

State of Colorado
Oil and Gas Conservation Commission



1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109

FOR OGCC USE ONLY

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

OGCC Employee:
 Spill Complaint
 Inspection NOAV
 Tracking No:

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

Spill or Release Plug & Abandon Central Facility Closure Site/Facility Closure Other (describe): _____

OGCC Operator Number: <u>95960</u>	Contact Name and Telephone: <u>April Stegall</u>
Name of Operator: <u>Wexpro Company</u>	No: <u>307.352.7561</u>
Address: <u>PO Box 458</u>	Fax: <u>307.352.7583</u>
City: <u>Rock Springs</u> State: <u>WY</u> Zip: <u>82901</u>	
API Number: <u>05-081-06894</u> County: <u>Moffat County</u>	
Facility Name: <u>BW Musser 22 Pit</u> Facility Number: <u>113332</u>	
Well Name: <u>BW Musser</u> Well Number: <u>22</u>	
Location: (QtrQtr, Sec, Twp, Rng, Meridian): <u>SWNW-4-11N-97W</u> Latitude: <u>40.942686</u> Longitude: <u>-108.30575</u>	

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): Produced Water

Site Conditions: Is location within a sensitive area (according to Rule 901e)? Y N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Rangeland, Non-cropland

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Tresano-Hiatha-Kandaly

Potential receptors (water wells within 1/4 mi, surface waters, etc.): 1216' from natural drainage, 1704' from nearest water well

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):	Extent of Impact:	How Determined:
<input checked="" type="checkbox"/> Soils	<u>Minimal</u>	<u>Soil Analysis</u>
<input type="checkbox"/> Vegetation	_____	_____
<input type="checkbox"/> Groundwater	_____	_____
<input type="checkbox"/> Surface Water	_____	_____

REMEDATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

Pit is closed. Pit appears to have been closed between 2006 and 2011. See pit closure procedure.

Describe how source is to be removed:

See attached pit closure procedure.

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:

See attached pit closure procedure.

FORM
27
Rev 6/99

State of Colorado
Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801, Denver, Colorado 80203
(303)894-2100 Fax: (303)894-2109



Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: _____
Facility Name & No: _____

Page 2

REMEDIATION WORKPLAN (Cont.)

OGCC Employee: _____

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

See attached pit closure procedure.

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

Pit has been backfilled to grade.
See attached pit closure procedure.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? Y N If yes, describe:

Composite samples of the pit floor and sidewalls were taken in 2015, and meet Table 910-1 requirements (see attached soil analysis). Two core samples will be taken as confirmation of composite samples. Background (offsite) samples will not be obtained, as attached arsenic map shows that arsenic levels in the pit were within reasonable range of samples previously taken within a 1 mile radius.

Core samples will be obtained upon approval from COGCC.
See attached pit closure procedure.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

See attached pit closure procedure.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 2015 Date Site Investigation Completed: 2016 Date Remediation Plan Submitted: _____
Remediation Start Date: NA Anticipated Completion Date: 2016 Actual Completion Date: TBD

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: April Stegall Signed: *April Stegall*
Title: Reclamation Agent Date: 8/22/2016

OGCC Approved: _____ Title: _____ Date: _____

“Describe initial action taken”:

First, a visual inspection will be performed; looking for signs of stained soil and any potential leeching of pit components that may have impacted surface water or groundwater. Other attachments include the following: NRC soil map description, topographic map and/or Google Earth image and additional information detailing the distance to the nearest water source, estimated groundwater depth and distance from the nearest water well.

Wexpro Company will determine, as best as possible, the location, size and estimated closure date of the pit by using sundries, permits, historic Google Earth imagery, site security diagrams and knowledge of the area obtained from long term Wexpro Company personnel.

It is believed that most, if not all, pits in the Hiawatha/Powder Wash area were lined with bentonite liners. These liners would have been broken up during the process of “stirring and airing” that occurs on all Wexpro Company pits prior to sampling.

“Describe how source is to be removed”:

72 hour notification will be given to COGCC prior to sampling.

The pit will be located in the field based on information provided by Wexpro Company (*ex: COGCC inspections, site security diagrams, historic imagery, sundries, permits, personnel, visual inspection*).

Pit samples will be obtained using a sampling method capable of collecting representative soil samples (i.e. Geoprobe, auger/split spoon, hand auger, etc.).

The pit has been sampled previously, one core sample will be taken as confirmation of the previously taken composite samples, due to the cost of third party sampling and soil analysis. One sample will be taken from the sidewall. If the location of the load line’s discharge to the pit is known, a sample of the wall opposite of the load line’s discharge will be taken for this sample.

Background reference samples will also be obtained (*unless done previously*). Depth of samples will be determined by visual observations during sampling, as to best obtain a sample of the native soil. Crews will be watching for indications of groundwater during sampling. If groundwater is encountered, COGCC will be notified immediately.

All samples will be sent to a lab and tested according to Table 910-1. Testing results will be submitted to COGCC with an attached Form 4 Sundry, or new Form 27.

GPS coordinates (meeting Rule 215 requirements) for sampling points and depths will be provided with Form 27 and soil analysis results. All samples will be mapped and submitted with soil analysis results.

If samples meet Table 910-1 requirements, Wexpro Company will request closure of the facility in the COGCC database and NFA. If pit depth is known, it will be referenced in the Final Form 27 in comparison to depth at which pit samples were obtained. If samples do not meet Table 910-1 requirements, another Form 27 with remediation plan will be submitted.

“Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.”:

To be determined after soil analysis. If remediation is necessary, an additional Form 27 with remediation plan will be submitted.

In the event that pit tests high for EC/SAR/pH, COGCC requires that materials with elevated pH, SAR, or EC be buried under a minimum of three (3) feet of backfill cover and soil that satisfies either the Table 910-1 levels for pH, SAR, and EC or the background levels for such contaminants within three (3) feet of the ground surface at the site. In addition, the soil horizons must be replaced in their original relative position and reclaimed in accordance with 1000 Series Rules, including the establishment of vegetative cover on non-cropland and successful crop growth on cropland. During final reclamation of the well pad, the pits will be backfilled and re-contoured with the well pad (if not previously done). Berm dirt will be knocked into the pit area and compacted. If less than 3' of backfill material is required, soils used for production pit berms will include a confirmation soil sample to demonstrate that soil is below Table 910-1 standards. Additional material, if needed, will be agronomic topsoil, brought in from a commercial or offsite source.

