.00070	mg/L	1		6010B	TCLP

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: US Ecology, Inc.
Project/Site: Wastewater

TestAmerica Job ID: 560-74858-1

Client Sample ID: 54592-1-180724
Date Collected: 07/24/18 11:10
Date Received: 07/24/18 14:03

Lab Sample ID: 560-74858-1
Matrix: Solid

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	<0.0010		0.0050	0.0010	mg/L		07/25/18 09:49	07/25/18 15:26	1
Arsenic	**0.0065**	J	0.010	0.0035	mg/L		07/25/18 09:49	07/25/18 15:26	1
Barium	**0.99**		0.010	0.0020	mg/L		07/25/18 09:49	07/25/18 15:26	1
Cadmium	**0.0035**	J	0.0050	0.00034	mg/L		07/25/18 09:49	07/25/18 15:26	1
Chromium	**0.0025**	J	0.010	0.0011	mg/L		07/25/18 09:49	07/25/18 15:26	1
Lead	<0.0033		0.010	0.0033	mg/L		07/25/18 09:49	07/25/18 15:26	1
Selenium	**0.013**		0.010	0.0042	mg/L		07/25/18 09:49	07/25/18 15:26	1
Antimony	**0.032**		0.010	0.0050	mg/L		07/25/18 09:49	07/25/18 15:26	1
Nickel	**0.35**		0.010	0.0020	mg/L		07/25/18 09:49	07/25/18 15:26	1
Vanadium	**0.024**		0.0050	0.00070	mg/L		07/25/18 09:49	07/25/18 15:26	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.0020	0.00013	mg/L		07/25/18 10:35	07/25/18 14:14	1

Client Sample Results

Client: US Ecology, Inc.
Project/Site: Wastewater

TestAmerica Job ID: 560-74858-1

Client Sample ID: 67188-0-180724
Date Collected: 07/24/18 11:23
Date Received: 07/24/18 14:03

Lab Sample ID: 560-74858-2
Matrix: Solid

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	<0.0010		0.0050	0.0010	mg/L		07/25/18 09:49	07/25/18 15:30	1
Arsenic	**0.0037**	**J**	0.010	0.0035	mg/L		07/25/18 09:49	07/25/18 15:30	1
Barium	**0.52**		0.010	0.0020	mg/L		07/25/18 09:49	07/25/18 15:30	1
Cadmium	**0.00059**	**J**	0.0050	0.00034	mg/L		07/25/18 09:49	07/25/18 15:30	1
Chromium	**0.0027**	**J**	0.010	0.0011	mg/L		07/25/18 09:49	07/25/18 15:30	1
Lead	<0.0033		0.010	0.0033	mg/L		07/25/18 09:49	07/25/18 15:30	1
Selenium	**0.0099**	**J**	0.010	0.0042	mg/L		07/25/18 09:49	07/25/18 15:30	1
Antimony	**0.0098**	**J**	0.010	0.0050	mg/L		07/25/18 09:49	07/25/18 15:30	1
Nickel	**0.016**		0.010	0.0020	mg/L		07/25/18 09:49	07/25/18 15:30	1
Vanadium	**0.0089**		0.0050	0.00070	mg/L		07/25/18 09:49	07/25/18 15:30	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.0020	0.00013	mg/L		07/25/18 10:35	07/25/18 14:20	1

Client Sample Results

Client: US Ecology, Inc.
Project/Site: Wastewater

TestAmerica Job ID: 560-74858-1

Client Sample ID: 101989-1-180724
Date Collected: 07/24/18 11:36
Date Received: 07/24/18 14:03

Lab Sample ID: 560-74858-3
Matrix: Solid

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	<0.0010		0.0050	0.0010	mg/L		07/25/18 09:49	07/25/18 15:34	1
Arsenic	**0.0085**	J	0.010	0.0035	mg/L		07/25/18 09:49	07/25/18 15:34	1
Barium	**0.89**		0.010	0.0020	mg/L		07/25/18 09:49	07/25/18 15:34	1
Cadmium	**0.0038**	J	0.0050	0.00034	mg/L		07/25/18 09:49	07/25/18 15:34	1
Chromium	**0.0015**	J	0.010	0.0011	mg/L		07/25/18 09:49	07/25/18 15:34	1
Lead	<0.0033		0.010	0.0033	mg/L		07/25/18 09:49	07/25/18 15:34	1
Selenium	**0.0094**	J	0.010	0.0042	mg/L		07/25/18 09:49	07/25/18 15:34	1
Antimony	**0.056**		0.010	0.0050	mg/L		07/25/18 09:49	07/25/18 15:34	1
Nickel	**1.3**		0.010	0.0020	mg/L		07/25/18 09:49	07/25/18 15:34	1
Vanadium	**0.038**		0.0050	0.00070	mg/L		07/25/18 09:49	07/25/18 15:34	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.0020	0.00013	mg/L		07/25/18 10:35	07/25/18 14:22	1

Client Sample Results

Client: US Ecology, Inc.
Project/Site: Wastewater

TestAmerica Job ID: 560-74858-1

Client Sample ID: CentrifugeSolids-180724 — **Lab Sample ID: 560-74858-4**
Date Collected: 07/24/18 11:46 — **Matrix: Solid**
Date Received: 07/24/18 14:03

Method: 6010B - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	<0.0010		0.0050	0.0010	mg/L		07/25/18 09:49	07/25/18 15:37	1
Arsenic	**0.27**		0.010	0.0035	mg/L		07/25/18 09:49	07/25/18 15:37	1
Barium	**0.15**		0.010	0.0020	mg/L		07/25/18 09:49	07/25/18 15:37	1
Cadmium	**0.021**		0.0050	0.00034	mg/L		07/25/18 09:49	07/25/18 15:37	1
Chromium	**0.024**		0.010	0.0011	mg/L		07/25/18 09:49	07/26/18 16:44	1
Lead	**0.030**		0.010	0.0033	mg/L		07/25/18 09:49	07/25/18 15:37	1
Selenium	**0.0077**	J	0.010	0.0042	mg/L		07/25/18 09:49	07/25/18 15:37	1
Antimony	**0.18**		0.010	0.0050	mg/L		07/25/18 09:49	07/25/18 15:37	1
Nickel	**4.2**		0.010	0.0020	mg/L		07/25/18 09:49	07/25/18 15:37	1
Vanadium	**0.15**		0.0050	0.00070	mg/L		07/25/18 09:49	07/25/18 15:37	1

Method: 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.0020	0.00013	mg/L		07/25/18 10:35	07/25/18 14:24	1

QC Sample Results

Client: US Ecology, Inc.
Project/Site: Wastewater

TestAmerica Job ID: 560-74858-1

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 560-153303/1-A
Matrix: Solid
Analysis Batch: 153384

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 153303

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	<0.0010		0.0050	0.0010	mg/L		07/25/18 09:49	07/26/18 16:25	1
Arsenic	<0.0035		0.010	0.0035	mg/L		07/25/18 09:49	07/26/18 16:25	1
Barium	<0.0020		0.010	0.0020	mg/L		07/25/18 09:49	07/26/18 16:25	1
Cadmium	<0.00034		0.0050	0.00034	mg/L		07/25/18 09:49	07/26/18 16:25	1
Chromium	<0.0011		0.010	0.0011	mg/L		07/25/18 09:49	07/26/18 16:25	1
Lead	<0.0033		0.010	0.0033	mg/L		07/25/18 09:49	07/26/18 16:25	1
Selenium	<0.0042		0.010	0.0042	mg/L		07/25/18 09:49	07/26/18 16:25	1
Antimony	<0.0050		0.010	0.0050	mg/L		07/25/18 09:49	07/26/18 16:25	1
Nickel	<0.0020		0.010	0.0020	mg/L		07/25/18 09:49	07/26/18 16:25	1
Vanadium	<0.00070		0.0050	0.00070	mg/L		07/25/18 09:49	07/26/18 16:25	1

Lab Sample ID: LCS 560-153303/2-A
Matrix: Solid
Analysis Batch: 153332

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 153303

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Silver	0.250	0.243		mg/L		97	80 - 120
Arsenic	0.250	0.260		mg/L		104	80 - 120
Barium	0.250	0.255		mg/L		102	80 - 120
Cadmium	0.250	0.262		mg/L		105	80 - 120
Chromium	0.250	0.268		mg/L		107	80 - 120
Lead	0.250	0.268		mg/L		107	80 - 120
Selenium	0.250	0.262		mg/L		105	80 - 120
Antimony	0.250	0.263		mg/L		105	80 - 120
Nickel	0.250	0.266		mg/L		107	80 - 120
Vanadium	0.250	0.260		mg/L		104	80 - 120

Lab Sample ID: LB 560-153279/1-B
Matrix: Solid
Analysis Batch: 153332

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 153303

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Silver	<0.0010		0.0050	0.0010	mg/L		07/25/18 09:49	07/25/18 15:41	1
Arsenic	0.00457	J	0.010	0.0035	mg/L		07/25/18 09:49	07/25/18 15:41	1
Barium	0.0115		0.010	0.0020	mg/L		07/25/18 09:49	07/25/18 15:41	1
Cadmium	<0.00034		0.0050	0.00034	mg/L		07/25/18 09:49	07/25/18 15:41	1
Chromium	0.0107		0.010	0.0011	mg/L		07/25/18 09:49	07/25/18 15:41	1
Lead	<0.0033		0.010	0.0033	mg/L		07/25/18 09:49	07/25/18 15:41	1
Selenium	0.00483	J	0.010	0.0042	mg/L		07/25/18 09:49	07/25/18 15:41	1
Antimony	<0.0050		0.010	0.0050	mg/L		07/25/18 09:49	07/25/18 15:41	1
Nickel	<0.0020		0.010	0.0020	mg/L		07/25/18 09:49	07/25/18 15:41	1
Vanadium	<0.00070		0.0050	0.00070	mg/L		07/25/18 09:49	07/25/18 15:41	1

Lab Sample ID: LB 560-153279/1-B
Matrix: Solid
Analysis Batch: 153384

Client Sample ID: Method Blank
Prep Type: TCLP
Prep Batch: 153303

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	0.00278	J	0.010	0.0020	mg/L		07/25/18 09:49	07/26/18 16:40	1

Method: 6010B - Metals (ICP) (Continued)

Lab Sample ID: LB 560-153279/1-B — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 153384 — **Prep Batch: 153303**

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chromium	0.00279	J	0.010	0.0011	mg/L		07/25/18 09:49	07/26/18 16:40	1

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 560-153310/4-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 153324 — **Prep Batch: 153310**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.0020	0.00013	mg/L		07/25/18 10:35	07/25/18 14:10	1

Lab Sample ID: LCS 560-153310/5-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 153324 — **Prep Batch: 153310**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00500	0.00438		mg/L		88	80 - 120

Lab Sample ID: LB 560-153279/1-C — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 153324 — **Prep Batch: 153310**

Analyte	LB Result	LB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00013		0.0020	0.00013	mg/L		07/25/18 10:35	07/25/18 14:27	1

Lab Sample ID: 560-74858-1 MS — **Client Sample ID: 54592-1-180724**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 153324 — **Prep Batch: 153310**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.00013		0.00500	0.00452		mg/L		90	80 - 120

Lab Sample ID: 560-74858-1 MSD — **Client Sample ID: 54592-1-180724**
Matrix: Solid — **Prep Type: TCLP**
Analysis Batch: 153324 — **Prep Batch: 153310**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.00013		0.00500	0.00471		mg/L		94	80 - 120	4	20

Accreditation/Certification Summary

Client: US Ecology, Inc.
Project/Site: Wastewater

TestAmerica Job ID: 560-74858-1

Laboratory: TestAmerica Corpus Christi

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Texas	NELAP	6	T104704210-18-21	03-31-19

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
7470A	7470A	Solid	Mercury

Method Summary

Client: US Ecology, Inc.
Project/Site: Wastewater

TestAmerica Job ID: 560-74858-1

Method	Method Description	Protocol	Laboratory
6010B	Metals (ICP)	SW846	TAL CC
7470A	Mercury (CVAA)	SW846	TAL CC
1311	TCLP Extraction	SW846	TAL CC
3010A	Preparation, Total Metals	SW846	TAL CC
7470A	Preparation, Mercury	SW846	TAL CC

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CC = TestAmerica Corpus Christi, 1733 N. Padre Island Drive, Corpus Christi, TX 78408, TEL (361)289-2673

Sample Summary

Client: US Ecology, Inc.
Project/Site: Wastewater

TestAmerica Job ID: 560-74858-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
560-74858-1	54592-1-180724	Solid	07/24/18 11:10	07/24/18 14:03
560-74858-2	67188-0-180724	Solid	07/24/18 11:23	07/24/18 14:03
560-74858-3	101989-1-180724	Solid	07/24/18 11:36	07/24/18 14:03
560-74858-4	CentrifugeSolids-180724	Solid	07/24/18 11:46	07/24/18 14:03

Loc: 560
74858

USEcology Texas

RUSH TAT

Metals Battery Only

3277 County Rd 69, Robstown, Texas 78380
PO Box 307, Robstown, Texas 78380
Phone: 1-361-387-3518
Fax: 1-361-387-0794

Company: USET
Attention: Laboratory
Address: 3277 County Rd 69
Robstown, TX 78380

Phone Number:
Project Name:
Sampler Name: Jose Salazar (Print)

Sample ID Number (Lab only)	Sample Date	Sample Time	Grab/ Comp	Sample Description (i. e. work order, waste stream, customer, etc.)	# of Bottles	Analysis Requested	Box #	Temp @ Rec't	Comments (Time placed in refirgerator)
54592-1-180724	7/24/18	1110	Comp	Waste	2-16oz	See attachment	—	—	Rec on Ice
67188-0-180724	"	1123	Comp	Waste	2-16oz	"	—	—	
101989-1-180724	"	1136	Comp	Waste	2-16oz	"	—	—	
Centrifuge Solids-180724	"	1146	Comp	Waste	2-16oz	"	—	—	

RO

Relinquished By:	Signature:	Date/Time	Received By:	Signature:	Date/Time
Jose Salazar (Print)	JS	7/24/18 1222	Ramiro Hinojosa	Ramiro Hinojosa	07.24.18 @ 1222
Relinquished By:	Signature:	Date/Time	Received By:	Signature:	Date/Time
Ramiro Hinojosa (Print)	Ramiro Hinojosa	07.24.18 @ 1403	Alyssa Medlin	Alyssa Medlin	7/24/18 14:03

Laboratory observations of sample condition at time of receipt: 5x Temp on Receipt = 3.6°C 18.2 18-10 18.1

Courier Name: Date/Time of Shipment: Received By: Signature:

