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Mountain States

09/09/16

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Automated Report

Technical Report for

Diamond Operating Inc.

Whitaker Skim Pit Closure

SGS Accutest Job Number: D86033

Sampling Date: 08/23/16

Report to:

Diamond Operating Inc.
6666 Gunpark Drive Suite 200
Boulder, CO 80301
davep@flatironenergy.com

ATTN: Dave Peterson

Total number of pages in report: 78



Test results contained within this data package meet the requirements
of the National Environmental Laboratory Accreditation Program
and/or state specific certification programs as applicable.

Scott Heideman
Laboratory Director

Client Service contact: Renea Lewis 303-425-6021

Certifications: CO (CO00049), ID (CO00049), NE (NE-OS-06-04), ND (R-027), NJ (CO007), OK (D9942)
UT (NELAP CO00049), LA (LA150028), TX (T104704511), WY (8TMS-L)

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Test results relate only to samples analyzed.

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Sample Summary

Diamond Operating Inc.

Job No: D86033

Whitaker Skim Pit Closure

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D86033-1	08/23/16	19:00 DP	08/24/16	SO	Soil	WHITAKER-NORTH WALL
D86033-1A	08/23/16	19:00 DP	08/24/16	SO	Soil	WHITAKER-NORTH WALL
D86033-2	08/23/16	19:00 DP	08/24/16	SO	Soil	WHITAKER-EAST WALL
D86033-2A	08/23/16	19:00 DP	08/24/16	SO	Soil	WHITAKER-EAST WALL
D86033-3	08/23/16	19:00 DP	08/24/16	SO	Soil	WHITAKER-WEST WALL
D86033-3A	08/23/16	19:00 DP	08/24/16	SO	Soil	WHITAKER-WEST WALL
D86033-4	08/23/16	19:00 DP	08/24/16	SO	Soil	WHITAKER-SOUTH WALL
D86033-4A	08/23/16	19:00 DP	08/24/16	SO	Soil	WHITAKER-SOUTH WALL
D86033-5	08/23/16	19:00 DP	08/24/16	SO	Soil	WHITAKER-20' NE
D86033-5A	08/23/16	19:00 DP	08/24/16	SO	Soil	WHITAKER-20' NE
D86033-6	08/23/16	19:00 DP	08/24/16	SO	Soil	WHITAKER-30' NW
D86033-6A	08/23/16	19:00 DP	08/24/16	SO	Soil	WHITAKER-30' NW
D86033-7	08/23/16	19:00 DP	08/24/16	SO	Soil	WHITAKER-BASE WEST

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

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Sample Summary
(continued)

Diamond Operating Inc.

Job No: D86033

Whitaker Skim Pit Closure

Sample Number	Collected Date	Time By	Received	Matrix Code Type	Client Sample ID
D86033-7A	08/23/16	19:00 DP	08/24/16	SO Soil	WHITAKER-BASE WEST
D86033-8	08/23/16	19:00 DP	08/24/16	SO Soil	WHITAKER-BASE EAST
D86033-8A	08/23/16	19:00 DP	08/24/16	SO Soil	WHITAKER-BASE EAST

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

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Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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Calcium	39.6	2.0	mg/l	SW846 6010C
Magnesium	5.51	1.0	mg/l	SW846 6010C
Sodium	40.3	2.0	mg/l	SW846 6010C
Sodium Adsorption Ratio ^a	1.59		ratio	USDA HANDBOOK 60

Summary of Hits

Page 2 of 3

Job Number: D86033
Account: Diamond Operating Inc.
Project: Whitaker Skim Pit Closure
Collected: 08/23/16