“If groundwater has been impacted, describe proposed monitoring plan”:

To be determined, if necessary. In the event that groundwater has been potentially impacted, the extent will be determined and Wexpro Company will submit a monitoring plan to COGCC. In general, a minimum of at least one up-gradient and three down-gradient monitoring wells will be required. The actual number will be dependent upon site specific conditions.

“Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required”:

Surface reclamation will be compliant with COGCC 1000 series rules. Wexpro Company understands that approval of a Form 27 does not imply approval of the reclamation planned submitted prior to final reclamation of the well pad. Wexpro Company will notify the COGCC Regional Reclamation Specialist and Surface Owner for reclamation plan approval prior to final reclamation. All reclamation on Federal Surface will comply with BLM, or other implementing agency, specifications. Final reclamation will take place after the plugging and abandonment of the well.

“Attach samples and analytical results taken to verify remediation impacts. Show locations of samples on an onsite schematic or drawing. Is further site investigation required? If yes, describe”:

Soil investigation for the project will be carried out as described above. All analytical data obtained will be submitted to COGCC, on an attached Form 4 Sundry, or new Form 27.

“Final disposition of E&P waste (land treated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.)”:

To be determined, if necessary. Final disposition of any E&P waste will be documented and submitted to COGCC. This includes haul tickets, volume of soil, etc.



Wexpro Company
2221 Westgate Dr.
P.O. Box 458
Rock Springs, WY 82902
Tel (307) 352-7500
Fax (307) 352-7575

Jimmy L. Druce
General Manager
Direct: (307)352-7555
Jimmy.Druce@questar.com

5/19/2016

Kris Neidel
COGCC
1120 Lincoln St., Suite 801
Denver, CO 80203

Pit Maintenance and History in Wexpro Company Hiawatha/Powder Wash fields

Dear Mr. Neidel:

I worked as an Operator/Chief Operator in Colorado's Powder Wash and Hiawatha fields for Wexpro Company between the years of 1984 and 2002. Upon my hiring, Carl Foster, who also worked for Wexpro, taught myself and the other operators procedures for production/water drain pit cleaning/maintenance.

The procedures were as follows; For several years pit with visible oil in them were either burned or soaked with hot water and skimmed. Burning of the pits was standard until regulations prohibited the practice.

When soaking and skimming would occur, hot water would be added to the pits. After the addition of hot water to the pits, the pits were allowed to "soak" for a minimum of 3 hours allowing the oil to separate from the water and come to the surface. After the oil and water separated, the oil would be skimmed off via tanker truck and the pits drained of water. Oil skimmed from the pits would be added to the condensate tanks, and the water would be added to the water tanks or hauled for disposal at a commercial source. This process was repeated continuously until there was no more visible oil in the pits.

This procedure was passed along during and after my departure from the Hiawatha and Powder Wash fields, and continues to be used today.

Kind regards,

Jimmy Druce
General Manager

For questions, please call April Stegall at 307-352-7561 or 307-371-3610.

Facility #113332

historic imagery-2006
pit appears to have been closed between 2006 & 2011

Legend
Feature 1

40.942686, -108.30575

BW Musser 22

x proposed sampling points

100 ft



Google earth

Image USDA Farm Service Agency

PUMP INSTALLATION REPORT

Pump Type MARKS SUBMERSTIBLE

Make MARKS GRUNDFOS

Powered by HATACHI HP 15

Pump Model No. SP44DS

Motor Serial No. _____

Date Installed 1-22-90

Pump Intake Depth 766'

Remarks _____

WELL TEST DATA WITH PERMANENT PUMP

Date Tested 1-22-90

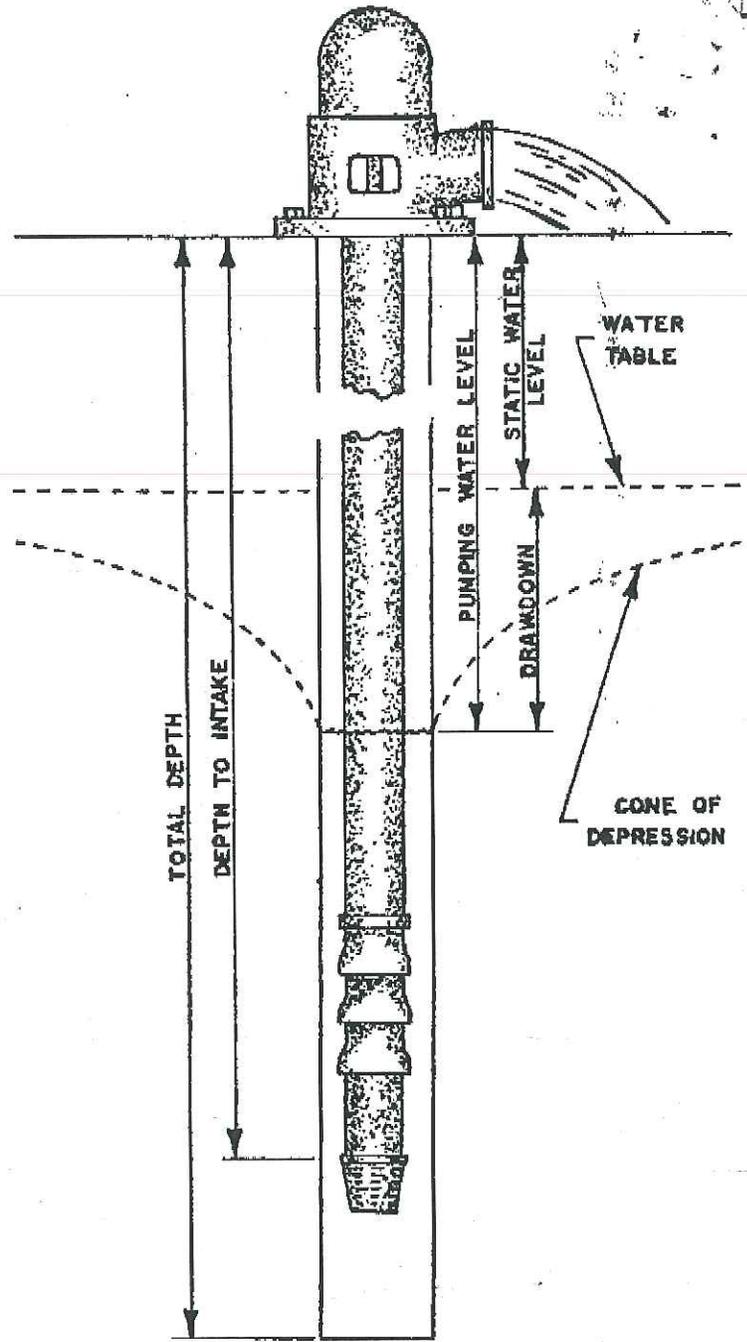
Static Water Level Prior to Test 639'