560-74858 Chain of Custody

Parameter	F037 Regulated Hazardous Constituent	Listing Level (mg/l)	UTS	Units		Sample Number			
						090054592-1-180724	090067188-0-180724	090101989-1-180724	Centrifuged Solids-180724
D001-Ignitability	-	<140	DEACT	-					
D002 -Corrosivity	-	<=2 - 12.5=<<	DEACT	-					
D003 -Reactivity	-	Reactive	DEACT	-					
D004 - Arsenic	-	5	5	mg/l	<	TCLP	TCLP	TCLP	TCLP
D005 - Barium	-	100	21	mg/l	<	TCLP	TCLP	TCLP	TCLP
D006 - Cadmium	-	1	0.11	mg/l	<	TCLP	TCLP	TCLP	TCLP
D007 - Chromium	-	5	0.6	mg/l	<	TCLP	TCLP	TCLP	TCLP
D008 - Lead	-	5	0.75	mg/l	<	TCLP	TCLP	TCLP	TCLP
D009 - Mercury	-	0.2	0.2	mg/l	<	TCLP	TCLP	TCLP	TCLP
D010 - Selenium	-	1	5.7	mg/l	<	TCLP	TCLP	TCLP	TCLP
D011 - Silver	-	5	0.14	mg/l	<	TCLP	TCLP	TCLP	TCLP
D018 - Benzene	F037	0.5	10	mg/kg		TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D019 - Carbon tetrachloride	-	0.5	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D021 - Chlorobenzene	-	100	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D022 - Chloroform	-	6	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D023 - o- Cresol	-	200	5.6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D024 - m- Cresol	-	200	5.6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D025 - p - Cresol	-	200	5.6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D026 - Cresols (Total)	-	200	11.2	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D027 - p-Dichlorobenzene	-	7.5	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D028 - 1,2 Dichloroethylene	-	0.5	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D029 - 1,1 Dichloroethylene	-	0.7	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D030 - 2,4 Dinitrotoluene	-	0.13	140	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D032 - Hexachlorobenzene	-	0.13	10	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D033 - Hexachlorobutadiene	-	0.5	5.6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D034 - Hexachloroethane	-	3	30	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D035 - Methyl Ethyl Ketone	-	200	36	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D036 - Nitrobenzene	-	2	14	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D037 - Pentachlorophenol	-	100	7.4	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D038 - Pyridine	-	5	16	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D039 - Tetrachloroethylene	-	0.7	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D040 - Trichloroethylene	-	0.5	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D041 - 2,4,5 Trichlorophenol	-	400	7.4	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D042 - 2,4,6 Trichlorophenol	-	2	7.4	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
D043 - Vinyl Chloride	-	0.2	6	mg/kg	<	TCLP/Totals	TCLP/Totals	TCLP/Totals	TCLP/Totals
Acenaphthene	F037	-	N/A	mg/kg	<	Totals	Totals	Totals	Totals
Anthracene	F037	-	3.4	mg/kg	<	Totals	Totals	Totals	Totals
Benzo (a) anthracene	F037	-	3.4	mg/kg	<	Totals	Totals	Totals	Totals
Benzo (a) pyrene	F037	-	3.4	mg/kg	<	Totals	Totals	Totals	Totals
bis (2-ethylhexyl) Phthalate	F037	-	28	mg/kg	<	Totals	Totals	Totals	Totals
Chrysene	F037	-	3.4	mg/kg		Totals	Totals	Totals	Totals
Di-n-butyl-phthalate	F037	-	28	mg/kg	<	Totals	Totals	Totals	Totals
Ethylbenzene	F037	-	10	mg/kg		Totals	Totals	Totals	Totals
Fluorene	F037	-	N/A	mg/kg	<	Totals	Totals	Totals	Totals
Naphthalene	F037	-	5.6	mg/kg		Totals	Totals	Totals	Totals
Phenanthrene	F037	-	5.6	mg/kg		Totals	Totals	Totals	Totals
Phenol	F037	-	6.2	mg/kg	<	Totals	Totals	Totals	Totals
Pyrene	F037	-	8.2	mg/kg	<	Totals	Totals	Totals	Totals
Toluene	F037	-	10	mg/kg		Totals	Totals	Totals	Totals
Xylenes	F037	-	30	mg/kg		Totals	Totals	Totals	Totals
Cyanides	F037	-	590	mg/kg	<	Totals	Totals	Totals	Totals
Lead	F037	-	N/A	mg/kg		Totals	Totals	Totals	Totals
Nickel	F037	-	11	mg/l	<	TCLP	TCLP	TCLP	TCLP
Carbon Disulfide	-	-	N/A	mg/kg	<	Totals	Totals	Totals	Totals
2,4-Dimethylphenol	-	-	N/A	mg/kg	<	Totals	Totals	Totals	Totals
Benzo (g,h,i) perylene	-	-	1.8	mg/kg	<	Totals	Totals	Totals	Totals

Dibenz (a,h) anthracene	-	-	8.2	mg/kg		Totals		Totals		Totals		Totals
Indeno (1,2,3,cd) pyrene	-	-	3.4	mg/kg		Totals		Totals		Totals		Totals
Vanadium	-	-	1.6	mg/l		TCLP		TCLP		TCLP		TCLP
Reactive sulfides	-	-	DEACT	mg/kg	<	Totals		Totals		Totals		Totals
Antimony	-	-	1.15	mg/l		TCLP		TCLP		TCLP		TCLP

ATTACHMENT 6

A - 50 Federal Register 654-656, January 4, 1985

B - RO 14677,
Title: Regulatory Status Of Oil-Bearing Secondary Materials Under RCRA
RCRA Online Number: 14677
Date: 08/19/2003
To: Short
From: Springer
Organization of Recipient: Tetra Process Services, L.C.

C - 63 Federal Register 42126-42127, August 6, 1998.

D - USEPA, Petroleum Refining Listing Determination Proposed Rule Response To Comment Document, Part I, June 1998. [selected pages II-05, 13, 21, 61, 63]

Login Sample Receipt Checklist

Client: US Ecology, Inc.

Job Number: 560-74858-1

Login Number: 74858
List Number: 1
Creator: Adams, Juanita A

List Source: TestAmerica Corpus Christi

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

operating while it applies for a permit. If the procedure in the rule were unavailable, the Agency might seek more draconian relief against a facility under Section 7003 of RCRA, which could entail cessation of facility waste handling operations.

2. *Variances from Classification of a Solid Waste.* EPA did not propose any variance provisions, but did solicit comments as to whether general or specific types of variances were justified. See 48 FR 14499–500. Industry commenters generally supported the idea of variances, but were not specific about substantive standards for granting or denying them.

EPA continues to think that variances for broad classes of recycled wastes are unwarranted, because the variances would too easily become surrogate permits. Thus, we reject the notion of granting variances because recycled wastes are being stored safely.

We do believe, however, that certain discrete variances are warranted, and we are adopting these in the rules promulgated today. There are three such provisions covering situations where there can be a question of whether the material is a waste. A variance, if granted, would state that the material is not a waste. We describe below what these activities are, and the substantive and procedural standards for granting or denying a variance.

a. *Materials Accumulated Without Sufficient Amounts of Materials Being Recycled.* As explained earlier (see Section II.F.3.f of Part II of the preamble), this provision was proposed on April 4, although it was not formally called a 'variance'. It states that persons who fail to turn over 75 percent of their accumulated wastes in a year can petition the Regional Administrator (or the state in an authorized state) to declare that the material is not a waste, in spite of the failure to recycle 75 percent. The provision now appears in § 260.30 (instead of § 261.2 as proposed. Standards for granting a variance are contained in § 260.31. They are virtually the same as those we proposed, except that variances could continue to be granted beyond a two-year accumulation period, and there are no conditions precedent on the amount to be recycled before applying for a variance.

Procedures for granting or denying this variance are contained in § 260.33. These procedures (identical to those for the other variances) are discussed in Section 3 below.

b. *Materials That Are Reclaimed And Then Reused Within The Original Primary Process in Which They Were Generated.* EPA proposed that materials that are reclaimed and then reused within the original production process in which they were generated are not solid wastes. As explained in Section II.H.2. of Part II of the preamble, we have decided that the proposal was too broad and we have narrowed the provision to apply only to materials returned to the original primary production process without first being reclaimed.

We nevertheless believe that there may be some situations where a material can be reclaimd before being reused within the original primary production process and not be a solid waste. Although the principle is not invariably true, there can be occasions when this type of recycling is an adjunct to the original primary process, constituting a closed loop. See 48 FR 14458. We thus are allowing for these situations by means of a variance.

The standards for granting a variance are contained in § 260.31(b). The Regional Administrator (or authorized state) is to decide whether the reclamation operation is an essential part of the primary production process. The following criteria bear on that decision:

- *How economically viable the production process would be if it were to use virgin materials alone.* The more significant the cost saving, the more the situation is like one single production process. For example, the Kraft paper process cannot be operated economically without some recovery and recycling of black liquor. (See section I. in Part 2 above.)
- *The prevalence of the recycling practice on an industry-wide basis.* The more wide-spread the practice, the more likely it is to be a production process.
- *The extent to which handling of the material before it is reclaimed is designed to minimize loss of material.* Materials utilized in production processes should be stored in a way that minimizes loss.[47] Thus, the more precautions that are taken to store a material before reclaiming it, the more the situation is like a production process. Situations where materials are stored before reclamation in open unlined piles, unlined impoundments, or leaking tanks and drums, consequently are less likely to be granted this variance.
- *The time periods between generation of the material and its reclamation, and between reclamation and reuse in the original process.* The longer the elapsed time between each of these steps, the less likely the operation is to be viewed as a single process. (Operations that are cyclical, or require long accumulation time to be viable, could still be eligible, however.)
- *The location of the reclamation operation in relation to the production process.* We are expanding this criterion beyond the proposal, where we limited the provision to reclamation operations conducted at the same plant site. We are not including this as a condition precedent to granting of this variance, in response to comments that closed-loop recycling situations can extend beyond a plant boundary. However, the more physically close the reclamation operation is to the production process, the more likely the situation is to be viewed as closed-loop recycling.
- *Whether the reclaimed material is used for its original purpose when it is returned to the original primary production process, and whether it is returned in substantially its original form.* Operations are most like a closed-loop operation when the reclaimed material is returned to the original production process in substantially its original form for its original purpose.
- *Other factors, as relevent.*

The Regional Administrator can rely on any or all of these criteria, and can weigh them as he deems appropriate. We also note that there are a number of conditions an applicant must meet before he is eligible for this variance. First, the material must be returned as feedstock to the "original primary production process". "Original primary production process" has the same meaning as in § 261.2(e)(iii), and is discussed in Section II.H.2. of Part II of the preamble. (In response to comment, we note that if a plant were to generate the same secondary material from different processes, commingle the secondary material and reclaim it, and return the reclaimed materials for reuse in the original processes, the operation could be eligible for this variance even though the reclaimed materials have become commingled. The commingling does not so alter the nature of the transaction as to vitiate the underlying policy of this closed-loop variance.) The material that is returned also must be "reused" when returned to the original process. We mean by this that the material must contribute directly to the production process as an ingredient, reactant, or an alternative feedstock. Secondary materials returned to a smelting furnace are an example. Solvents reclaimed and utilized for degreasing are not, because the

[47] See, for example, the many comments to this effect from industry commenters in the record to this rulemaking. See also comments from various industry commenters supporting the Agency's rule—found in § 261.3(a)(2)(iv)(D)—to exempt *de minimis* losses of § 261.33 commercial chemicals to process wastewater from the mixture rule presumption.

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reclaimed solvents are not contributing to the production process.[46] Finally, the reclamation and reuse must both be conducted by the same "person", although not necessarily at a single plant site. ("Person" is defined in § 260.10 and in RCRA as including among others, single corporations and other legal entities.)

c. *Materials That Have Been Reclaimed But Must Be Reclaimed Further Before Recovery Is Completed.* The final variance from being a solid waste is for materials that have been reclaimed but must be reclaimed further before recovery is completed. We indicated in the proposal that reclamation processes are not completed until the end-product of the process is recovered, giving as an example, recovery of lead from spent batteries, which can require two operations—cracking and smelting—to be complete. 48 FR 14499 n.57. The material being reclaimed thus remains a waste until reclamation is finished.

We think this principle is generally sound, but that there may be some exceptions where the initial reclamation step is so substantial that the resulting material is more commodity-like than waste-like even though no end-product has been recovered. Possible examples are processes producing fluxes similar in composition to virgin ore concentrates. We consequently are allowing the Regional Administrator to grant a variance for materials that have been reclaimed, not completely recovered, but after initial reclamation are commodity-like in spite of having to be reclaimed further.

The criteria for making this decision are:

• *The degree of processing that the material has undergone and the degree of further processing required.* The more substantial the initial processing, the more likely the resulting material is to be commodity-like. Conversely, the more substantial the processing that is yet to occur, the less likely the initially-reclaimed material is to be commodity-like. For example, a spent solvent sent to an initial reclaimer who settles out debris and then sends the solvent to be distilled would not be eligible for this variance.

• *The value of the material after it has been reclaimed.* Obviously, the more valuable a material is after initial processing, the more likely it is to be commodity-like.

• *The degree to which the initially-reclaimed material is like an analogous raw material.* If the initially-reclaimed material can substitute for a virgin material, for instance as feedstock to a primary process, it is more likely to be commodity-like.

• *The extent to which an end market for the reclaimed material is guaranteed.* If the applicant can show that there is an existing and guaranteed end market for the initially-reclaimed material (for instance, value, traditional usage or contractual arrangements), the material is more likely to be commodity-like.

• *The extent to which the reclaimed material is handled to minimize loss.* The more carefully a material is handled, the more it is commodity-like.

• *Other relevant factors.*

The Regional Administrator (or an authorized state) may weigh these factors as she sees fit, and may rely on any or all of them to reach a decision. In addition, the variance applies *only* to wastes after they have been initially reclaimed. Applicable regulatory requirements for the waste before initial reclamation are unaffected. The initial reclaimer will thus be a RCRA storage facility, and have to obtain a permit to store the wastes before reclaiming them. If a variance should be granted, however, the recovered material is not a waste and the subsequent reclaimer is not a RCRA facility.

3. *Variance to be Classified as a Boiler.* As discussed in I.B. of Part 2 of the preamble above, EPA also is adopting a variance provision to allow the Regional Administrator to classify certain enclosed flame combustion devices as boilers even though they do not otherwise meet the definition of boiler contained in § 260.10. See § 266.32. The Regional Administrator is to consider how nearly the unit meets the definition of boiler, considering:

• The extent to which the unit has provisions for recovering and exporting energy in the form of steam, heated fluids, or heated gases;

• The extent to which the combustion chamber and energy recovery equipment are of integral design;

• The efficiency of energy recovery, calculated in terms of the recovered energy compared with the thermal value of the fuel;

• The extent to which exported energy is utilized;

• The extent to which the device is in common and customary use as a "boiler" functioning primarily to produce steam, heated fluids, or heated gases; and

• Other factors, as appropriate.

4. *Procedures for Variances.* We are promulgating a new § 260.33 which contains procedures for granting or denying the four types of variances just described. In essence, an applicant must submit a written application to the appropriate EPA Regional Office (or authorized state). If a recycling transaction is conducted in more than one Region or state (i.e. the generator is in one region and the recycler is in another), the application should be submitted to the region or state in which the recycling activity occurs. The application should address the standard and criteria applicable to the particular variance, and state generally why grant of a variance is justified. The Regional Administrator will consider the application and will issue a written draft notice tentatively granting or denying the variance, and giving reasons for this action. (In many cases, an inspection probably is necessary to rule on an application.) Notification of this tentative decision will be provided by newspaper advertisement and radio broadcast in the area where the recycling facility is located. The Regional Administrator will accept comment on the tentative decision for 30 days, and may also hold a public hearing upon request or at his discretion. Any hearings will be nonadjudicatory. The Regional Administrator will issue a final decision after receipt of comments and after the hearing (if any), and this decision may not be appealed to the Administrator.

