

State of Colorado Oil and Gas Conservation Commission

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



#8272

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.

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

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

OGCC Employee:

☒ Spill ☐ Complaint☐ Inspection ☐ NOAV

Tracking No: 2147818

OGCC Operator Number: 10489A

Name of Operator: Augustus Energy Resources LLC

Address: P. O. Box 250

City: Wray, State: CO Zip: 80758

Contact Name and Telephone:

Loni Davis

No: 970-332-3585

Fax: 970-332-3587

API Number: 05-125-11416

County: Yuma

Facility Name:

Facility Number:

Well Name: Newton

Well Number: 11-01

Location: (QtrQtr, Sec, Twp, Rng, Meridian): NWNW/4 Sec. 1 T1N-R46W, 6th pm Latitude: 40.09028 Longitude: -102.47241

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.): Pasture Ground, dryland, irrigation

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: 23: Julesburg Loamy sand 3-7% Slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): 3 Potential water wells

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

Impacted Media (check):



Soils

Extent of Impact:

Moderate

How Determined:

Soil Analysis



Vegetation

Moderate

Soil Analysis



Groundwater



Surface Water

REMEDIALTION WORKPLAN

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

See Form 19 Doc # 2147818 for leak/action information.

Describe how source is to be removed:

NA

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.:

NA

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



Page 2

REMEDIATION WORKPLAN (Cont.)

OGCC Employee:

Noto

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

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

NA - see water analysis submitted with Form 19 Doc # 2147818

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.

per the attached soil analysis the EC and SAR fell outside the limits of the COGCC 910-1 Table. We will be spreading approximately 400 lbs/ acre of agricultural gypsum. We will then spread manure or straw on location and till. If no spring rains we will use a water truck to apply light soaking of area.

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:

We will monitor the area for blowing, run-off and other erosion problems and correct as necessary and will re-sample location to determine if further treatment or more time is required or if area can be reseeded.

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

NA

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 01/15/14 Date Site Investigation Completed: 03/19/14 Date Remediation Plan Submitted: 03/19/14
Remediation Start Date: 03/26/14 Anticipated Completion Date: 07/15/15 Actual Completion Date: _____

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

Print Name: Loni J. Davis

Signed: Loni J. Davis

Title: Operations Accounting and Regulatory Specialist

Date: 03/19/14

OGCC Approved: ACE for John Noto Title: EPS NE CO Date: 3/20/14

SOIL ANALYSIS REPORT

CLIENT:	AUGUSTUS ENERGY PARTNERS LLC
18250	36695 HWY 385
	PO BOX 250
	WRAY, CO 80758



1816 E. Wyatt Earp
PO Box 1397
Dodge City, KS 67801
800.557.7509
620.227.7123
Fax 620.227.2047

LAB NO:	48482 - 48483
INVOICE NO:	186798
DATE RECEIVED:	03/07/2014
DATE REPORTED:	03/12/2014

SOIL ANALYSIS RESULTS FOR: NEWTON 11-01

FIELD IDENTIFICATION:

METHOD USED:			1:1 Water-Soil		1:1 Water-Soil						Ammonium Acetate			Ammonium Acetate							
Lab Number	Sample ID	Sample Depth	Soil pH	Buffer pH	Sol. Salts mmho/cm	Excess Lime	% Organic Matter			Phosphorus ppm P	Potassium ppm K			Calcium ppm Ca	Magnesium ppm Mg	Sodium ppm Na	Zinc ppm Zn	Iron ppm Fe	Manganese ppm Mn	Copper ppm Cu	Boron ppm B
48482	BACKGROUND	0 - 12	6.8		0.17	No					296			950	115	19					
48483	LEAK	0 - 12	8.4		1.31	No					213			1802	111	861					