Length of Test 1 Hours

Sustained yield (Metered) 37 GPM

Pumping Water Level 761'

Remarks _____



CONTRACTORS STATEMENT

The undersigned, being duly sworn upon oath, deposes and says that he is the contractor of the well or pump installation described hereon; that he has read the statement made hereon; knows the content thereof, and that the same is true of his own knowledge.

Signature Howard W. Ritchie License No. 1093

State of Colorado, County of _____ SS

Subscribed and sworn to before me this _____ day of _____, 19 _____.

My Commission expires: _____, 19 _____.

Notary Public _____

FORM TO BE MADE OUT IN QUADRUPPLICATE: WHITE FORM must be an original copy on both sides and signed, WHITE AND GREEN copies must be filed with the State Engineer. PINK COPY is for the Owner and YELLOW COPY is for the Driller.

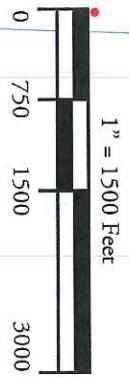
Nearest water well

32

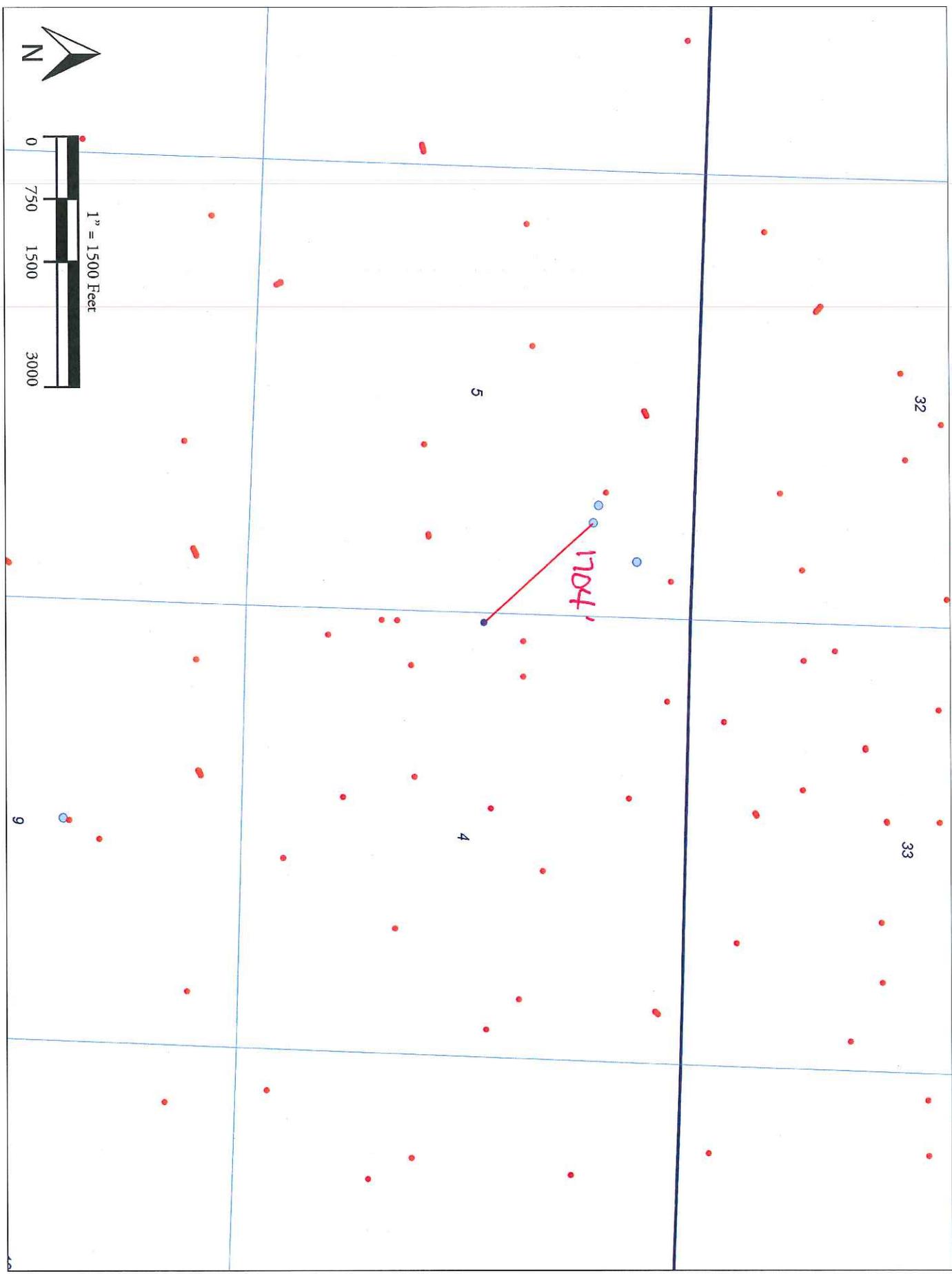
33

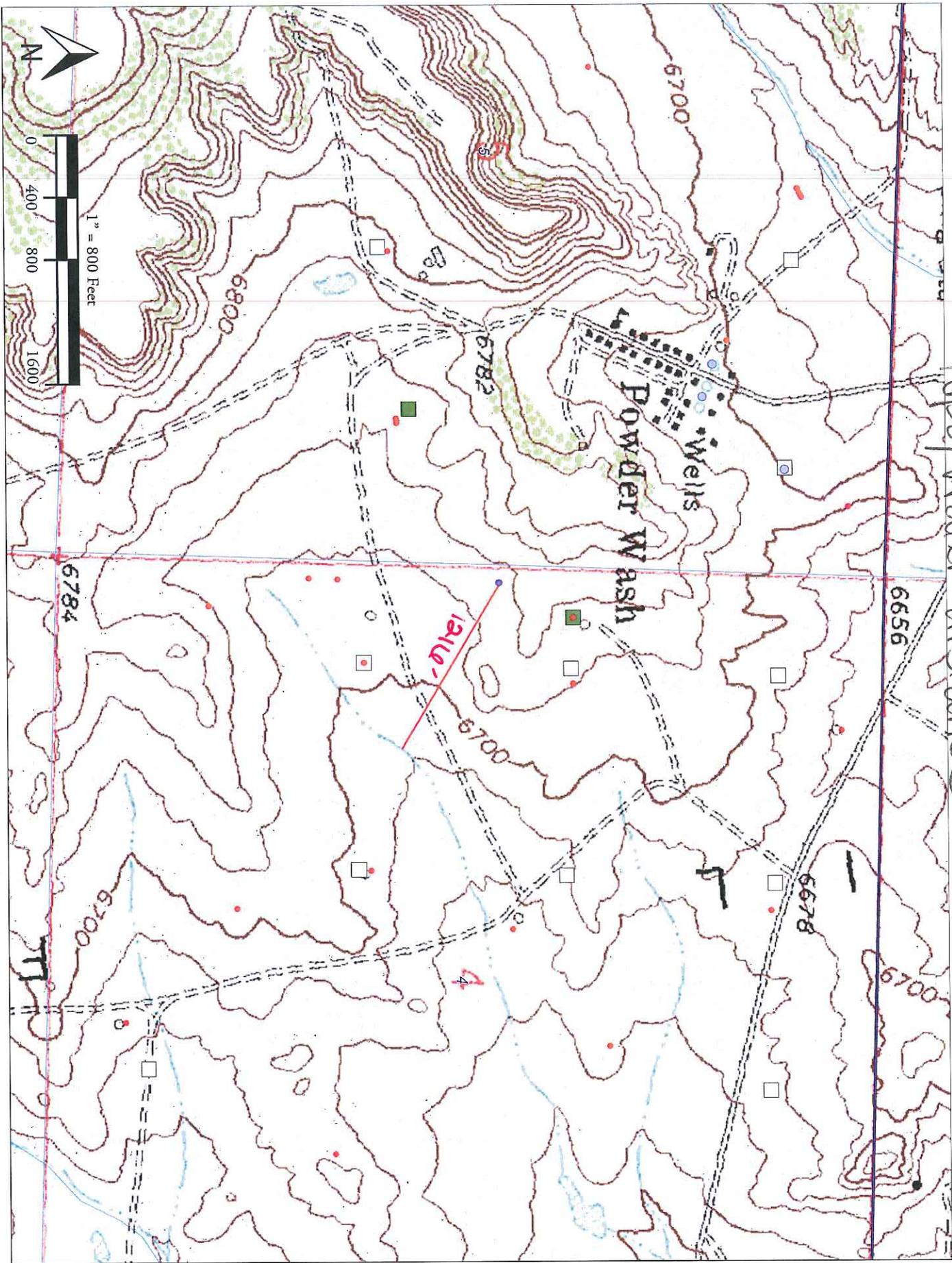
5

4



9





topo/water distance

6656

6678

6700

6700

6700

6782

6800

6700

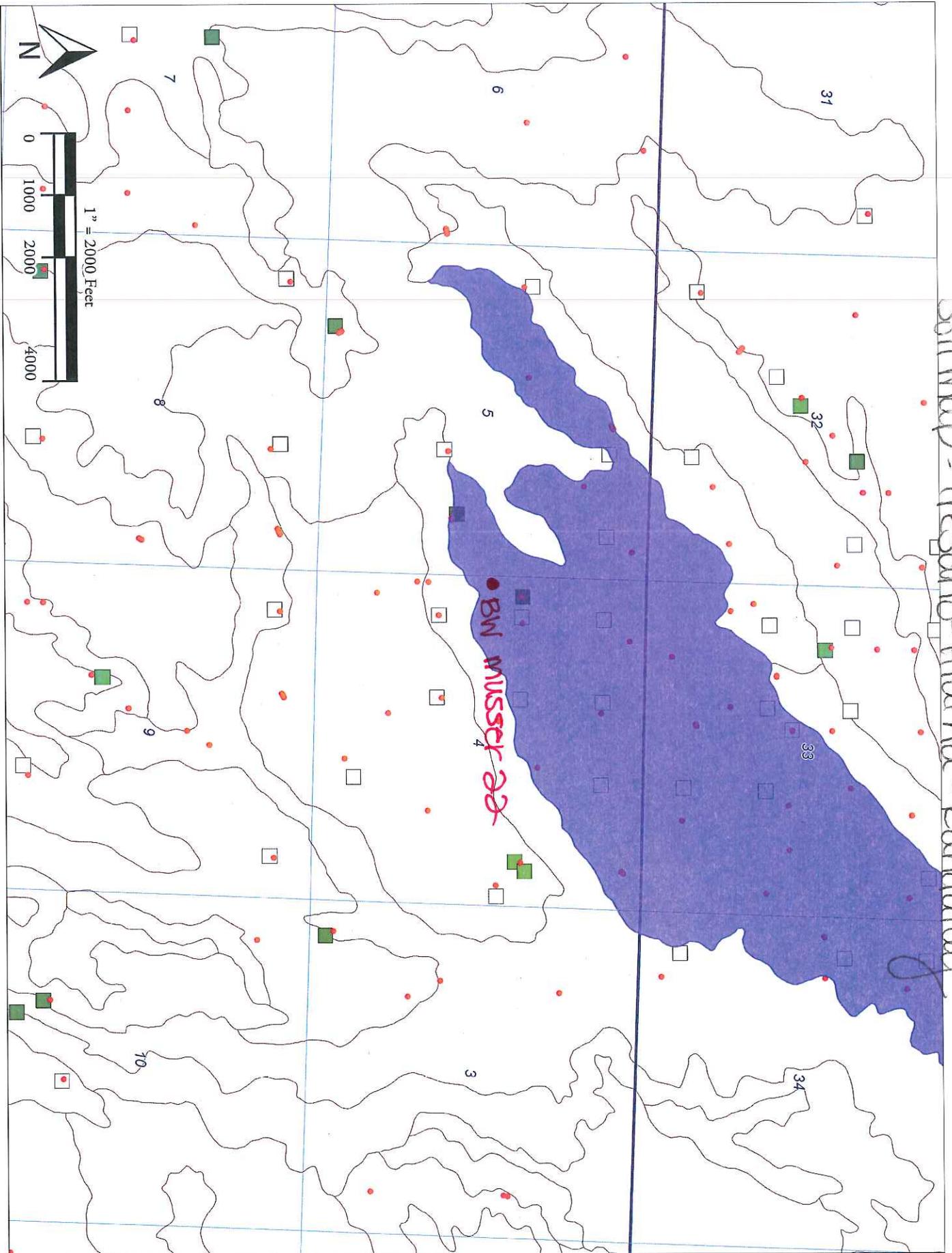
6784

0 400 800 1600

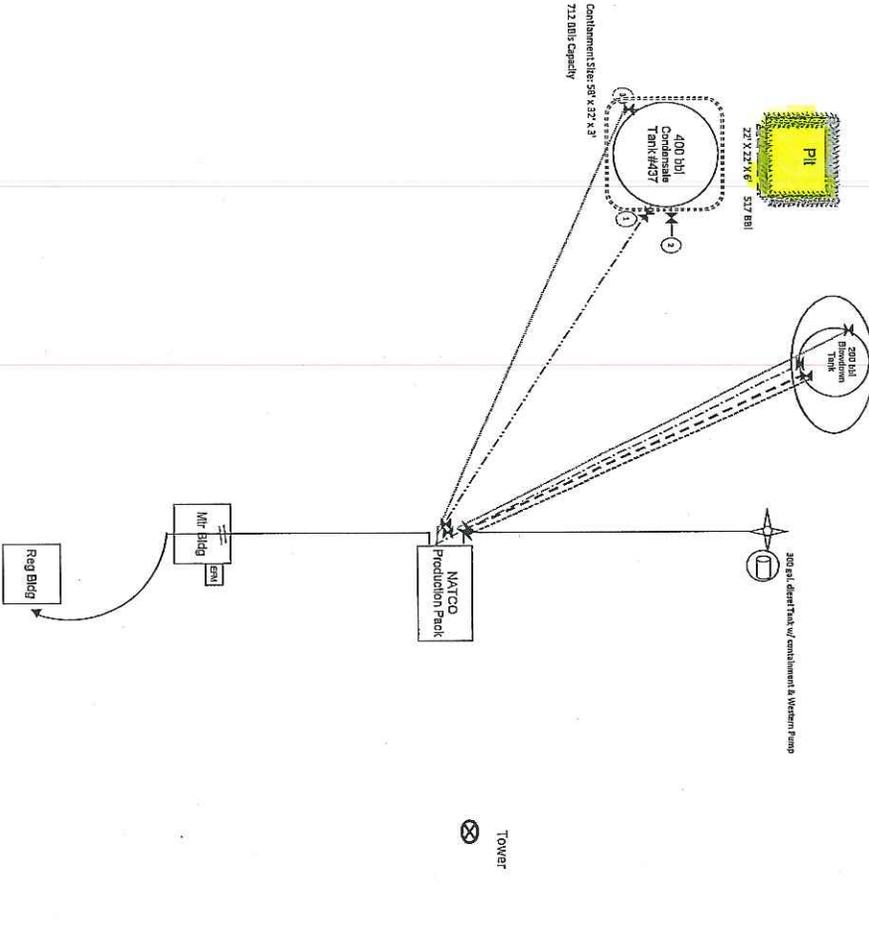
1" = 800 Feet



Soil map - Tresgund - Hiätina - Kandalau



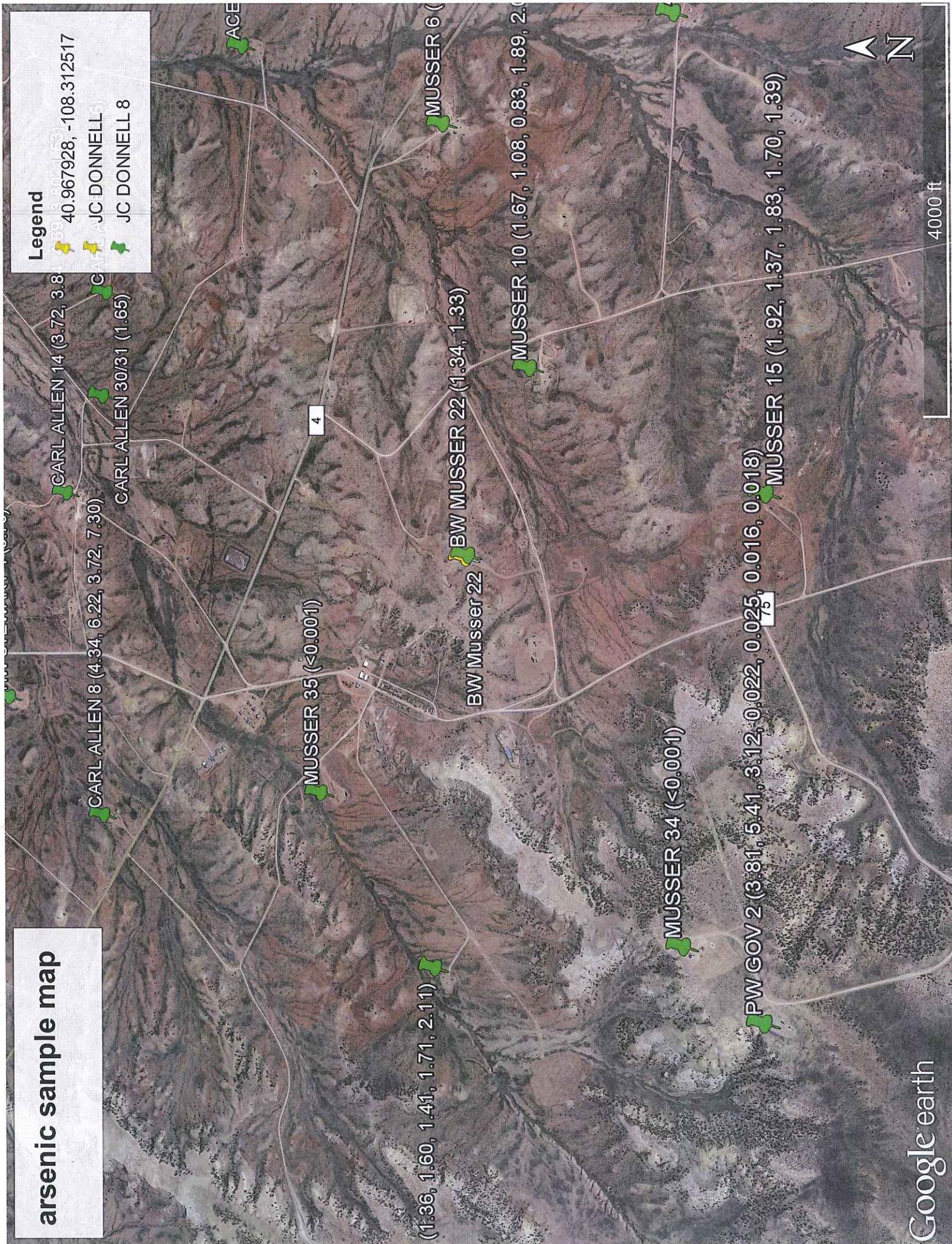
WEGRO COMPANY P. O. BOX 454 ROCK SPRINGS, WY 82402 B.W. Adams # 22 SW NW Sec 4 T11 - R 97 W Lease # D098726-4 Unit # C000672X Moffat County, Colorado Wegro Company Operator		This site facility diagram is part of the "Powder Wash Field" Plan. The site security plan may be reviewed at the Wegro Company, Powder Wash Field Office, Powder Wash Camp, Craig, CO 7 Monday through Friday, 8:00 am to 4:00 pm. TANK # 437 LEGEND Pond: Open Closed Valve # 1: Open Closed Valve # 2: Closed Open Valve # 3: Open only to drain water		N Flow Direction 	Updated 8/31/09 11/6/11 11/21/11	Legend - - - - - Condensate Line - . - . - Water Drain Line - - - - - Fuel Gas Line - - - - - Water Dump Line - - - - - Blowdown Line - - - - - Heat Trace X Valve
Latitude: 40.56551 Longitude: 108.18343	GPS Latitude: 40.56552 GPS Longitude: 108.18343	API # 0508106894				