5. *Should EPA Adopt a Variance for Batch Tolling Agreements.* EPA proposed that hazardous wastes reclaimed pursuant to batch tolling agreements would be conditionally exempt from regulation. A batch tolling agreement is a contract between generator and reclaimer whereby a generator retains ownership of the waste, sends the waste to a reclaimer, and receives back the reclaimed portion. The proposal further specified that: (1) The generator had to send the wastes to a reclaimer within 180-days of generation, (2) the wastes had to be reclaimed and returned within 90 days of receipt by the reclaimer, and (3) the reclaimer could not commingle wastes being reclaimed under a batch tolling agreement with wastes of another generator. In addition, the reclaimer had to be paid according to the amount of reclaimed material returned to the generator, and paid more as the amount of material returned increased (*i.e.* the reclaimer would not be paid a flat fee regardless of the amount of reclaimed material returned).

As discussed above, EPA is not finalizing most of the proposed conditional exemptions because the risk of damage from spills and leaks

[46] The second example on p. 14468/2 of the proposal contained an erroneous implication in this regard.

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indicates that regulation is necessary to protect human health and the environment. We are soliciting further comment, however, as to whether reclaimers who reclaim pursuant to batch tolling agreements should be eligible for a conditional variance. (The conditions would be that records be kept to document existence of the type of batch tolling contracts described above.)

The aspect of the batch tolling contract that might create sufficient incentive to avoid loss is that the reclaimer be paid more as the amount of material returned to the generator increases. EPA can see that under certain circumstances a reclaimer would no longer be able to make a profit (or even recover fully allocated costs) if too much waste is lost before reclamation. However, the point at which this occurs will vary for each reclaimer, and potentially for each transaction. EPA is seeking comment as to the type of showing necessary to demonstrate that the batch tolling contract would become unprofitable unless spills and leaks are avoided. Commenters should address the type of economic data that would be presented, and also should address how this information could be presented in a form amenable to administrative resolution. The administrative proceeding the Agency has in mind is an individual variance proceeding where the reclaimer has the burden of showing that the contract creates sufficient incentives against loss to obviate the need for a storage permit.

The Agency also would like commenters to address whether any reclaimers would apply for this type of variance. The Agency's information is that few reclaimers operate exclusively in the batch tolling mode (see 48 FR 14495, and n.47), so these reclaimers are likely to require a permit in any event. It is not worth the resources to create an elaborate administrative mechanism if it lacks practical significance.

We note finally that any variance for batch tolling would apply only to the reclaimer, not to the waste generator. The tolling contract's provision that payment increase as the amount of material returned increases does not create any additional incentives against loss for the generator. Commenters therefore should also address whether a variance mechanism applying only to reclaimers would have practical significance.

Part IV. Economic, Environmental, and Regulatory Impacts

I. State Authority

A. Applicability in Authorized States

Under Section 3006 of RCRA, EPA may authorize qualified States to administer and enforce their State hazardous waste management programs in lieu of EPA operating the Federal program in those States. (See 40 CFR Part 271 for the standards and requirements for authorization.) Authorization, either interim or final, may be granted to State programs that regulate the identification, generation, and transportation of hazardous wastes and the operation of facilities that manage hazardous waste.

Today's announcement promulgates standards for certain hazardous wastes under the Federal hazardous waste management program. With some exceptions not relevant here, upon authorization of the State program, EPA suspends operation within the State of those parts of the Federal program for which the State is authorized. Therefore, today's promulgation would be applicable only in those States which have not been granted authorization.

It should be noted that 40 CFR 271.9 requires States to control all hazardous wastes controlled under 40 CFR Part 261 in order for their program to be considered equivalent to the Federal program for purposes of Section 3006. EPA is indicating in this regulation that certain types of recycled hazardous secondary materials are not RCRA solid or hazardous wastes (or, in the case of materials subject to variance provisions, need not be wastes). States may choose to regulate these materials as wastes pursuant to State law; Section 3009 of RCRA allows states to impose stricter requirements than those in the Federal program. Such states are considered equivalent for purposes of State authorization. See § 271.1(i).

B. Effect on State Authorization

The rules promulgated under this rulemaking will not apply in authorized states until the state either (1) receives final authorization on the basis of providing controls for hazardous wastes that are equivalent to or more stringent than EPA's or (2) after final authorization, revises its program to include controls for hazardous wastes that are equivalent to, or more stringent than EPA's. The procedures and schedule for state adoption of these regulations is described in 40 CFR 271.21. See 49 FR 21678 (May 22, 1984).

Applying § 271.21(e)(2), states that have final authorization must revise their programs within a year of promulgation of EPA's regulations if only regulatory changes are necessary, and within two years of promulgation if statutory changes are necessary. These deadlines can be extended in exceptional cases. See 40 CFR 271.21(e)(3).

States that submit official applications for final authorization less than 12 months after promulgation of these regulations may be approved without including standards equivalent to those promulgated. However, once authorized, a state must revise its program to include standards equivalent to or more stringent than EPA's within the time period discussed above.

Interim authorization for these requirements under the Hazardous and Solid Waste amendments of 1984 is not allowed. Today's rule is not a requirement deriving from the 1984 amendments; thus, under section 3006(g), interim authorization is not available as a substitute for adopting equivalent regulations.

II. Regulatory Impact

Under Executive Order 12291, EPA must judge whether a regulation is "major" and thus requires a Regulatory Impact Analysis. Based on our analysis, we have determined that this rule is not a major rule because it will not: (1) Have an affect on the economy of $100 million or more, (2) significantly increase costs or prices to industry, or (3) diminish the ability of U.S.-based enterprises to compete in domestic or export markets.

This assessment is based on a study prepared for EPA which evaluated the cost impact on the regulated community for the change to the definition of solid waste and accompanying management standards. This study [49] describes the changes in regulatory requirements, the populations affected by the change, and then summarizes the resulting changes in costs.

The report first identifies those secondary materials and recycling activities which would be subject to different regulatory requirements, comparing the existing regulations with those promulgated today. This analysis indicated the following:

* *Use constituting disposal.*—Non-listed spent materials and non-listed by-products would be subject to increased requirements for generators, transporters, and storers; all secondary

[49] See report entitled, "Cost and Impact Analysis for Final Rule: Change in the Definition of Solid Waste and Accompanying Management Standards for Wastes Which Are Recycled," Industrial Economics, Inc., December, 1984.

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Title: REGULATORY STATUS OF OIL-BEARING SECONDARY MATERIALS UNDER RCRA
RCRA Online Number: 14677
Date: 08/19/2003
To: Short
From: Springer
Organization of Recipient: Tetra Process Services, L.C.

Mr. Rob Short
Managing Director
Tetra Process Services, L.C.
2204 Timberloch Place, Suite 270
The Woodlands, TX 77380

Dear Mr. Short,

Thank you for your letter dated February 8, 2002 in which you posed twelve detailed questions concerning the regulatory status of oil-bearing hazardous secondary materials under the Resource Conservation and Recovery Act (RCRA). Specifically, you requested clarification on numerous aspects of the exclusion at 40 CFR section 261.4(a)(12)(i), which was promulgated in the August 6, 1998 *Federal Register* (63 *FR* 42110). I apologize for the delay in responding to your questions. Because of the variety and detail of your questions, I have chosen to enclose, as separate document, each of your questions along with our corresponding response.

I would like to reiterate that under Section 3006 of RCRA (42 U.S.C. Section 6926), individual States can be authorized to administer and enforce their own hazardous waste programs in lieu of the federal program. Please also note that under Section 3009 of RCRA (42 U.S.C. Section 6929) States retain authority to promulgate regulatory requirements that are more stringent than federal regulatory requirements. While I have tried to provide general guidance on the RCRA program for the issues you raised in your letter, I recommend that you consult the agency implementing the authorized RCRA subtitle C program in the state where your specific facility or activity is located to help determine the status of the waste stream in question.

Finally, let me clarify that in your questions you use the term "residuals" to describe materials that may be eligible for the exclusion at 261.4(a)(12)(i). I refer to these materials as "oil-bearing hazardous secondary materials" in my responses, consistent with the language of that regulation. I use the term "residuals" to describe any materials that are not ultimately inserted into the refining process, and are discarded. If you have any further questions, please contact Ross Elliott of my staff at 703-308-8748.

Sincerely yours,

Robert Springer, Director
Office of Solid Waste

Enclosure

RO 14677

3. Are Residuals Qualifying Under the Exclusion, Considered Generated Wastes? - *It is Tetra's interpretation that the Exclusion, similar to other exclusions under 40 CFR 261.4, eliminates the "point-of-generation" for qualifying Residuals. Therefore, a Residual which is managed under the conditions of the Exclusion is never "generated," and is exempt from the definition of solid waste.*

Answer: The exclusion from the definition of solid waste for oil-bearing hazardous secondary materials under 40 CFR 261.4(a)(12)(i) applies at the point the material in question is first generated, and continues to apply provided the conditions set out in the exclusion are met. If the applicable conditions are satisfied, we agree that the secondary material was never a solid waste for the purposes of RCRA subtitle C. As stated above in the answer to Question 2, the exclusion applies to the oil-bearing hazardous secondary materials from the point they are generated, even though some preparation or processing may be required before insertion. Also, any residuals from this processing that are not inserted are not excluded, and would be classified as F037 (if the original oil-bearing hazardous secondary material was also a listed hazardous waste).

4. Does the Point of Insertion Into the Petroleum Refining Process Influence the Ability of a Residual to Qualify Under the Exclusion? - *It is Tetra's interpretation that the Exclusion places no limitations on location in the petroleum refining process in which a qualifying Residual can be inserted. The point of insertion has no bearing on the ability of a Residual to qualify under the Exclusion.*

Answer: While the language in 40 CFR 261.4(a)(12)(i) does not set out specific 'limitations' on the point of insertion into the petroleum refining process for an oil-bearing hazardous secondary material, there are some implicit limitations. As discussed in the preamble to the August 6, 1998 *Federal Register*, the recycling of oil-bearing materials under this exclusion must be legitimate. 63 *FR* at 42121, 42125, 42127. Therefore, the point of insertion into the petroleum refining process must be consistent with the type of oil-bearing materials being recycled, such that legitimate recovery of hydrocarbons in an ongoing production process is occurring. Put another way, the oil-bearing hazardous secondary materials must be "suitable for insertion into normal petroleum refining operations." 63 *FR* at 42118.

Issues Regarding the Transfer of Residuals Under the Exclusion

5. Can Qualifying Residuals be Transferred Under the Exclusion? - *It is Tetra's interpretation that the transfer of qualifying Residuals is allowed between petroleum refineries (SIC Code 2911). However, the transfer of Residuals can not involve the use of intermediate "non-refinery" facilities (non-SIC code 2911 facilities). Such transfer is not limited beyond the ability of the petroleum refineries to demonstrate that the Residuals are not being accumulated speculatively or managed under conditions constituting land placement prior to insertion into the petroleum refinery process. In addition, such transfer can be conducted between co-owned petroleum refineries (intra-company transfer) and non co-owned petroleum refineries (inter-company transfer).*

Based on the same considerations, there appears to be no limitation imposed by the Exclusion regarding the number of times a Residual is transferred on-site or between petroleum refineries (SIC code 2911), as long as it can be demonstrated that such transfers are being conducted within the realm of on-going production in the petroleum refining process.

Answer: The specific language of 40 CFR 261.4(a)(12)(i) regarding the 'transfers' you describe, reads:

> "Oil-bearing hazardous secondary materials may be inserted into the same petroleum refinery where they are generated, or sent *directly* to another petroleum refinery, and still be excluded under this provision." [emphasis added]

The term "directly" is further described in the preamble to the August 6, 1998 final rule where we stated:

> "The Agency is also requiring that the materials excluded under this provision of today's rule be returned directly to a refinery for insertion. While this is not an issue if materials are recycled onsite, EPA has concerns...about situations where these materials are generated at one refinery for insertion into another, but are not directly sent and instead are sent to an intermediate non-refinery facility for processing." 63 *FR* at 42126-7.

There is no requirement or limitation under 261.4(a)(12)(i) regarding the ownership of either the petroleum refinery where the hazardous secondary materials are generated, or the refinery to which these materials are transferred. Such transfers may occur within the same company, or between companies, without affecting the applicability of this exclusion.

You are also correct that 261.4(a)(12)(i) does not place any specific limit on the number of transfers that may occur under this exclusion. However, the recycling must be *legitimate* in order for the exclusion to apply. Numerous transfers of the same hazardous secondary material, particularly where no hydrocarbon has yet been recovered, should raise concerns as to whether such transfers represent legitimate recycling (*i.e.*, ongoing manufacturing). In addition, numerous transfers could make it more difficult for the generator to demonstrate that the material is not being speculatively accumulated. In responding to comments regarding the speculative accumulation condition in 40 CFR 261.4(a)(12)(i), we stated:

> "Under section 261.2 (f), persons storing excluded materials have the burden of demonstrating (in an enforcement action) that they are meeting the terms of the exclusion. Refineries consequently must be able to demonstrate the duration of storage of all secondary materials which are excluded (including, but not limited to, those processed by quench coking). The rule does not specify a particular record-keeping regime in order to provide flexibility for each facility to be able to demonstrate that there is no speculative accumulation in a manner best fitting the facility's operating practices."[4]

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[4]Section II.B.2.d., Notice of Data Availability (NODA) Response To Comment Document, Part II, June 1998

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possible that residual materials may be generated during the reclamation process, which will be disposed, and where these wastes meet the definition of hazardous waste, the applicable hazardous waste requirements must be followed regarding their management.

Also, where oil-bearing hazardous secondary materials are excluded because they are being recycled under 261.4(a)(12)(i), they are viewed as in-process materials in a manufacturing process. Therefore, under 40 CFR 261.4(c), if the equipment that is processing these oil-bearing hazardous secondary materials ceases to be operated, the materials in the unit could become subject to regulation if they remain in the unit for more than ninety days, and the unit in turn may become a waste management unit. (This is a longstanding regulation applicable to situations where a hazardous waste is generated in a manufacturing process unit, and where the waste remains in the unit more than ninety days after the unit "ceases to be operated for manufacturing.") See the November 20, 1995 *Federal Register*; 60 *FR* at 57779-80.

11. Is the Exclusion Applicable to Residuals Processed by Contracted Services Prior to Insertion into the Petroleum Refining Process? - *It is Tetra's interpretation that the Exclusion is applicable to all Residuals, including Residuals that undergo processing or reclamation prior to the insertion of the Residual, or a reclaimed portion of the Residual, into the petroleum refining process. There appears to be no condition imposed by the Exclusion, which restricts the ownership of equipment used to process or reclaim Residuals, as long as such processing or reclamation is conducted on-site at petroleum refining facilities (SIC code 2911).*

Answer: That is correct. The exclusion at 261.4(a)(12)(i) specifies that the oil-bearing hazardous secondary material must be generated at a petroleum refinery, and be inserted into a petroleum refinery, without regard to ownership of either the petroleum refinery or the specific reclamation units or processes located at the petroleum refinery. EPA did clarify, however, that the excluded material being sent from one refinery to another cannot be processed at an intermediate, third party, non-petroleum refinery facility prior to ultimately being inserted into a refining process at a petroleum refinery. In preamble to the August 6, 1998 *Federal Register*, EPA clarified the term "directly" as it is used in the following regulatory text: "Oil-bearing hazardous secondary materials may be inserted into the same petroleum refinery where they are generated, or sent *directly* to another petroleum refinery, and still be excluded under this provision." [emphasis added.] EPA stated that the materials to be recycled must be sent directly to a petroleum refinery in order to be excluded, and cannot be sent to an intermediate non-refinery facility for processing. (63 *FR* at 42126). See answer to Question 5 above; see also the Agency response beginning on Page II-62, *Petroleum Refining Listing Determination Proposed Rule Response to Comment Document, Part I, June 1998.*

legitimate hazardous waste recycling. The oil-bearing secondary materials are not typical of normal feedstocks to any other refining process. Typical feedstock streams are very high in oil content (i.e., primarily oil), while these secondary materials contain a range of oil concentrations that is consistently much lower than typical feedstocks (thus resulting in a much smaller amount of oil being recovered, albeit at an efficiency comparable to conventional coking, as discussed above).