METHOD USED:			Sat. Paste																		
Lab Number	Sample ID	Sample Depth	Saturation % Sat	Soil pH	Electrical Conductivity mmho/cm	Potassium mg/L K	Sulfur mg/L S	Calcium mg/L Ca	Magnesium mg/L Mg	Sodium mg/L Na	Carbonate mg/L CO3	Bicarbonate mg/L HCO3	Chloride mg/L Cl	Boron mg/L B	Sodium Adsorption Ratio	Cation:Anion					
48482	BACKGROUND	0 - 12	33	6.7	0.44	49	6	46	7.9	17	<10	87	39	1.95	0.6	4.9 / 3.4					
48483	LEAK	0 - 12	34	7.8	4.17	22	9	65	9.1	873	<10	310	1250	3.46	26.9	42.5 / 41.8					

FERTILIZER RECOMMENDATIONS:

POUNDS ACTUAL NUTRIENT PER ACRE

Lab Number	Sample ID	Crop To Be Grown	Yield Goal	Lime, ECC Tons/A to raise pH to:			N	P ₂ O ₅	K ₂ O	Zn	S	Mn	Cu	MgO	B	Ca	Cl	Cation Exchange Capacity					
				6.0	6.5	7.0												CEC	%H	%K	%Ca	%Mg	%Na
48482	BACKGROUND																	7	0	12	73	15	1
48483	LEAK																	14	0	4	63	7	26

SPECIAL COMMENTS AND SUGGESTIONS:

Lab Number(s): 48482, 48483

Servi-Tech Laboratory fertilizer recommendations were not requested.

Lab Number(s): 48483

WARNING: Soil sodium (% Na) is very high. Typical symptoms of a sodic soil are surface crusting, soil sealing, and poor water penetration. Additional soil analysis can determine the proper rate of gypsum or other soil amendment. If irrigated, water analysis can help identify the sodium source. Contact the laboratory for more information.

Analyses are representative of the samples submitted

Samples are retained 30 days after report of analysis

Explanations of soil analysis terms are available upon request

Reviewed and
Approved By:

Randy Royle
Laboratory Manager

Page 1 of 1
03/12/2014 12:31 pm



Servi-Tech Laboratories


1816 E. Wyatt Earp • PO Box 1397 • Dodge City, KS 67801

www.servitechlabs.com

Phone: 620.227.7123

800.557.7509

Fax: 620.227.2047

Lab No.: 48482		SOIL ANALYSIS RESULTS		Date Reported: 03/12/2014	
Send To: 18250		AUGUSTUS ENERGY PARTNERS LLC 36695 HWY 385 PO BOX 250 WRAY, CO 80758		 Randy Royle Laboratory Manager	
Results For: Sample Identification: Sample Depth:		NEWTON 11-01 BACKGROUND 0-12"		Invoice No.: 186798 Date Received: 03/07/2014	
Exchangable:					
	ppm	%			
Calcium, Ca	950	73	Cation Exchange Capacity, CEC meq/100g		7
Magnesium, Mg	115	15	Soil pH - 1:1		6.8
Potassium, K	296	12	Soil pH - Saturated Paste		6.7
Sodium, Na	19	1	Soluble Salts, mmho/cm		0.17
Excess Lime Rating		NO	Exchangable Sodium Percent, ESP		1
Extractable (from saturated paste, based on 33% water saturation):					
	mg/L		meq/L		
Calcium (Ca)	46		2.3		
Magnesium (Mg)	7.9		0.6		
Sodium (Na)	17		0.7		
Chloride (Cl)	39		1.1		
Sulfur (S)	6		0.4		
Boron (B)	1.95				
Potassium (K)	49		1.3		
Bicarbonate (HCO ₃)	87		1.4		
Carbonate (CO ₃)	<10		<0.3		
Sodium Adsorption Ratio (SAR)		0.6			
Electrical Conductivity (ECe), mmho/cm		0.44			
Cation:Anion		4.9 / 3.4			
Calculated Gypsum Recommendation (from ESP and CEC)					
Soil Texture			Gypsum Rec. T/A		
COARSE	(sands, loamy sands, sandy loams)	0.0	To	0.0	
MEDIUM	(loams, silt loams, clay loams)	0.0	To	0.0	
FINE	(silty clay, clay loams, clays)	0.0	To	0.0	
This soil is considered: NON-SALINE/NON-SODIC					
SOIL PERMEABILITY HAZARD (based on ESP and SAR):					
Soil texture		Potential hazard			
COARSE (sands, loamy sands, sandy loams)		LOW			
MEDIUM (loams, silt loams, clay loams)		LOW			
FINE (silty clay loams, clays)		LOW			