arsenic sample map

Legend

- 40.967928, -108.312517
- JC DONNELL
- JC DONNELL 8



Facility #113332

GPS sample coordinates-2015

Legend

 ACE 5

 pit floor sample (40.94275, -108.30572)

 pit wall sample (40.94272, -108.305730)

 BW Musser 22



80 ft

Tammy Fredrickson
 Wexpro
 PO Box 458
 Rock Springs, WY 82901

Date: January 11, 2016
 Request Number: 34817R
 Date Received: 11/3/15
 Matrix: Soil

REPORT OF ANALYSIS

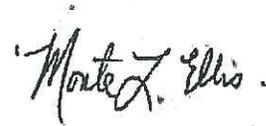
Lab Number: P7546
 Sample ID: B. W. Musser #22 Pit Floor 11/2/15 12:45pm

	Result	Units	Method	Date Analyzed	Analyst
Nickel	2.43	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Copper	4.53	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Zinc	8.48	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Arsenic	1.34	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Selenium	0.070	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Silver	0.540	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Cadmium	0.035	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Barium	561	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Mercury	0.030*	mg/kg	EPA D7473	12/23/2015	DA
Lead	20.7	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Total Chromium	12.9	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Chromium (VI)	0.20	mg/kg	EPA 7196A	11/9/2015	CB
Chromium (III)	12.7	mg/kg	Calculated (tit. Cr-CrVI)	1/11/2016	TB
Soluble, Boron	< 0.1	mg/L	Hot water ext./6020	11/10/2015	CB
pH	7.86	std. units	USDA 60-2,3/150.1	11/9/2015	DA
Conductivity	243	umhos/cm	USDA 60-2,3/120.1	11/9/2015	DA
Calcium	57.4	mg/L	USDA 60-2,3/6010	11/12/2015	CB
Magnesium	4.00	mg/L	USDA 60-2,3/6010	11/12/2015	CB
Sodium	5.02	mg/L	USDA 60-2,3/6010	11/12/2015	CB
Sodium Absorption Ratio	0.17	Ratio	Calculated	11/13/15	TB
Diesel Range Organics	**	mg/kg	EPA 8015C		**

*Results are the average of 2 runs

**DRO Analyzed by TestAmerica in Nashville TN. See attached report.
 TestAmerica Lab Number: 490-94933-1

End of Report
 MLE/tab



Laboratory Manager



WYOMING ANALYTICAL LABORATORIES, INC.

1660 Harrison St. Wallaramie@wal-lab.com (307) 742-7995
 Laramie, WY 82070 Fax: (307) 721-8956

Tammy Fredrickson
 Wexpro
 PO Box 458
 Rock Springs, WY 82901

Date: January 11, 2016
 Request Number: 34817R
 Date Received: 11/3/15
 Matrix: Soil

REPORT OF ANALYSIS

Lab Number: P7547
 Sample ID: B. W. Musser #22 Pit Side Wall 11/2/15 12:45pm

	Result	Units	Method	Date Analyzed	Analyst
Nickel	2.54	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Copper	4.94	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Zinc	10.2	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Arsenic	1.33	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Selenium	0.060	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Silver	0.430	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Cadmium	0.029	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Barium	531	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Mercury	0.033*	mg/kg	EPA D7473	12/23/2015	DA
Lead	19.2	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Total Chromium	21.2	mg/kg	SW846 EPA 3051/6020	12/22/2015	LG/MLE
Chromium (VI)	0.3	mg/kg	EPA 7196A	11/9/2015	CB
Chromium (III)	20.9	mg/kg	Calculated (tit. Cr-CrVI)	1/11/2016	TB
Soluble, Boron	< 0.1*	mg/L	Hot water ext./6020	11/10/2015	CB
pH	7.96	std. units	USDA 60-2,3/150.1	11/9/2015	DA
Conductivity	86	umhos/cm	USDA 60-2,3/120.1	11/9/2015	DA
Calcium	21.2	mg/L	USDA 60-2,3/6010	11/12/2015	CB
Magnesium	2.97	mg/L	USDA 60-2,3/6010	11/12/2015	CB
Sodium	8.31	mg/L	USDA 60-2,3/6010	11/12/2015	CB
Sodium Absorption Ratio	0.45	Ratio	Calculated	11/13/15	TB
Diesel Range Organics	**	mg/kg	EPA 8015C		**

*Results are the average of 2 runs

**DRO Analyzed by TestAmerica in Nashville TN. See attached report.
 TestAmerica Lab Number: 490-94933-2

End of Report
 MLE/tab



Laboratory Manager



WYOMING ANALYTICAL LABORATORIES, INC.