There are numerous statements, both written and verbal, found within the industry's internal descriptions of the use of hazardous secondary materials in the quenching process, that depict this activity as an efficient means of disposing of RCRA hazardous wastes.[18] There is also anecdotal evidence of a refinery with a coker charging another refinery without a coker to take such oil-bearing hazardous secondary materials which are then used in the quenching process, analogous to tipping fees or charges that a hazardous waste recycling facility would receive from a generator in return for a waste management activity. These issues are some of the reasons EPA felt it was not compelled by statute to exclude these wastes as ongoing manufacturing, and that this is a decision for EPA's discretion.

In considering both viewpoints, the Agency has decided that use of hazardous secondary materials in the quenching process warrants an exclusion from the definition of solid waste (always assuming that the particular practice is legitimate recycling). In the Agency's view, the primary purpose of this activity is the recovery of the remaining hydrocarbon values in the oil-bearing secondary materials (with the addition of carbon and energy value to the co-product coke), utilizing the existing heat energy contained in the coke product after the conventional coking process. The assertion, by commenters opposed to this activity that it is questionable that the component in the secondary material that fulfills its primary purpose (i.e., oil) could also be a limitation on the use of the secondary material (i.e., that too much oil would degrade the coke product itself) is not compelling. It is not uncommon for industrial processes to have specifications on a feedstock material that require a minimum of a certain component while at the same time requiring that a maximum level for the same component not be exceeded because it would degrade the quality of the product. EPA also believes that the lead and chromium in the secondary materials should decline with time. This is due to overall reductions in the use of these metals throughout the refinery (e.g., leaded gasoline is no longer produced on a wide scale and chromium-based water treatment chemicals are no longer used in industrial cooling towers, as a result of Clean Air Act requirements; see 40 CFR Part 63, Subpart Q). Thus, with the exception of lead and chromium (which are expected to decrease due to process changes), the hazardous metals found in the hazardous secondary materials can be traced back to the metals found in the original crude oil feedstock and so do not represent contaminants introduced through means other than the continued processing of the initial raw material feedstocks. EPA's traditional concern regarding unnecessary hazardous constituents being processed and ending up in a product is mitigated in this case because the Agency views this activity more as the continual processing of a raw material that contains hazardous constituents, with concentrations of these constituents found in the feedstock streams to various refining processes varying dependent on the point in the overall production process. In the context of a multi-step production process, there is much less of an element of discard of the hazardous constituents inherent in the original raw material than there would be had these secondary materials been generated by another industry or had the hazardous constituents not been inherent to the original raw material.

EPA also has no evidence that the quenching process could be viewed as part of the waste management problem, part of the jurisdictional tests articulated in AMC I and II. As discussed earlier, there is no significant evidence of degradation of coke product quality, and indeed, coke produced with and without using secondary materials in the quenching process are largely indistinguishable from the standpoint of concentrations of hazardous constituents.[19] Finally, again, EPA believes that the recovery of hydrocarbon from the oil-bearing secondary materials in the quenching process is consistent with the overall petroleum refining process the coking operation in particular, i.e., the recovery of hydrocarbons for the production of high-value fuel products. This goal, in turn, is consistent with the RCRA objective to encourage safe types of recycling (see RCRA section 1003(a)(6)). Therefore, the Agency is providing a conditional exclusion for oil-bearing hazardous secondary materials that are inserted into the coker, based on the assumption that, whether inserted along with normal feedstock (i.e., resids) or used in the quenching process, hydrocarbons are recovered for further refining and there is no degradation of the coke product.

Conditions for the Exclusion

As stated at proposal (60 FR at 57754-57755), the exclusion applicable to oil-bearing hazardous secondary materials destined for insertion into the petroleum refinery, including the coker (and the quenching process), is conditioned on there being no land placement and no speculative accumulation, ensuring that these oil-bearing hazardous secondary materials do not become part of the waste disposal problem. EPA reiterates its belief, presented in the proposal, that the management of these secondary materials prior to insertion into the refinery will not pose a risk to human health and the environment, and that the American National Standard Institute (ANSI) standards for the design, construction, operation, maintenance, and inspection of petroleum terminal and tank facilities are sufficient to ensure that such materials will be managed in an environmentally protective manner. The Agency also notes that the exclusion being promulgated today is only for those oil-bearing hazardous secondary materials that are actually used in a refining process, including the quenching process of a petroleum coker. Hazardous secondary materials that are released and not immediately recovered and used in a refining process would not be excluded, and thus would be subject to Subtitle C regulation as hazardous wastes that have been disposed.[20]

The Agency is also requiring that the materials excluded under this provision of today's rule be returned directly to a refinery for insertion. While this is not an issue if materials are recycled onsite, EPA has concerns (as did some commenters) about situations where these materials are generated at one refinery for insertion into another, but are not directly sent and instead are sent to an intermediate non-refinery facility for processing. EPA does not think it

[18] See the January 9, 1998, letter from Richard Fortuna to Mike Shapiro.

[19] See the January 23, 1998, letter from Paul Bailey to Michael Shapiro.

[20] The Agency notes that today's rulemaking is not intended to affect the applicability of existing regulatory exclusions in § 261.2(c)(2) and (3) regarding the reclamation of off-specification or spilled commercial chemical products listed in § 261.33, or that otherwise exhibit a hazardous characteristic (50 FR 14219, April 11, 1985).

unreasonable to assume that these materials should either be located at the generating refinery, at the receiving refinery, or are otherwise in transit between the two; this is consistent with the underlying argument that this is ongoing production within the petroleum refining sector.

The Agency is maintaining the condition that only those oil-bearing secondary materials that result in a coke product that does not exhibit a characteristic of hazardous waste be subject to the exclusion. This condition mirrors the statutory provision stating that petroleum coke produced from petroleum industry hazardous wastes is not subject to Subtitle C regulation provided the coke does not exhibit a characteristic of hazardous waste (see RCRA section 3004(q)(2)(A)). This condition (coupled with the industry's own product specifications) will serve to ensure that the coke product does not degrade such that the secondary materials used in producing the coke will become a part of the waste disposal problem. As a result of this condition and the fact that this exclusion is limited to refinery wastes, today's exclusion in § 261.4(a)(12) supersedes the existing exemption in § 261.6(a)(3)(v); therefore, the regulations are being amended to remove § 261.6(a)(3)(v).

The Agency considered, as suggested in several comments, setting a minimum oil content to define the scope of oil-bearing secondary materials" that are excluded when used in the quenching process, or to require a demonstration of hydrocarbons actually being recovered from the excluded secondary materials that is comparable to oil recovery in the conventional coking process. The Agency rejected limiting the exclusion based on a set minimum oil content or a recovery efficiency requirement for several reasons. As discussed above, the quenching process represents the final, and last possible process in which to recover hydrocarbon from the original crude oil feedstock. The refinery processes and operating procedures are designed to separate and process into products as much hydrocarbon as possible from the crude oil feedstock; in other words, to prevent as much oil from making its way into these secondary materials as possible. The oil that does make its way into these secondary materials is generally considered unavoidable and inevitable, or, in some cases, too much oil in these secondary materials is evidence of a problem with some aspect of the overall refining process (which helps to explain the wide range of oil contents in these materials). Thus, it would be counter to the overall efficiency of the petroleum refining process to require a minimum oil content in the secondary materials. Conversely, the Agency believes it is fundamental to this exclusion that there actually be oil recovered for further refining when these oil-bearing hazardous secondary materials are used in the quenching process. To the extent there is no recovery, or drastically inefficient recovery, the operation could be a type of sham recycling, as discussed earlier.

Also, the Agency believes that, in this case, a minimum oil content condition would do little to ensure that only those secondary materials from which oil can actually be recovered would be excluded; in other words, the Agency does not believe that setting a minimum oil content would ensure that secondary materials are legitimately being used in the quenching process. Since most of the secondary materials in question result from wastewater treatment, a minimum oil content requirement would only serve to encourage a refinery to operate the refinery wastewater treatment process less efficiently to ensure that these secondary materials contain the minimum oil content and thus avail themselves of an exclusion.

As for requiring a demonstration of oil recovery efficiency comparable to the conventional coking process, the Agency concluded that the normal operating practices and conditions (e.g., temperature) inherent to the quenching process will result in a comparable oil recovery efficiency. While there may be fluctuations in the actual volume of oil recovered (due to the fluctuations in the oil content of the secondary materials as well as the ratio of heavy-to-light oil in the secondary materials), the quenching process, when properly operated, is such that there will be oil recovered from oil-bearing hazardous secondary materials due to the high temperatures inherent in the process. Therefore, requiring an actual demonstration of recovery efficiency would be unnecessarily burdensome unless there is a question regarding a site-specific coke quenching process or the hazardous secondary materials being used. Therefore, the exclusion for refinery-generated, oil-bearing hazardous secondary materials being legitimately recycled into the petroleum refining process, including in the coke-quenching process, is conditioned only on these materials being managed such that there is no land placement and no speculative accumulation, and that the coke product produced not exhibit a characteristic of hazardous waste.

Materials Subject to the Exclusion

At proposal, the Agency proposed to exclude oil-bearing hazardous secondary materials that are generated within the broad petroleum industry (covering SIC codes 1311, 1321, 1381, 1382, 1389, 2911, 4612, 4613, 4922, 4923, 4789, 5171, and 5172-which comprise petroleum refining, marketing, transportation, exploration, and production) and inserted in the petroleum refining process, including in the coker. As discussed earlier in today's preamble, the exclusion being promulgated today is limited to only those oil-bearing hazardous secondary materials that are generated within the petroleum refining sector (SIC code 2911). To conform with this limitation, EPA is retaining (with some clarification) the existing exclusion for recovered oil from the broader petroleum industry. (EPA is also excluding petrochemical recovered oil from certain petrochemical facilities, which is a related but different exclusion discussed elsewhere in today's rule.) In the context of oil-bearing hazardous secondary materials being used in the quenching process, limiting the exclusion to the petroleum refining sector is entirely consistent with the information evaluated in making this determination (i.e., data representing the materials currently used in the quenching process, namely F037, F038, and K048-K052). As discussed above, the exclusion for oil-bearing hazardous secondary materials used in the quenching process was not made on a strict jurisdictional basis. The types of secondary materials, their constituent components, and the fact that the coke product remains basically unchanged when such secondary materials are used were all factors in EPA's determination. The fact that the Agency only evaluated oil-bearing secondary materials that were generated by the refining sector in its determination is sufficient reason to limit the exclusion to refinery-generated secondary materials.

However, a further reason relates to the concept that oil-bearing secondary materials that are generated by the refining process and continue to be processed in the coker (by use in the quenching process) is more akin to an ongoing production process than would be the case for secondary materials generated outside the refining sector of the petroleum industry. The Agency maintains that the quenching process is an ancillary activity that is somewhat removed from the overall production process; however, the fact that the secondary materials are generated and

PETROLEUM REFINING LISTING DETERMINATION

PROPOSED RULE RESPONSE TO COMMENT DOCUMENT

Part I

June 1998

U.S. Environmental Protection Agency
Office of Solid Waste
401 M Street, SW
Washington, DC 20460

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form of discard and retains jurisdiction over such processes, even if they occur as part of recycling activities. See, for example, 40 CFR Section 266.100 (applicability of hazardous waste management rules to air emissions from boilers and industrial furnaces burning hazardous waste). However, EPA does not view the use or reuse of petroleum refining secondary materials for the production of primary fuels by the petroleum refining industry necessarily as discarding those materials. Therefore, EPA is revising the existing regulations governing the recycling of hazardous secondary materials to exclude oil-bearing secondary materials generated and reused by petroleum refineries from the definition of solid waste. To ensure that the management of such materials does not include an element of discard, and to ensure that the materials do not become part of the waste disposal problem, the Agency is restricting the exclusion to situations where the secondary materials are not stored or placed on the land and where there is no speculative accumulation of the materials. In addition, the exclusion does not apply to situations that would result in a coke product that exhibits a characteristic of hazardous waste. See RCRA Section 3004(q)(2).

The Agency also is requiring that the materials excluded under this provision of today's rule be returned directly to a refinery for insertion. While this is not an issue if materials are recycled on site, EPA has concerns about situations where these materials are generated at one refinery for insertion into another. Such materials should not end up at an intermediate non-refinery facility without an accompanying hazardous waste manifest. In cases where materials generated at one petroleum refinery are to be recycled at another refinery, to meet the conditions of the exclusion the materials must be located either at the generating refinery, at the receiving refinery, or must otherwise be in transit between the two facilities. This is consistent with the argument that the exclusion is provided on the basis that the secondary materials are being used within the realm of on-going production in the petroleum refining sector.

In the final rule, EPA clarifies that the exclusion for oil-bearing secondary materials returned to the refining process only extends to the materials actually re-inserted into the refinery process. In cases where oil-bearing secondary materials are reclaimed prior to re-insertion, any residuals that may result from the reclamation process that are not returned to the refinery process, and therefore may be discarded, retain the original hazardous waste listing. In the final rule, the Agency modifies the proposed listing descriptions for refining wastes to include any residuals from the processing of listed hazardous wastes.

EPA notes that it arrived at the decision to exempt oil-bearing secondary materials generated by petroleum refineries that are re-inserted into the refining process, not merely based on the argument that the oil-bearing residuals are reinserted into the petroleum refining process, but because the residuals are returned to the refining process without there being an element of discard within the management of the residuals prior to the residuals being inserted into the refinery process. In assessing the appropriate regulatory status of secondary materials from petroleum refinery operations, EPA assessed the data provided to the Agency on recyclable oil-

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materials are inserted into the coker. Therefore, these materials are not part of the waste disposal problem.

To ensure that oil-bearing residuals are not "discarded" or managed in a manner that would cause them to become part of the waste disposal problem, the Agency conditions the exclusion on there being neither placement of oil-bearing secondary materials on the land prior to reuse nor speculative accumulation of the secondary oil-bearing materials. In this manner, while the Agency is relinquishing some control over the subject residuals, the Agency has acted to limit the period of time that such materials may be retained before they are returned to the process. The Agency also notes that secondary materials that are spilled or otherwise released to the environment are not excluded from the definition of solid wastes. Such materials are abandoned, and therefore discarded and remain subject to RCRA management standards. In addition, the oil-bearing residuals may be subject to the Spill Prevention and Control Act.

