

5966

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

FOR OGCC USE ONLY
OGCC Employee:
<input type="checkbox"/> Spill <input type="checkbox"/> Complaint
<input type="checkbox"/> Inspection <input type="checkbox"/> NOAV
Tracking No:

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 Operator Number: <u>10318</u>	Contact Name and Telephone: <u>Hector Gonzales</u>
Name of Operator: <u>Vaquero Energy Inc</u>	No: <u>661 363-7240</u>
Address: <u>5060 California Ave, Ste 640</u>	Fax:
City: <u>Bakersfield</u> State: <u>CA</u> Zip: <u>93309</u>	

API Number: <u>05-081-06231</u>	County: <u>Moffat</u>
Facility Name: <u>Blue Gravel 1-26 pit</u>	Facility Number: <u>112285 / Location # 312928</u>
Well Name: <u>Federal 1-26</u>	Well Number: <u>1-26</u>
Location: (QtrQtr, Sec, Twp, Rng, Meridian): <u>NWNE 26 9N 91W 6th PM</u> Latitude: <u>40.714936</u> Longitude: <u>-107.568992</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

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Forelle Loam, 3 to 12 percent slopes

Potential receptors (water wells within 1/4 ml, surface waters, etc.): ephemeral drainage 580 feet east of facility; no water wells within 1/4 mile

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>not yet determined</u>	
<input type="checkbox"/> Vegetation		
<input type="checkbox"/> Groundwater		
<input type="checkbox"/> Surface Water		

REMEDIALTION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):
Ownership of produced water plts transferred from pervious owner to Vaquero through the submittal of Form 10. Any water contained within the plts has been removed and disposed of via the Blue Gravel Injection well (Blue Gravel 1-35, API 05-081-06744).

Describe how source is to be removed:
See attached.

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.:
Excavated soils will be land treated in accordance with Rule 907.e.(2) through a combination of methods including disking, tilling, aerating, or adding nutrients such as microbes, water, or other amendments. The soil may also be blended with clean soil to meet Table 910-1 standards and utilized to backfill the excavation. Excess impacted soils may be transported to a local landfill for disposal. Manifests will be prepared for all soil transported to disposal.

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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: 02215205
Name of Operator: Vigueron Energy, Inc.
OGCC Operator No: 10318
Received Date: 11-17-11
Well Name & No: Federal 1-26
Facility Name & No: Blue Gravel 1-26 Pit, 112285

Page 2
REMEDATION WORKPLAN (Cont.)

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

It is anticipated that groundwater will not be encountered.

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.

The excavation will be filled with clean soil and contoured to match the surrounding topography. Reseeding will be performed using an appropriate seed mixture, which may contain the following species: Western wheatgrass, Wyoming big sagebrush, Needleandthread, Prairie Junegrass, Sandberg bluegrass, Bluebunch wheatgrass and Indian ricegrass. The NRCS, BLM, or other agencies will be consulted to determine the appropriate seed mix.

Appropriate measures will be taken to prevent the establishment of noxious weeds.

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:

NA

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

Sampling of the land treated soil will occur periodically to determine compliance with Table 910-1 standards. Once the soil meets the Table 910-1 standards, it will be incorporated into berms or spread out upon the facility.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: _____ Date Site Investigation Completed: _____ Date Remediation Plan Submitted: _____
Remediation Start Date: _____ Anticipated Completion Date: _____ 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: Hector Gonzales Signed: Hector Gonzales
Title: Production Foreman Date: 12-6-11

OGCC Approved: Ann C. Goldman Title: Env. Supervisor NW Date: 12/10/11
for Alex Fischer

**STATE OF COLORADO
OIL AND GAS CONSERVATION COMMISSION**

Form 27 Attachment

Vaquero Energy, Blue Gravel Pits

REMEDATION WORKPLAN

Describe how source is to be removed:

The impacted soil will be excavated from the pit using a backhoe to an anticipated depth of 10 ft. The vertical and lateral extent of the excavation will be based upon visual evidence of impacted soil in conjunction with field PID headspace measurements. The excavated soil will be temporarily managed within a lined berm to prevent contamination of stormwater runoff. Soil samples will be collected from the excavated pit to confirm compliance with Table 910-1 standards. The soil samples will be analyzed for the full 910 soil list to identify constituents of concern. If the constituents of concern have been identified as part of a background sampling program on similar Blue Gravel Pits, the soil samples may only be analyzed for a specific subset of the 910 list.