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D86033-4	WHITAKER-SOUTH WALL					
Toluene		1.9 J	2.1	1.1	ug/kg	SW846 8260B
TPH-DRO (C10-C28)		296	11	10	mg/kg	SW846-8015B
Specific Conductivity		437	1.0		umhos/cm	SM 2510B-2011 MOD
pH		8.75			su	SW846 9045D
D86033-4A	WHITAKER-SOUTH WALL					
Calcium		29.8	2.0		mg/l	SW846 6010C
Magnesium		5.13	1.0		mg/l	SW846 6010C
Sodium		59.1	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^a		2.63			ratio	USDA HANDBOOK 60
D86033-5	WHITAKER-20' NE					
Specific Conductivity		265	1.0		umhos/cm	SM 2510B-2011 MOD
pH		9.14			su	SW846 9045D
D86033-5A	WHITAKER-20' NE					
Calcium		22.2	2.0		mg/l	SW846 6010C
Magnesium		3.33	1.0		mg/l	SW846 6010C
Sodium		30.5	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^a		1.59			ratio	USDA HANDBOOK 60
D86033-6	WHITAKER-30' NW					
Specific Conductivity		356	1.0		umhos/cm	SM 2510B-2011 MOD
pH		9.13			su	SW846 9045D
D86033-6A	WHITAKER-30' NW					
Calcium		32.2	2.0		mg/l	SW846 6010C
Magnesium		4.82	1.0		mg/l	SW846 6010C
Sodium		28.4	2.0		mg/l	SW846 6010C
Sodium Adsorption Ratio ^a		1.23			ratio	USDA HANDBOOK 60
D86033-7	WHITAKER-BASE WEST					
Toluene		1.7 J	2.2	1.1	ug/kg	SW846 8260B
Xylene (total)		1.2 J	2.3	1.1	ug/kg	SW846 8260B
TPH-DRO (C10-C28)		139	11	10	mg/kg	SW846-8015B
Specific Conductivity		373	1.0		umhos/cm	SM 2510B-2011 MOD
pH		9.09			su	SW846 9045D

Summary of Hits

Job Number: D86033
 Account: Diamond Operating Inc.
 Project: Whitaker Skim Pit Closure
 Collected: 08/23/16

Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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D86033-7A WHITAKER-BASE WEST

Calcium	35.0	2.0			mg/l	SW846 6010C
Magnesium	5.25	1.0			mg/l	SW846 6010C
Sodium	35.2	2.0			mg/l	SW846 6010C
Sodium Adsorption Ratio ^a	1.47				ratio	USDA HANDBOOK 60

D86033-8 WHITAKER-BASE EAST

Toluene	1.8 J	2.2	1.1		ug/kg	SW846 8260B
TPH-DRO (C10-C28)	60.7	11	10		mg/kg	SW846 8015B
Specific Conductivity	487	1.0			umhos/cm	SM 2510B-2011 MOD
pH	9.10				su	SW846 9045D

D86033-8A WHITAKER-BASE EAST

Calcium	53.2	2.0			mg/l	SW846 6010C
Magnesium	7.18	1.0			mg/l	SW846 6010C
Sodium	36.9	2.0			mg/l	SW846 6010C
Sodium Adsorption Ratio ^a	1.26				ratio	USDA HANDBOOK 60

(a) Calculated as: (Na meq/L) / sqrt [(Ca meq/L) + (Mg meq/L)/2]

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Section 3



Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	WHITAKER-NORTH WALL	Date Sampled:	08/23/16
Lab Sample ID:	D86033-1	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	93.7
Method:	SW846 8260B		
Project:	Whitaker Skim Pit Closure		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V38606.D	1	08/30/16	MB	n/a	n/a	V3V2187
Run #2							

Run #	Initial Weight	Final Volume
Run #1	4.97 g	5.0 ml
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.58	1.1	0.54	ug/kg	J
108-88-3	Toluene	1.8	2.1	1.1	ug/kg	J
100-41-4	Ethylbenzene	ND	2.1	0.54	ug/kg	
1330-20-7	Xylene (total)	ND	2.3	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	120%		70-130%
2037-26-5	Toluene-D8	98%		64-130%
460-00-4	4-Bromofluorobenzene	97%		62-131%
17060-07-0	1,2-Dichloroethane-D4	113%		70-130%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WHITAKER-NORTH WALL					Date Sampled:	08/23/16
Lab Sample ID:	D86033-1					Date Received:	08/24/16
Matrix:	SO - Soil					Percent Solids:	93.7
Method:	SW846 8015B						
Project:	Whitaker Skim Pit Closure						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA34435.D	1	08/24/16	AK	n/a	n/a	GCA1737
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	11	5.7	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
120-82-1	1,2,4-Trichlorobenzene	98%		60-140%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: WHITAKER-NORTH WALL
 Lab Sample ID: D86033-1
 Matrix: SO - Soil
 Method: SW846-8015B SW846 3546
 Project: Whitaker Skim Pit Closure