The Agency notes that the materials excluded under this provision of today's rule must be returned directly to a refinery for insertion into the refinery process. While this is not an issue if materials are recycled on site, EPA has concerns about situations where these materials are generated at one refinery for insertion into another. Such materials should not end up at an intermediate non-refinery facility without an accompanying hazardous waste manifest. In cases where materials generated at one petroleum refinery are to be recycled at another refinery, to meet the conditions of the exclusion the materials must be located either at the generating refinery, at the receiving refinery, or must otherwise be in transit between the two facilities. This is consistent with the argument that the exclusion is provided on the basis that the secondary materials are being used within the realm of on-going production in the petroleum refining sector.

Comment 2: As mentioned in Comment 1, secondary materials become discarded, and hence "solid wastes," if they are handled in such a way as to become part of the waste management problem, even if the materials will subsequently be reused in a production process. AMC II, 907 F.2d at 1186; American Petroleum Inst. v. EPA, 906 F.2d 729, 741 (D.C. Cir. 1990); Shell Oil Co. v. EPA, 950 F.2d 741, 756 (D.C. Cir. 1991). An obvious example is placement of materials into a land disposal unit such as a surface impoundment, where hazardous constituents can be released to the environment, prior to insertion into a recycling unit. AMC II, 907 F.2d at 1186.

Another way a material can become a waste subject to RCRA regulation is if its management has resulted in environmental harm. As EPA stated in declining to include certain petroleum refinery sludges in the exclusion for recovered oil, "there have been many damage incidents associated with management of such materials as toxic sludges from wastewater treatment, confirming that these materials are part of the waste disposal problem, rather than part of an on-going manufacturing operation." 59 FR 38542 cols. 2-3 (emphasis added). See also 60 FR 57753 col. 1.

In this rulemaking, EPA recites the above principles but then states that "it does not believe that storage of the residuals prior to reinsertion into the refining process poses hazards to human

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bearing secondary materials generated by refineries and reused in the refinery process by inserting the materials into the refining process from the definition of solid waste. To ensure that the management of such materials does not include an element of discard, and to ensure that the materials do not become part of the waste disposal problem, the Agency is restricting the exclusion to situations where the secondary materials are not stored or placed on the land and where there is no speculative accumulation of the materials. The exclusion does not apply to wastes and situations that would result in a coke product that exhibits a characteristic of hazardous waste.

In addition, in the final rule, EPA clarifies that the exclusion for oil-bearing secondary materials returned to the refining process only extends to the materials actually re-inserted into the refinery process. In cases where oil-bearing secondary materials are processed (e.g., de-oiling, centrifugation, desorption) prior to re-insertion into a refining unit, any residuals that may result that are disposed or intended for disposal would be classified as F037 hazardous waste. In the final rule, the Agency has modified the listing description for F037 to include any residuals from the processing of oil-bearing secondary materials that, were it not for the exclusion, would otherwise be defined as a listed hazardous waste.

EPA also clarifies that the Agency is not including within the scope of the exclusion oil-bearing secondary materials generated outside the petroleum refining sector (i.e., SIC 2911). The Agency is basing its decision not to exclude these secondary materials from the definition of solid waste on the fact that EPA has very limited data from industry demonstrating the chemical and toxic content of the materials. In fact, the Agency has no information on which to base a finding that the use of oil-bearing hazardous secondary materials originating in a non-refinery sector of the petroleum refining industry in the coking process would be anything other than the management of wastes (e.g., hazardous waste recycling) from that non-refinery sector. Oil-bearing secondary materials originating from non-refinery sectors have the potential to be more waste-like and thus do not warrant an exclusion, especially if their ultimate use is in the quenching process.

The Agency also is requiring that the materials excluded under this provision of today's rule be returned directly to a refinery for insertion. While this is not an issue if materials are recycled on site, EPA has concerns about situations where these materials are generated at one refinery for insertion into another. Such materials should not end up at an intermediate non-refinery facility without an accompanying hazardous waste manifest. In cases where materials generated at one petroleum refinery are to be recycled at another refinery, to meet the conditions of the exclusion the materials must be located either at the generating refinery, at the receiving refinery, or must otherwise be in transit between the two facilities. This is consistent with the argument that the exclusion is provided on the basis that the secondary materials are being used within the realm of on-going production in the petroleum refining sector.

Comment 4: EPA's rationale for the proposed exclusion is based in part on the assumption that oil-bearing residuals will be "inserted directly" into the refining process. 60 FR 57754 col. 1. EPA adds that these residuals are "transferred directly" from storage to the refining process, and

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various parts of the industry and sent to petroleum refineries for insertion into the refining process. (Amoco, 00062; Shell, 00047)

Response: See responses to comment 1 and 2 above.

Comment 4: The list of petrochemical plants eligible for the exclusion should be broadened to include SIC Code 2821 (plastics and resins) and 2822 (synthetic rubber). Lube Oil Plants, SIC 2992, should be added to the list of oil related industries that are eligible for the exclusion. A mechanism for including additional SIC Codes in the list of approved codes should be established. (Shell, 00047)

Response: In the proposed rule, EPA stated that it would consider broadening the proposed exclusion to include hydrocarbon streams from certain other organic chemical manufacturing facilities, including plastic materials and resins (SIC Code 2821), synthetic rubber (SIC Code 2822), and cyclic crude and intermediate producers (SIC Code 2865), if sufficient analytical data were received to support such a broadening. At this time, the Agency has not received sufficient information on the composition of the hydrocarbon streams produced by these industries that are typically sent to petroleum refineries, therefore the administrative record does not support extending the exclusion to these specific materials.

It is not the Agency's intent in expanding the current exclusion from the definition of solid waste for recovered oils materials inserted into the petroleum refining process as feedstocks to allow for the widespread shipment of oil-bearing residuals between third parties. Such an expansion of the exclusion provided for oil-bearing residuals could result in residuals being handled by facilities whose ability to properly manage the residuals is uncertain. EPA does not have the extensive waste generation data or waste management information necessary to evaluate such an extensive expansion of the current exclusion. Therefore, EPA is not expanding the scope of the exclusion to include oil-bearing residuals generated at facilities that are not petroleum refineries or co-located organic chemical manufacturing plants.

Comment 5: The proposed recovered oil exclusion discourages smaller operations and petroleum residual generators from recycling. As proposed, the expansion of the recovered oil exclusion would benefit the larger petroleum refining operations which have onsite activities that allow return of the recoverable oil materials to various processes. However, many facilities do not have the processing capabilities to recover that hydrocarbon value from an onsite recoverable oil. Recoverable oils from these facilities would therefore be subject to full Subtitle C regulation, even if sent to a facility that recycles the material to recover its hydrocarbon value.

The EPA's stated purpose for the exclusion is to "promote environmentally sound recycling of oil-bearing residuals." This goal can be achieved by encouraging recycling of the oil bearing wastes at any facility that has the equipment and capability to properly manage such wastes. This is especially true given the fact that the exclusion is not limited to the recycling of onsite oil bearing wastes, and in fact allows for the transport of offsite oil bearing wastes to petroleum refineries.

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used oils. The Agency considers the expansion of the proposed exclusion to re-refineries to be beyond the original scope of the rulemaking.

The Agency previously promulgated separate standards for the management of used oil at 40 CFR 279 and for the management of residuals from the storage, processing, or refining of used oil (see §279.59). It is not the Agency's intent in expanding the current exclusion from the definition of solid waste for oil-bearing materials returned to the petroleum refining process as feedstocks to allow for the widespread shipment of refinery residuals between third parties. Such an expansion of the exclusion provided for oil-bearing residuals could result in residuals being handled by facilities whose ability to properly manage the residuals is uncertain. EPA does not have the extensive data or management information necessary to evaluate such an extensive expansion of the current exclusion. Therefore, EPA is not expanding the scope of the exclusion to include the management of oil-bearing residuals at non-petroleum refining facilities that can recycle petroleum refinery wastes or to any other off-site third party recycling operations. Oil-bearing materials transferred to off-site facilities other than a refinery do not meet the conditions of the exclusion, as promulgated with today's final rule.

Comment 6: The petroleum residuals proposed to be excluded from the definition of solid waste in many instances exhibit characteristics similar to used oils. Therefore, the EPA should require management standards to guarantee that handling of these petroleum residuals is done in a manner that is protective of human health and the environment. (Safety-Kleen, 00032)

Response: As noted in the proposal, used oils that are to be burned as fuels and that are within the used oil specification limits for used oil fuels are considered by the EPA to be comparable to crude oil for regulatory purposes (60 FR 57756).

The Agency does not find the imposition of separate regulatory management standards to be warranted for recovered oils or secondary oil-bearing materials, as these materials are being excluded from the definition of solid waste when they are inserted into the petroleum refining process as feedstocks. The Agency notes that these materials will be subject to the same storage and spill prevention requirements that govern other commodity-like petroleum feedstocks.

Comment 7: The manufacturing process operated by CRI-MET at their Braithwaite facility, is unique and separate from other spent hydroprocessing catalyst recycling operations and their processes. CRI-MET operates the only hydrometallurgical processing application for spent hydrorefining catalysts which does not rely on thermal destruction, incineration, to remove recoverable oil entrained within the spent hydroprocessing catalysts. The recoverable oil, i.e., valuable petroleum products consisting of catalytic cracking feed, naphthas, middle distillates, gas oils, and other intermediates, often represent a significant percentage volume of spent hydroprocessing catalysts. In place of incineration, the CRI-MET process separates recoverable oil, which would function as a process inhibitor in the CRI-MET process, from the catalysts. Since the recovered oil is managed separately following separation from the catalysts, it is appropriate to

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ATTACHMENT 7

A - 64 Federal Register 52994 September 30, 1999. Hazardous Waste Combustor MACT Final Rule

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 60, 63, 260, 261, 264, 265, 266, 270, and 271

[FRL–6413–3]

RIN 2050–AEO1

NESHAPS: Final Standards for Hazardous Air Pollutants for Hazardous Waste Combustors

ACTION: Final rule.

SUMMARY: We are promulgating revised standards for hazardous waste incinerators, hazardous waste burning cement kilns, and hazardous waste burning lightweight aggregate kilns. These standards are being promulgated under joint authority of the Clean Air Act (CAA) and Resource Conservation and Recovery Act (RCRA). The standards limit emissions of chlorinated dioxins and furans, other toxic organic compounds, toxic metals, hydrochloric acid, chlorine gas, and particulate matter. These standards reflect the performance of Maximum Achievable Control Technologies (MACT) as specified by the Clean Air Act. These MACT standards also will result in increased protection to human health and the environment over existing RCRA standards.

DATES: This final rule is in effect on September 30, 1999. You are required to be in compliance with these promulgated standards 3 years following the effective date of the final rule (i.e., September 30, 2002). You are provided with the possibility of a site-specific one year extension for the installation of controls to comply with the final standards or for waste minimization reductions. The incorporation by reference of certain publications listed in the rule was approved by the Director of the Federal Register as of September 30, 1999.

ADDRESSES: The official record (*i.e.*, public docket) for this rulemaking is identified as Docket Numbers: F±96± RCSP±FFFFF, F±97±CS2A±FFFFF, F± 97±CS3A±FFFFF, F±97±CS4A±FFFFF, F±97±CS5A±FFFFF, F±97±CS6A± FFFFF, F±98±RCSF±FFFFF, and F± 1999±RC2F±FFFFF. The official record is located in the RCRA Information Center (RIC), located at Crystal Gateway One, 1235 Jefferson Davis Highway, First Floor, Arlington, Virginia. The mailing address for the official record is RCRA Information Center, Office of Solid Waste (5305W), U.S. Environmental Protection Agency Headquarters, 401 M Street, SW, Washington, DC 20460.

Public comments and supporting materials are available for viewing in the RIC. The RIC is open from 9 a.m. to 4 p.m., Monday through Friday, excluding federal holidays. To review docket materials, you must make an appointment by calling 703±603±9230 or by sending a message via e-mail to: RCRA-Docket@epamail.epa.gov. You may copy a maximum of 100 pages from any regulatory docket at no charge. Additional copies cost 15 cent/page. The index for the official record and some supporting materials are available electronically. See the "Supplementary Information" section of this **Federal Register** notice for information on accessing the index and these supporting materials.

FOR FURTHER INFORMATION CONTACT: For general information, you can contact the RCRA Hotline at 1±800±424±9346 or TDD 1±800±553±7672 (hearing impaired). In the Washington metropolitan area, call 703±412±9810 or TDD 703±412±3323. For additional information on the Hazardous Waste Combustion MACT rulemaking and to access available electronic documents, please go to our Web page: www.epa.gov/hwcmact. Any questions or comments on this rule can also be sent to EPA via our Web page.

For more detailed information on technical requirements of this rulemaking, you can contact Mr. David Hockey, 703±308±8846, electronic mail: Hockey.David@epamail.epa.gov. For more detailed information on permitting associated with this rulemaking, you can contact Ms. Patricia Buzzell, 703± 308±8632, electronic mail: Buzzell.Tricia@epamail.epa.gov. For more detailed information on compliance issues associated with this rulemaking, you can contact Mr. Larry Gonzalez, 703±308±8468, electronic mail: Gonzalez.Larry@epamail.epa.gov. For more detailed information on the assessment of potential costs, benefits and other impacts associated with this rulemaking, you can contact Mr. Lyn Luben, 703±308±0508, electronic mail: Luben.Lyn@epamail.epa.gov. For more detailed information on risk analyses associated with this rulemaking, you can contact Mr. David Layland, 703± 308±0482, electronic mail: Layland.David@epamail.epa.gov.

SUPPLEMENTARY INFORMATION:

Official Record. The official record is the paper record maintained at the address in **ADDRESSES** above. All comments that were received electronically were converted into paper form and placed in the official record, which also includes all comments submitted directly in writing. Our responses to comments, whether the comments are written or electronic, are located in the response to comments document in the official record for this rulemaking.

Supporting Materials Availability on the Internet. The index for the official record and the following supporting materials are available on the Internet as:

- Technical Support Documents for HWC MACT Standards:
  - Volume I: Description of Source Categories
  - Volume II: HWC Emissions Database
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- Response to Comments for the HWC MACT Standards Document

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Outline

Acronyms Used in the Rule

acfm– Actual cubic feet per minute
BIF– Boilers and industrial furnaces
CAA– Clean Air Act
CEMS– Continuous emissions monitors/monitoring system
CFR– Code of Federal Regulations
DOC– Documentation of Compliance
DRE– Destruction and Removal Efficiency
dscf– Dry standard cubic foot
dscm– Dry standard cubic meter
EPA/USEPA– United States Environmental Protection Agency
gr– Grains
HSWA– Hazardous and Solid Waste Amendments
kg– Kilogram
MACT– Maximum Achievable Control Technology
mg– Milligrams
Mg– Megagrams (metric tons)
NOC– Notification of Compliance
NESHAP– National Emission Standards for HAPs
ng– Nanograms
NODA– Notice of Data Availability
NPRM– Notice of Proposed Rulemaking
POHC– Principal Organic Hazardous Constituent

Part One: Overview and Background for This Rule

I. What Is the Purpose of This Rule?

In this final rule, we adopt hallmark standards to more rigorously control toxic emissions from burning hazardous waste in incinerators, cement kilns, and lightweight aggregate kilns. These emission standards and continuation of our RCRA risk policy create a national cap for emissions that assures that combustion of hazardous waste in these devices is properly controlled.