Servi-Tech Laboratories

1816 E. Wyatt Earp • PO Box 1397 • Dodge City, KS 67801
www.servitechlabs.com

Phone: 620.227.7123

800.557.7509

Fax: 620.227.2047

Lab No.: 48482		SOIL ANALYSIS RESULTS		Date Reported: 03/12/2014	
Send To: 18250		AUGUSTUS ENERGY PARTNERS LLC 36695 HWY 385 PO BOX 250 WRAY, CO 80758		 Randy Royle Laboratory Manager	
Results For: Sample Identification: Sample Depth:		NEWTON 11-01 BACKGROUND 0-12"		Invoice No.: 186798 Date Received: 03/07/2014	
SOIL SALINITY HAZARD (based on extractable salts, ECe):					
Crop type		Potential hazard			
SALT SENSITIVE (onions, carrots, many ornamentals, many fruit crops, etc.)		LOW			
MODERATELY SENSITIVE (seedling alfalfa, corn, soybeans, many vegetables, etc.)		LOW			
MODERATELY TOLERANT (wheat, wheatgrass, sudangrass, sorghum, fescue, oats, brome grass, etc.)		LOW			
SALT TOLERANT (barley, bermudagrass, sugarbeets, cotton, etc.)		LOW			
EXTRACTABLE CHLORIDE HAZARD (based on soil extractable chloride, Cl):					
LOW for chloride sensitive crops (includes berries, fruit trees, grapes, citrus, etc.)					
LOW for moderately tolerant crops (includes alfalfa, beans, rice, sorghum, etc.)					
LOW for chloride tolerant crops (includes wheat, flax, tomato, cotton, barley, corn, beets, etc.)					
BORON: Excess soil boron may cause toxicity symptoms in sensitive plants. Toxicity should be verified by plant tissue analysis. If toxicity is a problem, choose boron tolerant crops and/or irrigate with relatively good quality irrigation water.					
EXTRACTABLE BORON HAZARD (based on soil extractable boron, B):					
Crop type		Potential hazard			
BORON SENSITIVE (such as sunflower, barley, onions, citrus, fruit trees, grapes, etc.)		HIGH			
MODERATELY SENSITIVE (such as potatoes, peppers, peas, radishes, etc.)		CAUTION			
MODERATELY TOLERANT (such as wheat, corn, oats, clover, lettuce, turnips, celery, etc.)		LOW			
BORON TOLERANT (such as alfalfa, beets, cotton, grain sorghum, tomatoes, vetch, etc.)		LOW			