Date Sampled: 08/23/16
 Date Received: 08/24/16
 Percent Solids: 93.7

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI43796.D	1	09/02/16	CN	08/29/16	OP14006	GFI1920
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	51.4	11	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	62%		41-134%		

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WHITAKER-NORTH WALL	Date Sampled:	08/23/16
Lab Sample ID:	D86033-1	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	93.7
Project:	Whitaker Skim Pit Closure		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	93.7		%	1	08/25/16	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	352	1.0	umhos/cm	1	08/31/16	JD	SM 2510B-2011 MOD
pH	8.75		su	1	08/25/16 14:00	TB	SW846 9045D

RL = Reporting Limit

Report of Analysis

Client Sample ID: WHITAKER-NORTH WALL

Lab Sample ID: D86033-1A

Matrix: SO - Soil

Project: Whitaker Skim Pit Closure

Date Sampled: 08/23/16

Date Received: 08/24/16

Percent Solids: 93.7

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	39.9	2.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	5.32	1.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Sodium	35.2	2.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA7685

(2) Prep QC Batch: MP19652

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WHITAKER-NORTH WALL	Date Sampled:	08/23/16
Lab Sample ID:	D86033-1A	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	93.7
Project:	Whitaker Skim Pit Closure		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	1.39		ratio	1	09/07/16 22:09	JM	USDA HANDBOOK 60

(a) Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

Report of Analysis

Client Sample ID:	WHITAKER-EAST WALL	Date Sampled:	08/23/16
Lab Sample ID:	D86033-2	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	94.6
Method:	SW846 8260B		
Project:	Whitaker Skim Pit Closure		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V38607.D	1	08/30/16	MB	n/a	n/a	V3V2187
Run #2							

Run #	Initial Weight	Final Volume
Run #1	4.98 g	5.0 ml
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.1	0.53	ug/kg	
108-88-3	Toluene	1.6	2.1	1.1	ug/kg	J
100-41-4	Ethylbenzene	ND	2.1	0.53	ug/kg	
1330-20-7	Xylene (total)	ND	2.2	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	111%		70-130%
2037-26-5	Toluene-D8	98%		64-130%
460-00-4	4-Bromofluorobenzene	101%		62-131%
17060-07-0	1,2-Dichloroethane-D4	109%		70-130%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WHITAKER-EAST WALL	Date Sampled:	08/23/16
Lab Sample ID:	D86033-2	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	94.6
Method:	SW846 8015B		
Project:	Whitaker Skim Pit Closure		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA34436.D	1	08/25/16	AK	n/a	n/a	GCA1737
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	11	5.5	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	97%		60-140%		

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WHITAKER-EAST WALL				
Lab Sample ID:	D86033-2			Date Sampled:	08/23/16
Matrix:	SO - Soil			Date Received:	08/24/16
Method:	SW846-8015B SW846 3546			Percent Solids:	94.6
Project:	Whitaker Skim Pit Closure				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI43798.D	1	09/02/16	GN	08/29/16	OP14006	GFI1920
Run #2							

	Initial Weight	Final Volume
Run #1	20.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	75.1	11	10	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	78%		41-134%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WHITAKER-EAST WALL	Date Sampled:	08/23/16
Lab Sample ID:	D86033-2	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	94.6
Project:	Whitaker Skim Pit Closure		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	94.6		%	1	08/25/16	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	449	1.0	umhos/cm	1	08/31/16	JD	SM 2510B-2011 MOD
pH	8.71		su	1	08/25/16 14:00	TB	SW846 9045D

Report of Analysis

Client Sample ID: WHITAKER-EAST WALL

Lab Sample ID: D86033-2A

Matrix: SO - Soil

Date Sampled: 08/23/16

Date Received: 08/24/16

Percent Solids: 94.6

Project: Whitaker Skim Pit Closure

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	46.0	2.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	6.32	1.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Sodium	39.5	2.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA7685