The standards themselves implement section 112 of the Clean Air Act (CAA) and apply to the three major categories of hazardous waste burners– incinerators, cement kilns, and lightweight aggregate kilns. For purposes of today's rule, we refer to these three categories collectively as hazardous waste combustors. Hazardous waste combustors burn about 80% of the hazardous waste combusted annually within the United States. As a result, we project that today's standards will achieve highly significant reductions in the amount of hazardous air pollutants being emitted each year by hazardous waste combustors. For example, we estimate that 70 percent of the annual dioxin and furan emissions from hazardous waste combustors will be eliminated. Mercury emissions already controlled to some degree under existing regulations will be further reduced by about 55 percent.

Section 112 of the CAA requires emissions standards for hazardous air pollutants to be based on the performance of the Maximum Achievable Control Technology (MACT). The emission standards in this final rule are commonly referred to as MACT standards because we use the MACT concept to determine the levels of emission control under section 112(d) of the CAA.[1] At the same time, these emissions standards satisfy our obligation under the main statute regulating hazardous waste management, the Resource Conservation Recovery Act (RCRA), to ensure that hazardous waste combustion is conducted in a manner adequately protective of human health and the environment. Our use of both authorities as the legal basis for today's rule and details of the MACT standard-setting process are explained more fully in later sections of this preamble. Most significantly, by using both authorities in a harmonized fashion, we consolidate regulatory control of hazardous waste combustion into a single set of regulations, thereby eliminating the potential for conflicting or duplicative federal requirements.

Today's rule also has other important features in terms of our legal obligations and public commitments. First, promulgation of these standards fulfills our legal obligations under the CAA to control emissions of hazardous air pollutants from hazardous-waste burning incinerators and Portland cement kilns.[2] Second, today's rule fulfills our 1993 and 1994 public commitments to upgrade emission standards for hazardous waste combustors. These commitments are the centerpiece of our Hazardous Waste Minimization and Combustion Strategy.[3] Finally, today's rulemaking satisfies key terms of a litigation settlement agreement entered into in 1993 with a number of groups that had challenged our previous rule addressing emissions from hazardous waste boilers and industrial furnaces.[4]

II. In Brief, What Are the Major Features of Today's Rule?

The major features of today's final rule are summarized below.

A. Which Source Categories Are Affected by This Rule?

This rule establishes MACT standards for three source categories, namely: Hazardous waste burning incinerators, hazardous waste burning cement kilns, and hazardous waste burning lightweight aggregate kilns. As mentioned earlier, we refer to these three source categories collectively as hazardous waste combustors.

B. How Are Area Sources Affected by This Rule?

This rule establishes that MACT standards apply to both major sources– sources that emit or have the potential to emit 10 tons or greater per year of any single hazardous air pollutant or 25 tons per year or greater of hazardous air pollutants in the aggregate– and area sources, all others. Area sources may be regulated under MACT standards if we find that the category of area sources ``presents a threat of adverse effects to human health or the environment * * * warranting regulation (under the MACT standards).'' We choose to regulate area sources in today's rule and, as a result, all hazardous waste burning incinerators, cement kilns, and lightweight aggregate kilns will be regulated under standards reflecting MACT.

C. What Emission Standards Are Established in This Rule?

This rule establishes emission standards for: Chlorinated dioxins and furans; mercury; particulate matter (as a surrogate for antimony, cobalt, manganese, nickel, and selenium); semivolatile metals (lead and cadmium); low volatile metals (arsenic, beryllium, and chromium); hydrogen chloride and chlorine gas (combined). This rule also establishes standards for carbon monoxide, hydrocarbons, and destruction and removal efficiency as surrogates in lieu of individual standards for nondioxin/furan organic hazardous air pollutants.

D. What Are the Procedures for Complying With This Rule?

This rule establishes standards that apply at all times (including during startup, shutdown, or malfunction), except if hazardous waste is not being burned or is not in the combustion chamber. When not burning hazardous waste (and when hazardous waste does not remain in the combustion chamber), you may either follow the hazardous waste burning standards in this rule or emission standards we promulgate, if any, for other relevant nonhazardous waste source categories.

Initial compliance is documented by stack performance testing. To document continued compliance with the carbon monoxide or hydrocarbon standards, you must use continuous emissions monitoring systems. For the remaining standards, you must document continued compliance by monitoring limits on specified operating parameters. These operating parameter

[1] The MACT standards reflect the ``maximum degree of reduction in emissions of * * * hazardous air pollutants'' that the Administrator determines is achievable, taking into account the cost of achieving such emission reduction and any nonair quality health and environmental impacts and energy requirements. Section 112(d)(2).

[2] In a 1992 **Federal Register** notice, we published the inital list of categories of major and area sources of hazardous air pollutants including hazardous waste incinerators and Portland cement plants. See 57 FR 31576 (July 16, 1992). Today's rule meets our obligation to issue MACT standards for hazardous waste incinerators. Today's rule also partially meets our obligation to issue MACT standards for Portland cement plants. To complete the obligation, we have finalized, in a separate rulemaking, MACT standards for the portland cement industry source category. Those standards apply to all cement kilns except those kilns that burn hazardous waste. See 64 FR 31898 (June 14, 1999). Those standards also apply to other HAP emitting sources at a cement plant (such as clinker coolers, raw mills, finish mills, and materials handling operations) regardless of whether the plant has hazardous waste burning cement kilns.

[3] EPA Document Number 530±R±94±044, Office of Solid Waste and Emergency Response, November 1994.

[4] ``Burning of Hazardous Waste in Boilers and Industrial Furnaces'' (56 FR 7134, February 21, 1991). These groups include the Natural Resources Defense Council, Sierra Club, Environmental Technology Council, National Solid Waste Management Association, and a number of local citizens' groups.

limits[5] are calculated based on performance test conditions using specified procedures intended to ensure that the operating conditions (and by correlation the actual emissions) do not exceed performance test levels at any time. You must also install an automatic waste feed cutoff system that immediately stops the flow of hazardous waste feed to the combustor if a continuous emissions monitoring system records a value exceeding the standard or if an operating parameter limit is exceeded (considering the averaging period for the standard or operating parameter). The standards and operating parameter limits apply when hazardous waste is being fed or remains in the combustion chamber irrespective of whether you institute the corrective measures prescribed in the startup, shutdown, and malfunction plan.

E. What Subsequent Performance Testing Must Be Performed?

You must conduct comprehensive performance testing every five years. This testing regime is referred to as ``subsequent performance testing.'' You must revise the operating parameter limits as necessary based on the levels achieved during the subsequent performance test. In addition, you must conduct confirmatory performance testing of dioxins/furans emissions under normal operating conditions midway between subsequent performance tests.

F. What Is the Time Line for Complying With This Rule?

The compliance date of the standards promulgated in today's rule is three years after the date of publication of the rule in the **Federal Register**, or September 30, 2002 (See CAA section 112(i)(3)(A) indicating that the Environmental Protection Agency (EPA) may establish a compliance date no later than three years from the date of promulgation.) A one-year extension of the compliance date may be requested if you cannot complete system retrofits by the compliance date despite a good faith effort to do so.[6] CAA section 112(i)(3)(B). Continuous emissions monitoring systems and other continuous monitoring systems for the specified operating parameters must be fully operational by the compliance date. You must demonstrate compliance by conducting a performance test no later than 6 months after the compliance date (i.e., three and one-half years from the date of publication of today's rule in the **Federal Register**).

To ensure timely compliance with the standards, by the compliance date you must place in the operating record a Documentation of Compliance identifying limits on the specified operating parameters you believe are necessary and sufficient to comply with the emission standards. These operating parameter limits (and the carbon monoxide or hydrocarbon standards monitored with continuous monitoring systems) are enforceable until you submit to the Administrator a Notification of Compliance within 90 days of completion of the performance test.

The Notification of Compliance must document: (1) Compliance with the emission standards during the performance test; (2) the revised operating parameter limits calculated from the performance test; and (3) conformance of the carbon monoxide or hydrocarbon continuous emissions monitoring systems and the other continuous monitoring systems with performance specifications. You must comply with the revised operating parameter limits upon submittal of the Notification of Compliance.

G. How Does This Rule Coordinate With the Existing RCRA Regulatory Program?

You must have a RCRA permit for stack air emissions (or RCRA interim status) until you demonstrate compliance with the MACT standards. You do so by conducting a comprehensive performance test and submitting a Notification of Compliance to the Administrator, as explained above.[7] Hazardous waste combustors with RCRA permits remain subject to RCRA stack air emission permit conditions until the RCRA permit is modified to delete those conditions. (As discussed later in more detail, we recommend requesting modification of the RCRA permit at the time you submit the Notification of Compliance.) Only those provisions of the RCRA permit that are less stringent than the MACT requirements specified in the Notification of Compliance will be approved for deletion.[8] Hazardous waste combustors still in interim status without a full RCRA permit are no longer subject to the RCRA stack air emissions standards for hazardous waste combustors in Subpart O of Part 265 and subpart H of part 266 once compliance with the MACT standards has been demonstrated and a Notification of Compliance has been submitted to the Administrator.

You must satisfy both sets of requirements during the relatively short period when both RCRA and MACT stack air emissions standards and associated requirements in the RCRA permit or in RCRA interim status regulations are effective.

You also may have existing site-specific permit conditions. On a case-by-case basis during RCRA permit issuance or renewal, we determine whether further regulatory control of emissions is needed to protect human health and the environment, notwithstanding compliance with existing regulatory standards. Additional conditions may be included in the permit in addition to those derived from the RCRA emission standards as necessary to ensure that facility operations are protective of human health and the environment. Any of these risk-based permit provisions more stringent than today's MACT standards (or that address other emission hazards) will remain in the RCRA permit.

After the MACT compliance date, hazardous waste combustors must continue to comply with the RCRA permit issuance process to address nonMACT provisions (*e.g.*, general facility standards) and potentially conduct a risk review under ß 270.32(b)(2) to determine if additional requirements pertaining to stack or other emissions are warranted to ensure protection of human health and the environment.

III. What Is the Basis of Today's Rule?

As stated previously, this rule issues final National Emissions Standards for Hazardous Air Pollutants (NESHAPS) under authority of section 112 of the Clean Air Act for three source categories of combustors: Hazardous waste burning incinerators, hazardous waste burning cement kilns, and hazardous waste burning lightweight aggregate kilns. The main purposes of the CAA are to protect and enhance the quality of our Nation's

[5] The term ``operating parameter limit'' and ``operating limit'' have the same meaning and are used interchangeably in the preamble and rule language.

[6] In June 1998, we promulgated a rule to allow hazardous waste combustors also to request a one-year extension to the MACT compliance date in cases where additional time will be needed to install pollution prevention and waste minimization measures to significantly reduce the amount or toxicity of hazardous waste entering combustion feedstreams. See 63 FR at 43501 (June 19, 1998). This provision is recodified in today's rule as 40 CFR 63.1213.

[7] Hazardous waste combustors, of course, also continue to be subject to applicable RCRA requirements for all other aspects of their hazardous waste management activities that are separate from the requirements being deferred to the CAA by this rule.

[8] RCRA permit requirements that may be less stringent than applicable MACT standards are nonetheless enforceable until the RCRA permit is modified.

air resources, and to promote the public health and welfare and the productive capacity of the population. CAA section 101(b)(1). To this end, sections 112(a) and (d) of the CAA direct EPA to set standards for stationary sources emitting (or having the potential to emit) ten tons or greater of any one hazardous air pollutant or 25 tons or greater of total hazardous air pollutants annually. Such sources are referred to as ``major sources.''

Today's rule establishes MACT emission standards for the following hazardous air pollutants emitted by hazardous waste burning incinerators, hazardous waste burning cement kilns, and hazardous waste burning lightweight aggregate kilns: Chlorinated dioxins and furans, mercury, two semivolatile metals (lead and cadmium), three low volatility metals (arsenic, beryllium, and chromium), and hydrochloric acid/chlorine gas. This rule also establishes MACT control for the other hazardous air pollutants identified in CAA section 112(b)(1) through the adoption of standards using surrogates. For example, we adopt a standard for particulate matter as a surrogate to control five metals that do not have specific emission standards established in today's rule. These five metals are antimony, cobalt, manganese, nickel, and selenium. Also, we adopt standards for carbon monoxide, hydrocarbons, and destruction and removal efficiency to control the other organic hazardous air pollutants listed in section 112(b)(1) that do not have specific emission standards established in this rule.

Today's standards meet our commitment under the Hazardous Waste Minimization and Combustion Strategy, first announced in May 1993, to upgrade the emission standards for hazardous waste burning facilities. EPA's Strategy has eight goals: (1) Ensure public outreach and EPA-State coordination; (2) pursue aggressive use of waste minimization measures; (3) continue to ensure that combustion and alternative and innovative technologies are safe and effective; (4) develop and impose more rigorous controls on combustion facilities; (5) continue aggressive compliance and enforcement efforts; (6) enhance public involvement opportunities in the permitting process for combustion facilities; (7) give higher priority to permitting those facilities where a final permit decision would result in the greatest environmental benefit or the greatest reduction in risk; and (8) advance scientific understanding on combustion issues and risk assessment and ensure that permits are issued in a manner that provides proper protection of human health and the environment.

We have made significant progress in implementing the Strategy. Today's rule meets the Strategy goal of developing and implementing rigorous state-of-the-art safety controls on hazardous waste combustors by using the best available technologies and the most current science.[9] We also developed a software tool (*i.e.*, the Waste Minimization Prioritization Tool) that allows users to access relative persistent, bioaccumulative and toxic hazard scores for any of 2,900 chemicals that may be present in RCRA waste streams. We also committed to the reduction of the generation of the most persistent, bioaccumulative and toxic chemicals by 50 percent by 2005. To facilitate this reduction we are developing a list of the persistent, bioaccumulative and toxic chemicals of greatest concern and a plan for working with the regulated community to reduce these chemicals. In addition, we promulgated new requirements to enhance public involvement in the permitting process [10] and performed risk evaluations during the permitting process for high priority facilities. We also made allowances for one-year extensions to the MACT compliance period as incentives designed to promote the installation of cost-effective pollution prevention technologies to replace or supplement emission control technologies for meeting MACT standards.

Finally, with regard to the regulatory framework that will result from today's rule, we are eliminating the existing RCRA stack emissions national standards for hazardous waste incinerators, cement kilns, and lightweight aggregate kilns. That is, after submittal of the Notification of Compliance established by today's rule (and, where applicable, RCRA permit modifications at individual facilities), RCRA national stack emission standards will no longer apply to these hazardous waste combustors. We originally issued air emission standards under the authority of section 3004(a) of RCRA, which calls for EPA to promulgate standards ``as may be necessary to protect human health and the environment.'' In light of today's new MACT standards, we have determined that RCRA emissions standards for these sources would only be duplicative and so are no longer necessary to protect human health and the environment. Under the authority of section 3004(a), it is appropriate to eliminate such duplicative standards.

Emission standards for hazardous waste burning incinerators and other sources burning hazardous wastes as fuel must be protective of human health and the environment under RCRA. We conducted a multipathway risk assessment to assess the ecological and human health risks that are projected to occur under the MACT standards. We have concluded that the MACT standards are generally protective of human health and the environment and that separate RCRA emission standards are not needed. Please see a full discussion of the national assessment of exposures and risk in Part VIII of this preamble.