Servi-Tech Laboratories


1816 E. Wyatt Earp • PO Box 1397 • Dodge City, KS 67801

www.servitechlabs.com

Phone: 620.227.7123

800.557.7509

Fax: 620.227.2047

Lab No.: 48483		SOIL ANALYSIS RESULTS		Date Reported: 03/12/2014	
Send To: 18250		AUGUSTUS ENERGY PARTNERS LLC 36695 HWY 385 PO BOX 250 WRAY, CO 80758		 Randy Royle Laboratory Manager	
Results For:		NEWTON 11-01		Invoice No.: 186798	
Sample Identification:		LEAK		Date Received: 03/07/2014	
Sample Depth:		0-12"			
Exchangable:					
	ppm	%			
Calcium, Ca	1802	63	Cation Exchange Capacity, CEC meq/100g		14
Magnesium, Mg	111	7	Soil pH - 1:1		8.4
Potassium, K	213	4	Soil pH - Saturated Paste		7.8
Sodium, Na	861	26	Soluble Salts, mmho/cm		1.31
Excess Lime Rating		NO	Exchangable Sodium Percent, ESP		26
Extractable (from saturated paste, based on 34% water saturation):					
	mg/L		meq/L		
Calcium (Ca)	65		3.2		
Magnesium (Mg)	9.1		0.7		
Sodium (Na)	873		38.0		
Chloride (Cl)	1250		35.3		
Sulfur (S)	9		0.6		
Boron (B)	3.46				
Potassium (K)	22		0.6		
Bicarbonate (HCO ₃)	310		5.1		
Carbonate (CO ₃)	<10		<0.3		
Sodium Adsorption Ratio (SAR)		26.9			
Electrical Conductivity (ECe), mmho/cm		4.17			
Cation:Anion		42.5 / 41.8			
Calculated Gypsum Recommendation (from ESP and CEC)					
Soil Texture			Gypsum Rec. T/A		
COARSE	(sands, loamy sands, sandy loams)	3.0	To	3.6	
MEDIUM	(loams, silt loams, clay loams)	4.5	To	5.1	
FINE	(silty clay, clay loams, clays)	5.4	To	6.0	
This soil is considered: SALINE/SODIC					
GYPSUM SUGGESTIONS: If soil has good internal drainage, full gypsum rate can be used to reclaim the affected area, but keep applications below 2 to 3 tons in a single year. Reclamation may not be feasible if a high water table is present, but applying 1/2 to 1 ton of gypsum every one to two years may help prevent crusting and surface "sealing".					