(2) Prep QC Batch: MP19652

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WHITAKER-EAST WALL	Date Sampled:	08/23/16
Lab Sample ID:	D86033-2A	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	94.6
Project:	Whitaker Skim Pit Closure		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	1.45		ratio	1	09/07/16 23:01	JM	USDA HANDBOOK 60

(a) Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

Report of Analysis

Client Sample ID:	WHITAKER-WEST WALL			Date Sampled:	08/23/16
Lab Sample ID:	D86033-3			Date Received:	08/24/16
Matrix:	SO - Soil			Percent Solids:	93.6
Method:	SW846 8260B				
Project:	Whitaker Skim Pit Closure				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V38608.D	1	08/30/16	MB	n/a	n/a	V3V2187
Run #2							

	Initial Weight	Final Volume
Run #1	5.01 g	5.0 ml
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.1	0.53	ug/kg	
108-88-3	Toluene	1.8	2.1	1.1	ug/kg	J
100-41-4	Ethylbenzene	ND	2.1	0.53	ug/kg	
1330-20-7	Xylene (total)	ND	2.2	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	111%		70-130%
2037-26-5	Toluene-D8	98%		64-130%
460-00-4	4-Bromofluorobenzene	99%		62-131%
17060-07-0	1,2-Dichloroethane-D4	109%		70-130%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WHITAKER-WEST WALL			Date Sampled:	08/23/16
Lab Sample ID:	D86033-3			Date Received:	08/24/16
Matrix:	SO - Soil			Percent Solids:	93.6
Method:	SW846 8015B				
Project:	Whitaker Skim Pit Closure				

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA34437.D	1	08/25/16	AK	n/a	n/a	GGA1737
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	11	5.7	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	98%		60-140%		

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WHITAKER-WEST WALL					Date Sampled:	08/23/16
Lab Sample ID:	D86033-3					Date Received:	08/24/16
Matrix:	SO - Soil					Percent Solids:	93.6
Method:	SW846-8015B SW846 3546						
Project:	Whitaker Skim Pit Closure						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI43800.D	1	09/02/16	GN	08/29/16	OP14006	GFI1920
Run #2							

	Initial Weight	Final Volume
Run #1	20.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	62.3	11	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	74%		41-134%		

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: WHITAKER-WEST WALL

Lab Sample ID: D86033-3

Matrix: SO - Soil

Project: Whitaker Skim Pit Closure

Date Sampled: 08/23/16

Date Received: 08/24/16

Percent Solids: 93.6

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	93.6		%	1	08/25/16	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	413	1.0	umhos/cm	1	08/31/16	JD	SM 2510B-2011 MOD
pH	8.86		su	1	08/25/16 14:00	TB	SW846 9045D

RL = Reporting Limit



Report of Analysis

Client Sample ID: WHITAKER-WEST WALL

Lab Sample ID: D86033-3A

Matrix: SO - Soil

Project: Whitaker Skim Pit Closure

Date Sampled: 08/23/16

Date Received: 08/24/16

Percent Solids: 93.6

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	39.6	2.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	5.51	1.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Sodium	40.3	2.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA7685

(2) Prep QC Batch: MP19652

Report of Analysis

Client Sample ID:	WHITAKER-WEST WALL	Date Sampled:	08/23/16
Lab Sample ID:	D86033-3A	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	93.6
Project:	Whitaker Skim Pit Closure		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	1.59		ratio	1	09/07/16 23:08	JM	USDA HANDBOOK 60

(a) Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

Report of Analysis

Client Sample ID:	WHITAKER-SOUTH WALL					Date Sampled:	08/23/16
Lab Sample ID:	D86033-4					Date Received:	08/24/16
Matrix:	SO - Soil					Percent Solids:	93.5
Method:	SW846 8260B						
Project:	Whitaker Skim Pit Closure						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V38609.D	1	08/30/16	MB	n/a	n/a	V3V2187
Run #2							