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 Laramie, WY 82070

Wallaramie@wat-lab.com

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 Fax: (307) 721-8956

Tammy Fredrickson
 Wexpro
 PO Box 458
 Rock Springs, WY 82901

Date: January 11, 2016
 Request Number: 34817R
 Date Received: 11/3/15
 Matrix: Soil

QUALITY CONTROL

	Lab Number	Result, mg/kg	Duplicate, mg/kg	RPD	RPD limit	Reference	% Recovery
Soluble Boron	P7547	< 0.1	< 0.1	0	20	ESI QC	108

	Reference	Expected	Value	% Recovery
Conductivity	QCI-027-12	756	758	100
pH	WAL QC	6.00	5.99	100
Chromium VI	Hach QC	0.50	0.50	100
Nickel	LRAA 1722	127	109	86
Copper	LRAA 1722	258	355	138
Zinc	LRAA 1722	173	172	99
Arsenic	LRAA 1722	161	154	96
Selenium	LRAA 1722	305	221	72
Silver	LRAA 1722	58	38	66
Cadmium	LRAA 1722	190	222	117
Barium	LRAA 1722	351	260	74
Mercury	QC P5702	0.06	0.06	100
Lead	LRAA 1722	138	123	89
Total Chromium	LRAA 1722	83	115	139

	Reference	% Recovery	Range
Calcium	ESI 1431121	95	70-130
Magnesium	ESI 1431121	93	70-130
Sodium	ESI 1431121	91	70-130

**DRO Analyzed by TestAmerica in Nashville TN. See attached report.

End of QC Report
 MLE/tab

Marte Z. Ellis

Laboratory Manager



WYOMING ANALYTICAL LABORATORIES, INC.

1660 Harrison St.
 Laramie, WY 82070

Wallaramie@wal-lab.com

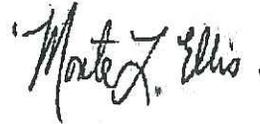
(307) 742-7995
 Fax: (307) 721-8956

Tammy Fredrickson
Wexpro
PO Box 458
Rock Springs, WY 82901

Date: January 11, 2016
Request Number: 34817R
Date Received: 11/3/15
Matrix: Soil

BTEX, GRO, DRO and PAH analyzed by TestAmerica Labs in Nashville TN. The following pages apply to the samples listed below. Complete TestAmerica report is available upon request.

WAL Lab Number	Test America Lab Number	Customer Sample ID
P7546	490-91203-1 (BTEX, GRO, PAH)	B. W. Musser #22 Pit Floor 11/2/15 12:45pm
P7546	490-94933-1 DRO	B. W. Musser #22 Pit Floor 11/2/15 12:45pm
P7547	490-91203-2 (BTEX, GRO, PAH)	B. W. Musser #22 Pit Side Wall 11/2/15 12:45pm
P7547	490-94933-2 DRO	B. W. Musser #22 Pit Side Wall 11/2/15 12:45pm



Laboratory Manager



WYOMING ANALYTICAL LABORATORIES, INC.

1660 Harrison St.
Laramie, WY 82070

Wallaramie@wal-lab.com

(307) 742-7995
Fax: (307) 721-8956

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: 490-94933-1
Client Project/Site: 3481AR

For:
Wyoming Analytical Laboratories Inc
1660 Harrison St
Laramie, Wyoming 82070

Attn: Monte Ellis

Roxanne Cisneros

Authorized for release by:
1/7/2016 4:16:41 PM

Roxanne Cisneros, Senior Project Manager
(615)301-5761
roxanne.cisneros@testamericainc.com

LINKS

Review your project
results through
Total Access

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.

Definitions/Glossary

Client: Wyoming Analytical Laboratories Inc
Project/Site: 34814R

TestAmerica Job ID: 490-94933-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

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, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
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
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)

TestAmerica Nashville

1/7/2016

Client Sample Results

Client: Wyoming Analytical Laboratories Inc
Project/Site: 34817R

TestAmerica Job ID: 490-91203-1

Client Sample ID: P7546

Lab Sample ID: 490-91203-1

Date Collected: 11/02/15 12:45

Matrix: Solid

Date Received: 11/04/15 12:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00176		mg/Kg		11/08/15 09:56	11/10/15 20:17	1
Ethylbenzene	ND		0.00176		mg/Kg		11/08/15 09:56	11/10/15 20:17	1
Toluene	ND		0.00176		mg/Kg		11/08/15 09:56	11/10/15 20:17	1
Xylenes, Total	ND		0.00529		mg/Kg		11/08/15 09:56	11/10/15 20:17	1
GRO (C6-C10)	ND		0.353		mg/Kg		11/08/15 09:56	11/10/15 20:17	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130				11/08/15 09:56	11/10/15 20:17	1
Dibromofluoromethane (Surr)	107		70 - 130				11/08/15 09:56	11/10/15 20:17	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 130				11/08/15 09:56	11/10/15 20:17	1
Toluene-d8 (Surr)	107		70 - 130				11/08/15 09:56	11/10/15 20:17	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Acenaphthylene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Anthracene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Benzo[a]anthracene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Benzo[a]pyrene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Benzo[b]fluoranthene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Benzo[g,h,i]perylene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Benzo[k]fluoranthene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Chrysene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Dibenz(a,h)anthracene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Fluoranthene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Fluorene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Indeno[1,2,3-cd]pyrene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Naphthalene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Phenanthrene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Pyrene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
1-Methylnaphthalene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
2-Methylnaphthalene	ND		0.0650		mg/Kg		11/07/15 10:49	11/24/15 18:44	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5 (Surr)	64		27 - 120				11/07/15 10:49	11/24/15 18:44	1
Terphenyl-d14 (Surr)	68		13 - 120				11/07/15 10:49	11/24/15 18:44	1
2-Fluorobiphenyl (Surr)	54		29 - 120				11/07/15 10:49	11/24/15 18:44	1