Servi-Tech Laboratories

1816 E. Wyatt Earp • PO Box 1397 • Dodge City, KS 67801
www.servitechlabs.com

Phone: 620.227.7123

800.557.7509

Fax: 620.227.2047

Lab No.: 48483		SOIL ANALYSIS RESULTS		Date Reported: 03/12/2014											
Send To: 18250		AUGUSTUS ENERGY PARTNERS LLC 36695 HWY 385 PO BOX 250 WRAY, CO 80758		 Randy Royle Laboratory Manager											
Results For: Sample Identification: Sample Depth:		NEWTON 11-01 LEAK 0-12"		Invoice No.: 186798 Date Received: 03/07/2014											
SOIL PERMEABILITY HAZARD (based on ESP and SAR):															
<table border="0"><thead><tr><th>Soil texture</th><th>Potential hazard</th></tr></thead><tbody><tr><td>COARSE (sands, loamy sands, sandy loams)</td><td>CAUTION</td></tr><tr><td>MEDIUM (loams, silt loams, clay loams)</td><td>HIGH</td></tr><tr><td>FINE (silty clay loams, clays)</td><td>HIGH</td></tr></tbody></table>						Soil texture	Potential hazard	COARSE (sands, loamy sands, sandy loams)	CAUTION	MEDIUM (loams, silt loams, clay loams)	HIGH	FINE (silty clay loams, clays)	HIGH		
Soil texture	Potential hazard														
COARSE (sands, loamy sands, sandy loams)	CAUTION														
MEDIUM (loams, silt loams, clay loams)	HIGH														
FINE (silty clay loams, clays)	HIGH														
SOIL SALINITY: Saline soils can be managed by choosing tolerant crops, keeping the seedbed moist until crop establishment, and/or irrigating with relatively good quality irrigation water. Good internal soil drainage is needed to reclaim saline areas, so lowering water tables may be necessary. Test soil (and water) annually to monitor changes in salinity levels.															
SOIL SALINITY HAZARD (based on extractable salts, ECe):															
<table border="0"><thead><tr><th>Crop type</th><th>Potential hazard</th></tr></thead><tbody><tr><td>SALT SENSITIVE (onions, carrots, many ornamentals, many fruit crops, etc.)</td><td>HIGH</td></tr><tr><td>MODERATELY SENSITIVE (seedling alfalfa, corn, soybeans, many vegetables, etc.)</td><td>HIGH</td></tr><tr><td>MODERATELY TOLERANT (wheat, wheatgrass, sudangrass, sorghum, fescue, oats, brome grass, etc.)</td><td>CAUTION</td></tr><tr><td>SALT TOLERANT (barley, bermudagrass, sugarbeets, cotton, etc.)</td><td>LOW</td></tr></tbody></table>						Crop type	Potential hazard	SALT SENSITIVE (onions, carrots, many ornamentals, many fruit crops, etc.)	HIGH	MODERATELY SENSITIVE (seedling alfalfa, corn, soybeans, many vegetables, etc.)	HIGH	MODERATELY TOLERANT (wheat, wheatgrass, sudangrass, sorghum, fescue, oats, brome grass, etc.)	CAUTION	SALT TOLERANT (barley, bermudagrass, sugarbeets, cotton, etc.)	LOW
Crop type	Potential hazard														
SALT SENSITIVE (onions, carrots, many ornamentals, many fruit crops, etc.)	HIGH														
MODERATELY SENSITIVE (seedling alfalfa, corn, soybeans, many vegetables, etc.)	HIGH														
MODERATELY TOLERANT (wheat, wheatgrass, sudangrass, sorghum, fescue, oats, brome grass, etc.)	CAUTION														
SALT TOLERANT (barley, bermudagrass, sugarbeets, cotton, etc.)	LOW														
CHLORIDE: Excess soil chloride may cause toxicity symptoms in sensitive plants. Toxicity should be verified by plant tissue analysis. High chloride soils can be managed by choosing tolerant crops, keeping the seed bed moist until crop establishment, and/or by irrigating with relatively good quality irrigation water.															
EXTRACTABLE CHLORIDE HAZARD (based on soil extractable chloride, Cl):															
HIGH for chloride sensitive crops (includes berries, fruit trees, grapes, citrus, etc.) HIGH for moderately tolerant crops (includes alfalfa, beans, rice, sorghum, etc.) CAUTION for chloride tolerant crops (includes wheat, flax, tomato, cotton, barley, corn, beets, etc.)															
BORON: Excess soil boron may cause toxicity symptoms in sensitive plants. Toxicity should be verified by plant tissue analysis. If toxicity is a problem, choose boron tolerant crops and/or irrigate with relatively good quality irrigation water.															




Servi-Tech Laboratories

1816 E. Wyatt Earp • PO Box 1397 • Dodge City, KS 67801
www.servitechlabs.com

Phone: 620.227.7123

800.557.7509

Fax: 620.227.2047

Lab No.: 48483		SOIL ANALYSIS RESULTS		Date Reported: 03/12/2014	
Send To: 18250		AUGUSTUS ENERGY PARTNERS LLC 36695 HWY 385 PO BOX 250 WRAY, CO 80758		 Randy Royle Laboratory Manager	
Results For:		NEWTON 11-01		Invoice No.: 186798	
Sample Identification:		LEAK		Date Received: 03/07/2014	
Sample Depth:		0-12"			
EXTRACTABLE BORON HAZARD (based on soil extractable boron, B):					
Crop type			Potential hazard		

BORON SENSITIVE (such as sunflower, barley, onions, citrus, fruit trees, grapes, etc.) HIGH					
MODERATELY SENSITIVE (such as potatoes, peppers, peas, radishes, etc.) HIGH					
MODERATELY TOLERANT (such as wheat, corn, oats, clover, lettuce, turnips, celery, etc.) . . CAUTION					
BORON TOLERANT (such as alfalfa, beets, cotton, grain sorghum, tomatoes, vetch, etc.) LOW					

North
↑

Newton 11-01 1N46W Line Leak