	Initial Weight	Final Volume
Run #1	4.99 g	5.0 ml
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.1	0.54	ug/kg	
108-88-3	Toluene	1.9	2.1	1.1	ug/kg	J
100-41-4	Ethylbenzene	ND	2.1	0.54	ug/kg	
1330-20-7	Xylene (total)	ND	2.3	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	113%		70-130%
2037-26-5	Toluene-D8	99%		64-130%
460-00-4	4-Bromofluorobenzene	101%		62-131%
17060-07-0	1,2-Dichloroethane-D4	108%		70-130%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WHITAKER-SOUTH WALL					Date Sampled:	08/23/16
Lab Sample ID:	D86033-4					Date Received:	08/24/16
Matrix:	SO - Soil					Percent Solids:	93.5
Method:	SW846 8015B						
Project:	Whitaker Skim Pit Closure						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA34438.D	1	08/25/16	AK	n/a	n/a	GCA1737
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	11	5.7	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	107%		60-140%		

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WHITAKER-SOUTH WALL			Date Sampled:	08/23/16
Lab Sample ID:	D86033-4			Date Received:	08/24/16
Matrix:	SO - Soil			Percent Solids:	93.5
Method:	SW846-8015B SW846 3546				
Project:	Whitaker Skim Pit Closure				

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI43802.D	1	09/02/16	CN	08/29/16	OP14006	GF11920
Run #2							

	Initial Weight	Final Volume
Run #1	20.1 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	296	11	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	73%		41-134%		

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WHITAKER-SOUTH WALL	Date Sampled:	08/23/16
Lab Sample ID:	D86033-4	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	93.5
Project:	Whitaker Skim Pit Closure		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	93.5		%	1	08/25/16	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	437	1.0	umhos/cm	1	08/31/16	JD	SM 2510B-2011 MOD
pH	8.75		su	1	08/25/16 14:00	TB	SW846 9045D

Report of Analysis

Client Sample ID: WHITAKER-SOUTH WALL

Lab Sample ID: D86033-4A

Matrix: SO - Soil

Date Sampled: 08/23/16

Date Received: 08/24/16

Percent Solids: 93.5

Project: Whitaker Skim Pit Closure

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	29.8	2.0	mg/l	1	09/01/16	09/08/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	5.13	1.0	mg/l	1	09/01/16	09/08/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Sodium	59.1	2.0	mg/l	1	09/01/16	09/08/16 JM	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA7688

(2) Prep QC Batch: MP19652

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WHITAKER-SOUTH WALL	Date Sampled:	08/23/16
Lab Sample ID:	D86033-4A	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	93.5
Project:	Whitaker Skim Pit Closure		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	2.63		ratio	1	09/08/16 11:30	JM	USDA HANDBOOK 60

(a) Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

Report of Analysis

Client Sample ID: WHITAKER-20' NE

Lab Sample ID: D86033-5

Matrix: SO - Soil

Date Sampled: 08/23/16

Date Received: 08/24/16

Percent Solids: 93.5

Project: Whitaker Skim Pit Closure

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	93.5		%	1	08/25/16	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	265	1.0	umhos/cm	1	08/31/16	JD	SM 2510B-2011 MOD
pH	9.14		su	1	08/25/16 14:00	TB	SW846 9045D

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WHITAKER-20' NE	Date Sampled:	08/23/16
Lab Sample ID:	D86033-5A	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	93.5
Project:	Whitaker Skim Pit Closure		

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	22.2	2.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	3.33	1.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Sodium	30.5	2.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA7685

(2) Prep QC Batch: MP19652

Report of Analysis

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Client Sample ID: WHITAKER-20' NE
Lab Sample ID: D86033-5A
Matrix: SO - Soil
Project: Whitaker Skim Pit Closure

Date Sampled: 08/23/16
Date Received: 08/24/16
Percent Solids: 93.5

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	1.59		ratio	1	09/07/16 23:22	JM	USDA HANDBOOK 60

(a) Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WHITAKER-30' NW	Date Sampled:	08/23/16
Lab Sample ID:	D86033-6	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	93.3
Project:	Whitaker Skim Pit Closure		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	93.3		%	1	08/25/16	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	356	1.0	umhos/cm	1	08/31/16	JD	SM 2510B-2011 MOD
pH	9.13		su	1	08/25/16 14:00	TB	SW846 9045D