Additionally, RCRA section 1006(b) directs EPA to integrate the provisions of RCRA for purposes of administration and enforcement and to avoid duplication, to the maximum extent practicable, with the appropriate provisions of the Clean Air Act and other federal statutes. This integration must be done in a way that is consistent with the goals and policies of these statutes. Therefore, section 1006(b) provides further authority for EPA to eliminate the existing RCRA stack emissions standards to avoid duplication with the new MACT standards. Nevertheless, under the authority of RCRA's ``omnibus'' clause (section 3005(c)(3); see 40 CFR 270.32(b)(2)), RCRA permit writers may still impose additional terms and conditions on a site-specific basis as may be necessary to protect human health and the environment.

IV. What Was the Rulemaking Process for Development of This Rule?

We proposed MACT standards for hazardous waste burning incinerators, hazardous waste burning cement kilns, and hazardous waste burning lightweight aggregate kilns on April 19, 1996. (61 FR 17358) In addition, we published five notices of data availability (NODAs):

1. August 23, 1996 (61 FR 43501), inviting comment on information pertaining to a peer review of three aspects of the proposed rule and information pertaining to the since-promulgated ``Comparable Fuels'' rule (see 63 FR 43501 (June 19, 1998));

2. January 7, 1997 (62 FR 960), inviting comment on an updated hazardous waste combustor data base containing the emissions and ancillary

[9] The three source categories covered by today's final rule burn more than 80 percent of the total amount of hazardous waste being combusted each year. The remaining 15±20 percent is burned in industrial boilers and other types of industrial furnaces, which will be addressed in a future NESHAPS rulemaking for hazardous waste burning sources.

[10] See 60 FR 63417 (December 11, 1995).

regulations as quickly as their legislative and regulatory processes will allow.

Part Six: Miscellaneous Provisions and Issues

I. Does the Waiver of the Particulate Matter Standard or the Destruction and Removal Efficiency Standard Under the Low Risk Waste Exemption of the BIF Rule Apply?

Section 266.109 of the current BIF regulation provides a conditional exemption from the destruction and removal efficiency standard and the particulate matter standard for low risk wastes. We proposed to restrict eligibility for the waiver of the particulate matter standard to BIFs other than cement and lightweight aggregate kilns because the waiver could supersede the MACT requirements for the particulate matter standards. We had the same concern for the destruction and removal efficiency requirements. See 61 FR at 17470. After reconsidering the issue, we are clarifying that today's MACT requirements are separately applicable and enforceable and that no action is needed to ensure that a BIF waiver does not supersede the MACT requirements. See the discussions in Part Five of today's preamble regarding integration of the MACT and RCRA standards.

II. What Is the Status of the ``Low Risk Waste'' Exemption?

Section 264.340(b) and (c) exempts certain incinerators from the RCRA emission standards if the hazardous waste burned contains (or could reasonably be expected to contain) insignificant concentrations of Appendix VIII, part 261, hazardous constituents. We proposed that this ``low risk waste'' provision no longer be applicable incinerators on the MACT compliance date because a risk-based exemption from technology-based MACT standards seemed inappropriate. See 61 FR at 17470. After reconsidering the issue, we have determined that no specific action is necessary because the MACT standards are separately applicable and enforceable standards. See the discussion in Part Five of today's preamble regarding integration of the MACT and RCRA standards.

III. What Concerns Have Been Considered for Shakedown?

In the proposal, we expressed concern that some new units do not effectively use their allotted 720-hour pre-trial burn shakedown period or appropriate extensions to correct operational problems. This can potentially lead to trial burn failures and emission exceedances, which pose unnecessary risks to human health and the environment. Therefore, we proposed three shakedown options to enhance regulatory control over trial burn testing:

(1) Prior to scheduling trial burns, we would require facilities to provide the Director a minimum showing of operational readiness.

(2) We would require notification of operational readiness prior to, and following, the shakedown period.

(3) We would provide guidance on how to effectively prepare for a trial burn. These options were proposed for inclusion under both the CAA and RCRA regulations, and comments were requested regarding their usefulness.

A few commenters preferred Option 3 because it would be useful in determining how to effectively prepare for a trial burn. Regarding Options 1 and 2, two commenters felt the cost, time, and resources required for a trial burn already provide adequate financial incentive to prepare, plan, and conduct trial burns efficiently. Two commenters felt that Option 3 provided the potential for inequities in implementation of the guidance by the permit writer. In general, most commenters agreed that additional regulatory requirements are not necessary.

In light of the comments, we decided not to adopt any of the proposed options. We acknowledge that it is in the facility's best interest to conduct a successful trial burn that most facilities will properly utilize their shakedown period. However, during the transition period from RCRA to MACT compliance, we strongly encourage facilities to properly use their shakedown period to correct operational problems that pose unnecessary risks to human health and the environment.

Therefore, with the exception of risk burns, we are pursuing the deferral of RCRA trial burns to the MACT performance test requirements. A source remains subject to RCRA trial burns during the transition period to MACT compliance. For facilities where unique considerations make a SSRA necessary, risk-based permit conditions may result. In such cases, there likely would need to be conditions for all phases of operation in the RCRA permit. Thus, start-up and shakedown would still be an issue for some RCRA combustor facilities given that they would have to be in compliance with the unique RCRA emission standards even during startup and shakedown (unless the permit conditions specify otherwise).

IV. What Are the Management Requirements Prior to Burning?

Today, we are finalizing the proposal to revise 40 CFR 266.101 (``Management prior to burning'') to clarify that fuel blending activities are regulated under RCRA. See 61 FR at 17474 (April 19, 1996). As described in detail in the proposal, this is already implicit (and for some units, explicit) in existing rules. Therefore, today's rule is more an interpretive clarification. See 52 FR 11820 (April 13, 1987). By incorporating the term ``treatment'' into the regulation, we are clarifying that fuel blending activities that are conducted in units other than 90-day tanks or containers also are subject to regulation.

We received two comments expressing concern that this would subject all fuel blending-related equipment permitting, without allowing for case-by-case determinations. For example, these commenters believe that some pre-processing activities conducted by blenders (shredding, drum crushing, and other physical handling) do not meet the definition of treatment and should not be subject to permitting standards. However, we feel that these activities meet the existing definition of treatment. They are ``processe(s) . . . designed to change the physical . . . composition of . . . hazardous waste so as to . . . render such waste amenable for recovery'' via combustion. See 40 CFR 260.10 (definition of ``treatment'').

Moreover, these pre-processing activities should be subject to permitting requirements. Controls on these activities are necessary to protect against releases of hazardous constituents to the environment due to the nature of those operations (*e.g.,* crushing or shredding of drums containing hazardous wastes, grinding of waste materials, etc.). *See Shell Oil* v. *EPA,* 950 F. 2d 741, 753±56 (D.C. Cir. 1991), which broadly construes the definition of treatment to assure that the RCRA goal of cradle-to-grave management of hazardous wastes is satisfied and that specific types of units remain subject to subtitle C regulation. For units that do not already meet the definition of a specific unit, subpart X is available to provide the appropriate standards.

V. Are There Any Conforming Changes to Subpart X?

In today's rule, we are making a *conforming change* to part 264 subpart X (§ 264.601) to make reference to part 63 subpart EEE.

Hazardous waste treatment, storage, and disposal facilities that are not

classified under other categories (*e.g.*, tank systems, surface impoundments, waste piles, incinerators, *etc.*) are classified as miscellaneous units and regulated under part 264 subpart X. However, due to the varying types and designs of miscellaneous units, subpart X does not include specific performance standards. Instead, subpart X makes reference to requirements in other sections of the regulations. Section 264.601 of subpart X states that ``Permit terms and provisions shall include those requirements of subparts I through O and subparts AA through CC of this part, part 270, and part 146 that are appropriate for the miscellaneous unit being permitted .'' This statement directs the permitting agency to look at the requirements (*e.g.*, performance standards, operating parameters, monitoring requirements, *etc.*) from other sections in the regulations when developing appropriate permit conditions for miscellaneous units.

In the past, permitting authorities have often looked to the part 264 subpart O regulations for incinerators to develop the appropriate permit conditions for units such as thermal desorbers and carbon regeneration units. Since today's rule upgrades the air emission standards for certain source categories, these new standards also should be considered when determining the appropriate requirements for miscellaneous units, most notably those engaged in any type of thermal operation. Therefore, the language in ß 264.601 of subpart X is being modified to incorporate a reference to part 63 subpart EEE.

VI. What Are the Requirements for Bevill Residues?

A. Dioxin Testing of Bevill Residues

In the proposal, we proposed to add polychlorinated dibenzo-p-dioxin and polychlorinated dibenzo-furan compounds to appendix VIII of part 266. Appendix VIII lists those compounds that may be generated as products of incomplete combustion and that must be included in testing of Bevill residues conducted pursuant to 40 CFR 266.112. Products of incomplete combustion can be unburned organic compounds that were originally present in the waste, thermal decomposition products resulting from organic constituents in the waste, or compounds synthesized during or immediately after combustion. We noted in the proposal that there is a considerable body of evidence to show that dioxin and furan compounds can be formed in the post-combustion regions of hazardous waste burning boilers, industrial furnaces, and incinerators, especially at temperatures between 250± 450°C.[309] [310] Collected particulate matter in the post-combustion regions of furnaces can provide sites for adsorption of precursors, formation of dioxins and furans by surface chlorination of precursors, catalytic production of chlorine for subsequent chlorination of dioxin and furan precursors, and *de novo* synthesis of dioxins and furans. This same particulate matter may be subsequently managed as excluded Bevill residue.

No evidence was provided by commenters to show that dioxins and furans cannot be formed in cooler, post-combustion regions of furnaces (*e.g.*, ductwork, boiler tubes, heat exchange surfaces, and air pollution control devices). A few commenters referenced the total number of nondetects for all of the compounds in the cement kiln dust database. However, the relevance of this information specifically to dioxins and furans was unclear. Dioxins and furans have repeatedly been detected in cement kiln dust, as well as other Bevill residues.[311] [312]

The majority of commenters were concerned about implementation issues. Many felt that the addition of dioxins and furans to part 266 appendix VIII, in conjunction with the proposed requirement for daily sampling and analysis of Bevill residues, would make Bevill demonstrations prohibitively expensive. They also noted that the turnaround time for daily dioxin and furan analyses would delay compliance demonstrations and result in shortages in storage capacity. One commenter felt that daily sampling for dioxins and furans is not warranted because cement kiln dust at their site has already been shown to meet the proposed Bevill exclusion criteria for dioxins and furans. None of these arguments directly address our basic premise that dioxin and furan compounds can be generated in combustion systems, are of concern to the protection of human health and the environment, and, as such, should be included in part 266 appendix VIII. Rather, these comments pertain to issues that are more readily and appropriately resolved within the context of site-specific Bevill testing plans.

The proposed daily residue test frequency, which was cited most often as an impediment in conjunction with dioxin and furan analysis, is not being promulgated as part of today's rule. The rule will leave maximum flexibility for development of appropriate dioxin and furan analysis frequencies considering site-specific factors. Most facilities should be able to substantially limit the number of dioxin and furan analyses after an initial sampling effort. Most residue test plans rely on the concentration-based comparisons to F039 nonwastewater levels (40 CFR 266.112(b)(2)) in combination with a phased testing approach. Under the phased approach, test frequency can be substantially reduced for those constituents where initial sampling efforts reveal that concentrations are well below the F039 levels. Of the facilities where residue testing for dioxins and furans has been performed, we are aware of only two facilities where dioxins and furans have exceeded the F039 levels. Thus, the burden of higher analytical costs is expected to be appropriately limited to those few sites with significant dioxin and furan residue concentrations.

Several commenters pointed out that some Bevill residues (*e.g.*, slag from primary smelters) are generated prior to the post-combustion regions typically associated with dioxin and furan formation. Indeed, the preamble discussion in the proposal focused exclusively on post-combustion residues and did not address Bevill-exempt primary smelter slags. We currently do not have analytical data on dioxins and furans in smelter slag. However, our current information on dioxin and furan formation mechanisms suggests that it would be highly unlikely to expect significant dioxins and furans in smelter slag. Therefore, we agree that dioxin and furan analyses should be limited to those residues where there is a reasonable expectation that dioxins and furans could be present (*e.g.*, post-combustion residues).

Finally, two commenters disagreed with our assertion that dioxins and furans have been shown, in a national comparison, to be higher in residues from hazardous waste burning cement kilns than from other cement kilns. Although this information was included in the proposal as background, it is not necessary to reconcile various interpretations regarding national trends for today's rule. The 40 CFR 266.112 provisions are site-specific, and 40 CFR 266.112(b)(1) provides ample opportunity for you to demonstrate, on a site-specific basis as necessary, that waste-derived residues are not

[309] USEPA, ``Estimating Exposure to Dioxin-Like Compounds'', EPA/600/6-88/005Ca, June 1994.

[310] USEPA, ``Combustion Emissions Technical Resource Document (CETRED)'', EPA/530/R±94/014, May 1994.

[311] USEPA, ``Report to Congress on Cement Kiln Dust'', EPA/530/R±94/001, December 1993.

[312] USEPA, ``Dioxins/Furans, Metals, Chlorine, Hydrochloric acid, and Related Testing at a Hazardous Waste-Burning Light-Weight Aggregate Kiln'', June 1997 Draft Report.

ATTACHMENT 8

A – Financial Analysis, TDU Operating with Emission Limits and F037 residuals, vs. Thermaldyne under Draft VRF Variance

Economic Impact Analysis

Description			
Case 1 Thermaldyne receives 50,000 tons of OBHSM under the proposed VRF variance and manages partially reclaimed or unreclaimed OBHSM (not F037 listed) to determine whether the waste exhibits a hazardous characteristic. Based on data from recent sampling at Robstown TX, 50% of OBHSM could be disposed of without processing because the listed OBHSM did not exhibit a toxicity characteristic even though the OBHSM failed LDR for F037 listed target compounds.			
Treatment and Disposal Costs			
Treatment 25,000 tons of OBHSM through the Centrifuges and TDU. Remaining 25,000 tons requires no treatment. Treatment unit rate includes labor and capital costs.	25,000	$ 250.00	$ 6,250,000
Disposal of non-hazardous OBHSM as received - 50% of OBSHM does not require processing to meet LDR for listed waste and does not exhinit a characteristic hazard and can be disposed of at municipal landfill.	25,000	$ 28.00	$ 700,000
Disposal of Thermal Desorption Unit desorbed / treated solids do not require disopsal at a subtitle C Landfill for F037 LDR compliant listed waste and are not characteristically hazardous and can be disposed of at municipal landfill. TDU treated desorbed solids result in 50% non hazardous solids sent to a municipal landfill, remaining material is water and oil and is processed through the facility	12,500	$ 28.00	$ 350,000
Transportation on non-hazardous waste to Municipal Landfill 12 miles from Thermaldyne Port Allen LA to Ronaldson Field Landfill at 1500 New Rafe Mayer Rd, Baton Rouge LA. (15 tons per load) (1 hour for round trip @ $85/ hr for rolloff truck and driver) 37,500 tons / 15 tons per trip = 2,500 trips @ $85 per trip	2,500	$ 85.00	$ 212,500
SubTotal Costs, Case 1 Unrestricted Air Emissions, Residuals Disposal			$ 7,512,500
Description			
Case 2 Thermaldyne (US Ecology / TD*X) receives 50,000 tons of OBHSM at RCRA permitted Subpart X facility and manages fully reclaimed OBHSM (F037 and other listed OBHSM). OBHSM can only be disposed of at a RCRA permitted Subtitle C landfill and 100% of OBHSM requires processing to meet LDR for F037 listed target compounds.			
Treatment and Disposal Costs			
Treatment of 50,000 tons through the Centrifuges and TDU. Treatment unit rate includes labor and capital costs.	50,000	$ 250.00	$ 12,500,000
Additional Treatment costs for operating at a RCRA Subpart X permitted facility (Additional Capital, Labor, Testing, monitoring and recordkeeping)	50,000	$125.00	$ 6,250,000
Disposal of Thermal Desorption Unit desorbed / treated solids require disopsal at a Subtitle C Landfill for F037 LDR compliant listed waste. TDU treated desorbed solids result in 50% hazardous solids sent to a Subtitle C landfill, remaining material is water and oil and is processed through the facility. $140 per ton tipping fee + 10% energy surcharge = $154 + $40 Louisiana hazardous waste disposal fee = $194 / ton disposal cost	25,000	$ 194.00	$ 4,850,000
Transportation of hazardous waste to RCRA Subtitle C Landfill 125 miles from Thermaldyne Port Allen LA to Chemical Wsate Managemnt Lake Charles LA. (15 tons per load) (6 hours for round trip @ $85/ hr = $510 for rolloff truck and driver) 25,000 tons / 15 tons per trip = 1,667 trips @ $510 per trip	1,667	$ 510.00	$ 850,170
SubTotal Costs, Case 2 MACT EEE Restricted Air Emissions, F037 Residuals Disposal			$ 24,450,170

My Shots

Pricing - Ronaldson F

expires in 14 days

Download

Get an Estimate

RONALDSON FIELD

HOME ABOUT US WASTE MANAGEMENT RECY

Pricing

Gate Rate: $28 per ton

Call for Pricing Schedule for Roofing Contractors

Clean Concrete free of charge

All non-dump trailers are responsible for removing waste from trailer or there will be an additional charge for assisting in off-loading.