TestAmerica Nashville

11/25/2015

Client Sample Results

Client: Wyoming Analytical Laboratories Inc
Project/Site: 34814R

TestAmerica Job ID: 490-94933-1

Client Sample ID: P7546

Lab Sample ID: 490-94933-1

Date Collected: 11/02/15 12:45

Matrix: Solid

Date Received: 12/30/15 09:28

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	H	4.66		mg/Kg		12/31/15 11:26	01/02/16 23:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl (Surr)	66		50 - 150				12/31/15 11:26	01/02/16 23:03	1

TestAmerica Nashville

1/7/2016

Client Sample Results

Client: Wyoming Analytical Laboratories Inc
Project/Site: 34817R

TestAmerica Job ID: 490-91203-1

Client Sample ID: P7547

Lab Sample ID: 490-91203-2

Date Collected: 11/02/15 12:45

Matrix: Solid

Date Received: 11/04/15 12:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.00185		mg/Kg		11/08/15 09:56	11/10/15 08:24	1
Ethylbenzene	ND		0.00185		mg/Kg		11/08/15 09:56	11/10/15 08:24	1
Toluene	ND		0.00185		mg/Kg		11/08/15 09:56	11/10/15 08:24	1
Xylenes, Total	ND		0.00556		mg/Kg		11/08/15 09:56	11/10/15 08:24	1
GRO (C6-C10)	ND		0.370		mg/Kg		11/08/15 09:56	11/10/15 08:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		70 - 130				11/08/15 09:56	11/10/15 08:24	1
Dibromofluoromethane (Surr)	109		70 - 130				11/08/15 09:56	11/10/15 08:24	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 130				11/08/15 09:56	11/10/15 08:24	1
Toluene-d8 (Surr)	110		70 - 130				11/08/15 09:56	11/10/15 08:24	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Acenaphthylene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Anthracene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Benzo[a]anthracene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Benzo[a]pyrene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Benzo[b]fluoranthene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Benzo[g,h,i]perylene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Benzo[k]fluoranthene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Chrysene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Dibenz(a,h)anthracene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Fluoranthene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Fluorene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Indeno[1,2,3-cd]pyrene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Naphthalene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Phenanthrene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Pyrene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
1-Methylnaphthalene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
2-Methylnaphthalene	ND		0.0666		mg/Kg		11/07/15 10:50	11/24/15 19:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Nitrobenzene-d5 (Surr)	74		27 - 120				11/07/15 10:50	11/24/15 19:07	1
Terphenyl-d14 (Surr)	72		13 - 120				11/07/15 10:50	11/24/15 19:07	1
2-Fluorobiphenyl (Surr)	65		29 - 120				11/07/15 10:50	11/24/15 19:07	1

TestAmerica Nashville

11/25/2015

Client Sample Results

Client: Wyoming Analytical Laboratories Inc
Project/Site: 34814R

TestAmerica Job ID: 490-94933-1

Client Sample ID: P7547

Lab Sample ID: 490-94933-2

Date Collected: 11/02/15 12:45

Matrix: Solid

Date Received: 12/30/15 09:28

Method: 8015B - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND	H	4.88		mg/Kg		12/31/15 11:28	01/02/16 23:18	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
<i>o</i> -Terphenyl (Surr)	68		50 - 150				12/31/15 11:28	01/02/16 23:18	1

TestAmerica Nashville

1/7/2016

Certification Summary

Client: Wyoming Analytical Laboratories Inc
Project/Site: 34817R

TestAmerica Job ID: 490-91203-1

Laboratory: TestAmerica Nashville

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	A2LA		NA: NELAP & A2LA	12-31-15
A2LA	ISO/IEC 17025		0453.07	12-31-15
Alaska (UST)	State Program	10	UST-087	07-24-16
Arizona	State Program	9	AZ0473	05-05-16
Arkansas DEQ	State Program	8	88-0737	04-25-16
California	State Program	9	2938	10-31-16
Connecticut	State Program	1	PH-0220	12-31-15
Florida	NELAP	4	E87358	06-30-16
Georgia	State Program	4	N/A	06-30-16
Illinois	NELAP	5	200010	12-09-15 *
Iowa	State Program	7	131	04-01-16
Kansas	NELAP	7	E-10229	01-31-16
Kentucky (UST)	State Program	4	19	06-30-16
Kentucky (WW)	State Program	4	90038	12-31-15
Louisiana	NELAP	6	30613	06-30-16
Maine	State Program	1	TN00032	11-03-17
Maryland	State Program	3	316	03-31-16
Massachusetts	State Program	1	M-TN032	06-30-16
Minnesota	NELAP	5	047-999-345	12-31-16
Mississippi	State Program	4	N/A	06-30-16
Montana (UST)	State Program	8	NA	02-24-20
Nevada	State Program	9	TN00032	07-31-16
New Hampshire	NELAP	1	2963	10-08-16
New Jersey	NELAP	2	TN965	11-30-15 *
New York	NELAP	2	11342	03-31-16
North Carolina (WW/SW)	State Program	4	387	12-31-15
North Dakota	State Program	8	R-146	06-30-16
Ohio VAP	State Program	5	CL0033	07-10-17
Oklahoma	State Program	6	9412	08-31-16
Oregon	NELAP	10	TN200001	04-27-16
Pennsylvania	NELAP	3	68-00586	06-30-16
Rhode Island	State Program	1	LAC00268	12-30-15
South Carolina	State Program	4	84009 (001)	02-28-16
South Carolina (Do Not Use - DW)	State Program	4	84009 (002)	12-16-17
Tennessee	State Program	4	2008	02-23-17
Texas	NELAP	6	T104704077	08-31-16
USDA	Federal		S-48469	10-30-16
Utah	NELAP	8	TN00032	07-31-16
Virginia	NELAP	3	460152	06-14-16
Washington	State Program	10	C789	07-19-16
West Virginia DEP	State Program	3	219	02-28-16
Wisconsin	State Program	5	998020430	08-31-16
Wyoming (UST)	A2LA	8	453.07	12-31-15

* Certification renewal pending - certification considered valid.

TestAmerica Nashville

11/25/2015