RL = Reporting Limit

Report of Analysis

Page 1 of 1

Client Sample ID: WHITAKER-30' NW

Lab Sample ID: D86033-6A

Matrix: SO - Soil

Date Sampled: 08/23/16

Date Received: 08/24/16

Percent Solids: 93.3

Project: Whitaker Skim Pit Closure

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	32.2	2.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	4.82	1.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Sodium	28.4	2.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA7685

(2) Prep QC Batch: MP19652

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WHITAKER-30' NW	Date Sampled:	08/23/16
Lab Sample ID:	D86033-6A	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	93.3
Project:	Whitaker Skim Pit Closure		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	1.23		ratio	1	09/07/16 23:29	JM	USDA HANDBOOK 60

(a) Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

Report of Analysis

Client Sample ID: WHITAKER-BASE WEST
 Lab Sample ID: D86033-7
 Matrix: SO - Soil
 Method: SW846 8260B
 Project: Whitaker Skim Pit Closure

Date Sampled: 08/23/16
 Date Received: 08/24/16
 Percent Solids: 93.1

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V38610.D	1	08/30/16	MB	n/a	n/a	V3V2187
Run #2							

Run #	Initial Weight	Final Volume
Run #1	4.96 g	5.0 ml
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.1	0.54	ug/kg	
108-88-3	Toluene	1.7	2.2	1.1	ug/kg	J
100-41-4	Ethylbenzene	ND	2.2	0.54	ug/kg	
1330-20-7	Xylene (total)	1.2	2.3	1.1	ug/kg	J

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	111%		70-130%
2037-26-5	Toluene-D8	96%		64-130%
460-00-4	4-Bromofluorobenzene	101%		62-131%
17060-07-0	1,2-Dichloroethane-D4	105%		70-130%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WHITAKER-BASE WEST	Date Sampled:	08/23/16
Lab Sample ID:	D86033-7	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	93.1
Method:	SW846 8015B		
Project:	Whitaker Skim Pit Closure		

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA34439.D	1	08/25/16	AK	n/a	n/a	GGA1737
Run #2							

	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.0 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH GRO (C6-C10)	ND	11	5.7	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	102%		60-140%		

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WHITAKER-BASE WEST					Date Sampled:	08/23/16
Lab Sample ID:	D86033-7					Date Received:	08/24/16
Matrix:	SO - Soil					Percent Solids:	93.1
Method:	SW846-8015B SW846 3546						
Project:	Whitaker Skim Pit Closure						

	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI43804.D	1	09/02/16	GN	08/29/16	OP14006	GFI1920
Run #2							

	Initial Weight	Final Volume
Run #1	20.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	139	11	10	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
84-15-1	o-Terphenyl	79%		41-134%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WHITAKER-BASE WEST	Date Sampled:	08/23/16
Lab Sample ID:	D86033-7	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	93.1
Project:	Whitaker Skim Pit Closure		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	93.1		%	1	08/25/16	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	373	1.0	umhos/cm	1	08/31/16	JD	SM 2510B-2011 MOD
pH	9.09		su	1	08/25/16 14:00	TB	SW846 9045D

RL = Reporting Limit

Report of Analysis

Client Sample ID: WHITAKER-BASE WEST

Lab Sample ID: D86033-7A

Matrix: SO - Soil

Project: Whitaker Skim Pit Closure

Date Sampled: 08/23/16

Date Received: 08/24/16

Percent Solids: 93.1

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	35.0	2.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	5.25	1.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Sodium	35.2	2.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA7685

(2) Prep QC Batch: MP19652

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WHITAKER-BASE WEST	Date Sampled:	08/23/16
Lab Sample ID:	D86033-7A	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	93.1
Project:	Whitaker Skim Pit Closure		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	1.47		ratio	1	09/07/16 23:36	JM	USDA HANDBOOK 60

(a) Calculated as: $(\text{Na meq/L}) / \text{sqr}[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]$

Report of Analysis

Client Sample ID:	WHITAKER-BASE EAST	Date Sampled:	08/23/16
Lab Sample ID:	D86033-8	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	93.1
Method:	SW846 8260B		
Project:	Whitaker Skim Pit Closure		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	3V38611.D	1	08/30/16	MB	n/a	n/a	V3V2187
Run #2							