Please Contact Shannon Dupree for additional Pricing information

(225) 921-8437

sbutler@nrri.net (special pricing on large projects)

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PRICING ADDENDUM TO WASTE TRANSPORTATION, DISPOSAL AND RECYCLING AGREEMENT

☐ US Ecology Idaho, Inc.	☐ US Ecology Nevada, Inc.	☑ US Ecology Texas, Inc.	☐ US Ecology Michigan, Inc.
P.O. Box 400 20400 Lemley Road Grand View, ID 83624 (800) 274-1516, (208) 834-2275 Fax (208) 834-2919 EPA ID #: IDD073114654	P.O. Box 578 Highway 95, 11 miles South of Beatty Beatty, NV 89003 (800) 239-3943, (775) 553-2203 Fax (775) 553 -2125 EPA ID #: NVT330010000	P.O. Box 307 3.5 Miles on Petronila Road Robstown, TX 78380 (800) 242-3209, (361) 387-3518 Fax (361) 387-0794 EPA ID #: TXD069452340	6520 Georgia Street Detroit, MI 48211 (800) 396-3265, (313) 571-7140 Fax (313) 571-7190 EPA ID #: MID074259565

Date: 05/15/2018 Addendum #: 133
Contract #: T03201 Ref #: 40547
Contract Date: 05/18/1999
WPQ REFERENCE: 090106384-0
Waste Description: HEAT EXCHANGER SLUDGE
EPA Waste Codes

K050

Customer: CLEAN HARBORS 9925065
Address: 1704 HUNTER ROAD
CORPUS CHRISTI TX 78409
Contact: NATHANIEL GARCIA
Phone: (361) 533 0767 Fax: ( )

Generator [redacted]
[redacted]
EPA # [redacted]

Invoice Address
P.O. BOX 9149
NORWELL MA 02061-9149
Contact: VENDOR PROCUREMENT
Phone: ( ) Fax: ( )

Group #	Pricing Description	Unit Price	Units
1	DIRECT LANDFILL / MEETS LDR	$140.00	TONS(2000 LBS)
1	DIRECT LANDFILL / MEETS LDR	$140.00	CUBIC YARD
1	DIRECT LANDFILL / MEETS LDR (30-55 GAL DRUM)	$140.00	EACH
1	INCIDENTALSOLIDIFICATION (<20% FREE LIQUIDS)	$35.00	TONS(2000 LBS)
1	RINSE OUT RENDER RCRA EMPTY **THE FOLLOWING MINIMUM APPLIES TO THE ABOVE PRICING LINE:	$1.50 $300.00 MINIMUM CHARGE	GALLON
1	SCRAPE OUT RENDER RCRA EMPTY	$250.00	EACH
1	FEE (LISTED IN STATE)	$30.00	TONS(2000 LBS)
1	FEE (LISTED OUT OF STATE)	$37.50	TONS(2000 LBS)
1	FEE (CHARACTERIZED IN STATE)	$8.00	TONS(2000 LBS)
1	FEE (CHARACTERIZED OUT OF STATE)	$10.00	TONS(2000 LBS)

TERMS OF AGREEMENT (IF ANY):

PRICING ABOVE INCLUDES DISPOSAL AT U.S. ECOLOGY TEXAS, INC. (COMPANY) AND APPLICABLE STATE OF TEXAS DISPOSAL FEES/TAXES. PAYMENT SHALL BE MADE IN CASH AT THE TIME WASTE IS ACCEPTED FOR DISPOSAL UNLESS CREDIT HAS BEEN APPROVED.

1 10% Energy, Insurance and Recovery fee.

2 Bulk waste will be billed by tons or cubic yards, whichever is greater, as determined by Company. Thus, material weighing less than 2,000 lbs. per cubic yard will be billed by cubic yards.

3 Customer acknowledges that Company, may at it's sole discretion, ship waste to an affiliated US Ecology entity, and / or to a Company approved 3rd party facility for treatment, disposal and / or recycling. In some instances this may be a Company or other 3rd party facility, located outside of the United States.

4 If USET is unable to treat the material, the waste will be sent offsite for management at the customers expense.

5 Due to the US EPA's e-manifest regulations, a fee will be assessed to all customers for shipments utilizing a hazardous waste manifest.

THIS PRICING ADDENDUM AND THE ATTACHED TECHNICAL AND TRANSPORTATION REQUIREMENTS ADDENDUM ARE INCORPORATED INTO AND ARE A PART OF THE CONTRACT REFERENCED ABOVE AND ARE NOT BINDING UNLESS AND UNTIL SIGNED BELOW BY AN AUTHORIZED REPRESENTATIVE OF COMPANY. PRICES ARE VALID ONLY AT THE FACILITY IDENTIFIED ABOVE. IN THE EVENT THE CONTRACT REFERENCED ABOVE IS BETWEEN CUSTOMER AND A US ECOLOGY, INC. AFFILIATE OTHER THAN COMPANY, CUSTOMER AND COMPANY AGREE TO BE GOVERNED BY THE CONTRACT AS THOUGH THE ORIGINAL PARTIES THERETO.

CUSTOMER:	FACILITY:
Signature:	Signature: Donnell King
Printed Name and Title:	Printed Name and Title: DONNELL KING CUSTOMER SERVICE MANAGER
Date:	Date: 05/16/2018

Businesses

Business Registration

CIFT Extensions

Citizens Insurance Tax Credit

Composite Partnership Tax

Corporation Income & Franchise Taxes

Excise Taxes

Electric Cooperative Fee

Hazardous Waste Disposal Tax

Inspection & Supervision

Liquors - Alcoholic Beverage Permits

Liquors - Alcoholic Beverage Tax

Retail Dealers of Vapor Products

Telecommunication Tax for the Deaf

Tobacco Products Permits

Tobacco Tax

Transportation & Communication Utilities Tax

Wines Shipped Direct to Louisiana Consumers

Extension to File

File & Pay Online Now

LaTAP

LaWage - W2/L3

Online Payment Vouchers

Parish E-File

Prepaid 911 Charges

Retail Dealers of Vapor Products

Resale Certificates

Sales Taxes

Severance Taxes

Severance Oil & Gas Return

Hazardous Waste Disposal Tax

Who Must File?

All generators and disposers of hazardous waste doing business in Louisiana are required to file a return.

Rate of Tax

Disposal tax is:

1. $30 per dry-weight ton of hazardous waste both generated and disposed of at the same site in Louisiana.
2. $40 per dry-weight ton of hazardous waste disposed of in Louisiana at a site other than the site where generated.
3. $100 per dry-weight ton of extremely hazardous waste disposed of in Louisiana.

For hazardous wastes and extremely hazardous wastes generated outside of Louisiana and disposed of in Louisiana, the tax rate to be levied is the rate of tax or fee imposed on the disposal of such waste in the state where generated, but in no case shall the tax levied be less than the rate charged at the time of disposal for hazardous and extremely hazardous waste generated and disposed of in Louisiana. An affidavit showing the rate of the state where the waste was generated must accompany the tax report.

Date Tax Due

Return must be filed and taxes paid on or before the 20th day of the month following the taxable calendar quarter.

Invoice: 261204
Job No:
Invoice Date: 12/31/2017
Due Date : 12/31/2017

Customer Acct#: 2931-053 CC

SPRINT WASTE SERVICES, LP
P.O. BOX 732411
DALLAS, TX 75373-2411
PHONE: (361) 387-4180 FAX: (361) 387-4560

Location/Unit/Dept:
Site Contact:
Site Phone Number:
Haul Fee Notes:
Ordered By:

INVOICE TO: **US ECOLOGY**
3277 COUNTY ROAD 69
PO BOX 307
ROBSTOWN, TX 78380

Phone (361) 387-3518 Fax (361) 387-0794

SHIP TO: **US ECOLOGY**
RAIL TRANSFER FACILITY
CONTACT: ORLANDO LUNA 361-510-4716
US HWY 77 4 MILES SOUTH OF ROBSTOWN
CORPUS CHRISTI, TX 78415

SERVICE DATE(S)	SPRINT WO #	DRIVER TKT #	DESCRIPTION	BOX #	MANIFEST	QTY	RATE	TOTAL
			Billing Period is 12/1/2017 -- 12/31/2017	PO#: 7311				
12/4/2017		414571	TRANSFER BOXES FROM RAIL TRANSFER TO US ECOLOGY	INPLANT		11.5	$85.00	$977.50
12/5/2017		529064	IN PLANT, MOVING BOXES			11	$85.00	$935.00
12/5/2017		414572	TRANSFER BOXES FROM RAIL TRANSFER TO US ECOLOGY	INPLANT		11.5	$85.00	$977.50
12/6/2017		414573	TRANSFER BOXES FROM RAIL TRANSFER TO US ECOLOGY	INPLANT		9.5	$85.00	$807.50
12/7/2017		289637	TRANSFER BOXES FROM RAIL TRANSFER TO US ECOLOGY	INPLANT		4	$85.00	$340.00
12/12/2017		529232	WASTE WATER FROM RTF RAIL SPUR TO US ECOLOGY	INPLANT	017871992 7JJK	8.5	$85.00	$722.50
12/13/2017		529233	WASTE WATER FROM RTF RAIL SPUR TO US ECOLOGY	INPLANT		4	$85.00	$340.00
12/13/2017		289641	IN PLANT, MOVING BOXES	INPLANT		11.5	$85.00	$977.50
12/14/2017		289642	IN PLANT, MOVING BOXES	INPLANT		11	$85.00	$935.00
12/14/2017		528033	WASTE WATER FROM RTF RAIL SPUR TO US ECOLOGY	INPLANT		12	$85.00	$1,020.00
12/15/2017		289643	IN PLANT, MOVING BOXES	INPLANT		5	$85.00	$425.00
12/15/2017		528034	WASTE WATER FROM RTF RAIL SPUR TO US ECOLOGY	INPLANT		11.5	$85.00	$977.50
12/18/2017		529236	WASTE WATER FROM RTF RAIL SPUR TO US ECOLOGY	INPLANT		13	$85.00	$1,105.00
12/18/2017		526905	TRANSFER ML-25359 FROM RTF TO LANDFILL	INPLANT		3	$85.00	$255.00
12/18/2017		526906	TRANSFER ML-25061 FROM RTF TO LANDFILL	INPLANT		1.75	$85.00	$148.75
12/18/2017		526907	TRANSFER ML-25146 FROM RTF TO LANDFILL			2.5	$85.00	$212.50
12/18/2017		526908	TRANSFER ML-25232 FROM RTF TO LANDFILL			3	$85.00	$255.00
12/19/2017		529237	DISPOSED OF PRE-LOADED TRAILER / WASTE WATER FROM RTF RAIL SPUR TO US ECOLOGY		016214957 JJK / 016214957 JJK 016214957 JJK /	12	$85.00	$1,020.00
12/19/2017		526829	IN PLANT WORK - RESPOT ML-25196 / DISPOSE OF ML-25189		015010261 JJK	5.5	$85.00	$467.50
12/19/2017		528668	TRANSFER BOXES FROM RAIL TRANSFER TO US ECOLOGY			5	$85.00	$425.00

Thank you for your day net payment!

Invoice: 261204
Job No:
Invoice Date: 12/31/2017
Due Date : 12/31/2017

Customer Acct#: 2931-053 CC

SPRINT WASTE SERVICES, LP
P.O. BOX 732411
DALLAS, TX 75373-2411
PHONE: (361) 387-4180 FAX: (361) 387-4560

Location/Unit/Dept:
Site Contact:
Site Phone Number:
Haul Fee Notes:
Ordered By:

INVOICE TO: US ECOLOGY
3277 COUNTY ROAD 69
PO BOX 307
ROBSTOWN, TX 78380

Phone (361) 387-3518 Fax (361) 387-0794

SHIP TO: US ECOLOGY
RAIL TRANSFER FACILITY
CONTACT: ORLANDO LUNA 361-510-4716
US HWY 77 4 MILES SOUTH OF ROBSTOWN
CORPUS CHRISTI, TX 78415

SERVICE DATE(S)	SPRINT WO #	DRIVER TKT #	DESCRIPTION	BOX #	MANIFEST	QTY	RATE	TOTAL
12/20/2017		529240	WASTE WATER FROM RTF RAIL SPUR TO US ECOLOGY		016214957 JJK 016214959 JJK / 016214950 JJK	7.5	$85.00	$637.50
12/27/2017		526922	WASTE WATER FROM RTF RAIL SPUR TO US ECOLOGY		016214950 JJK	4.5	$85.00	$382.50
12/27/2017		526922	WASTE WATER FROM RTF RAIL SPUR TO SPRINT YARD TO UNLAOD IN THE MORNING		016214950 JJK	1	$85.00	$85.00
12/28/2017		526924	WASTE WATER FROM RTF RAIL SPUR TO US ECOLOGY		016214950 JJK	2	$85.00	$170.00
12/28/2017		526925	WASTE WATER FROM RTF RAIL SPUR TO US ECOLOGY		016214951 JJK	3	$85.00	$255.00
12/28/2017		526501	WASTE WATER FROM RTF RAIL SPUR TO US ECOLOGY		016214951 JJK	5	$85.00	$425.00
12/28/2017			FUEL SURCHARGE (NON-TARIFF)			1	$2,291.81	$2,291.81

	SubTotal :	$17,570.56
	Taxable Total :	$17,570.56
CORPUS CHRISTI	Total Tax :	$1,449.57
	Invoice Total:	$19,020.13

RECEIVED
JAN 10 2018

Accts Pay	714
Acct #	73010
Amount	$19,020.13
Approval	

Thank you for your day net payment!