Run #	Initial Weight	Final Volume
Run #1	4.98 g	5.0 ml
Run #2		

Purgeable Aromatics

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	1.1	0.54	ug/kg	
108-88-3	Toluene	1.8	2.2	1.1	ug/kg	J
100-41-4	Ethylbenzene	ND	2.2	0.54	ug/kg	
1330-20-7	Xylene (total)	ND	2.3	1.1	ug/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	114%		70-130%
2037-26-5	Toluene-D8	98%		64-130%
460-00-4	4-Bromofluorobenzene	100%		62-131%
17060-07-0	1,2-Dichloroethane-D4	113%		70-130%

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: WHITAKER-BASE EAST
 Lab Sample ID: D86033-8
 Matrix: SO - Soil
 Method: SW846 8015B
 Project: Whitaker Skim Pit Closure

Date Sampled: 08/23/16
 Date Received: 08/24/16
 Percent Solids: 93.1

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	GA34440.D	1	08/25/16	AK	n/a	n/a	GGA1737
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	5.0 ml	100 ul
Run #2			

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-GRO (C6-C10)	ND	11	5.7	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
120-82-1	1,2,4-Trichlorobenzene	98%		60-140%		

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID:	WHITAKER-BASE EAST			Date Sampled:	08/23/16
Lab Sample ID:	D86033-8			Date Received:	08/24/16
Matrix:	SO - Soil			Percent Solids:	93.1
Method:	SW846-8015B SW846 3546				
Project:	Whitaker Skim Pit Closure				

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	FI43806.D	1	09/02/16	CN	08/29/16	OP14006	GFI1920
Run #2							

Run #	Initial Weight	Final Volume
Run #1	20.0 g	1.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
	TPH-DRO (C10-C28)	60.7	11	10	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
84-15-1	o-Terphenyl	71%		41-134%		

ND = Not detected MDL = Method Detection Limit
 RL = Reporting Limit
 E = Indicates value exceeds calibration range

J = Indicates an estimated value
 B = Indicates analyte found in associated method blank
 N = Indicates presumptive evidence of a compound

Report of Analysis

Client Sample ID: WHITAKER-BASE EAST
Lab Sample ID: D86033-8
Matrix: SO - Soil
Project: Whitaker Skim Pit Closure

Date Sampled: 08/23/16
Date Received: 08/24/16
Percent Solids: 93.1

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
%solids							
Solids, Percent	93.1		%	1	08/25/16	SWT	SM2540G-2011 M
prep: DEPT.OF AG, BOOK N9							
Specific Conductivity	487	1.0	umhos/cm	1	08/31/16	JD	SM 2510B-2011 MOD
pH	9.10		su	1	08/25/16 14:00	TB	SW846 9045D

RL = Reporting Limit

Report of Analysis

Client Sample ID: WHITAKER-BASE EAST
Lab Sample ID: D86033-8A
Matrix: SO - Soil
Project: Whitaker Skim Pit Closure

Date Sampled: 08/23/16
Date Received: 08/24/16
Percent Solids: 93.1

SAR Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Calcium	53.2	2.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Magnesium	7.18	1.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²
Sodium	36.9	2.0	mg/l	1	09/01/16	09/07/16 JM	SW846 6010C ¹	SW846 3010A/M ²

(1) Instrument QC Batch: MA7685

(2) Prep QC Batch: MP19652

RL = Reporting Limit

Report of Analysis

Client Sample ID:	WHITAKER-BASE EAST	Date Sampled:	08/23/16
Lab Sample ID:	D86033-8A	Date Received:	08/24/16
Matrix:	SO - Soil	Percent Solids:	93.1
Project:	Whitaker Skim Pit Closure		

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Sodium Adsorption Ratio ^a	1.26		ratio	1	09/07/16 23:43	JM	USDA HANDBOOK 60

(a) Calculated as: $(\text{Na meq/L}) / \sqrt{[(\text{Ca meq/L}) + (\text{Mg meq/L})/2]}$

RL = Reporting Limit