September 1, 2011

Alex Fischer, P.G.
Environmental Supervisor - Western Colorado
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, CO 80203

**RE: Vaquero Energy
Blue Gravel Pit Closures
Moffat County, CO**

Dear Mr. Fischer,

The purpose of this letter is to inform you of the progress and direction of the pit closure activities associated with the Vaquero Energy, Inc. (Vaquero) Blue Gravel Pits in Moffat County, Colorado. As directed, Colorado Oil and Gas Conservation Commission (COGCC) Form 27s outlining the closure plan for seventeen pits have been completed and subsequently approved by the COGCC. Kleinfelder and Vaquero Energy identified seven pit locations that represent a cross section of typical site conditions to perform a background sampling program as outlined in the Form 27s. Kleinfelder collected two soil samples at each location; a composite soil screening sample and a background sample at each of the following seven pit locations:

- Blue Gravel 1-26
- Blue Gravel 2-25
- Blue Gravel 7-25
- Blue Gravel 5-24
- Blue Gravel 4-35
- Blue Gravel 1-35
- Blue Gravel 4-36

The composite pit soil samples were submitted to an independent laboratory for analysis of the full COGCC 910 soil list and results were compared to the Table 910-1 standards. In addition, background soil samples were collected outside of the pit areas and analyzed for arsenic to provide representative background concentrations.

The results of the soil samples collected from within the pits indicated concentrations of benzene, total volatile petroleum hydrocarbons (TVPH), total extractable petroleum hydrocarbons (TEPH), arsenic and sodium absorption ratio (SAR) exceeding the Table 910-1 standards. The background concentrations of arsenic in the soil were reported above the arsenic concentrations in all seven pit locations. In all cases, the arsenic concentration in the pit sample was less than the concentration in the background sample. Due to the elevated background



levels, we propose not to include arsenic in the list of constituents of concern during the closure of the 17 pits. The results of the screening soil samples are summarized in the attached Table 1.

Based on the results of the screening samples, Kleinfelder proposes a specific subset of the 910 soil list. Confirmation soil samples, subsequent to excavation of each of the 17 pits, will be analyzed for the following subset of the 910 soil list:

- Benzene,
- TVPH,
- TEPH, and
- SAR

As outlined in the Remediation Workplan section of Form 27, Kleinfelder anticipates impacted soil will be excavated from the pit using a backhoe. Representative soil samples will be collected from the excavated pit to confirm compliance with the above-mentioned subset of constituents and compared to Table 910-1 standards. In lieu of land farming, excavated material from the impacted pits will be disposed off-site at a local landfill (Moffat County Landfill). The Remediation Workplan as outlined in the approved Form 27s will be utilized for backfilling of the pits and the revegetation process.

With State approval, Kleinfelder intends to close Pit 5-35 without any further assessment. The only constituent detected during the screening sampling at Pit 5-35 was arsenic, at a concentration less than the background concentration. Kleinfelder also proposes to identify other pits with similar scenarios to Pit 5-35 (i.e. formation and use) and conduct soil sampling to potentially exclude those pits from further assessment prior to closure.

We also propose to collect background samples to be analyzed for SAR outside of pits similar to Pit 7-25 where SAR was the only constituent to exceed 910-1 Table standards (other than arsenic at background concentrations).

If you or a representative from COGCC would like to witness future activities associated with the closure of the pits, please advise. We will keep you informed of the schedule of activities moving forward. Please provide us with comments or approval of the intended closure plan outlined in the Form 27 and further detailed in this letter. If you have any questions or would like to discuss the closure activities, please contact Derek Bowman at 303-781-8211.

Respectfully submitted,

KLEINFELDER

Derek Bowman, CHMM
Project Manager

Doug Henderer, P.E.
Client Account Manager

Vaquero Energy
Blue Gravel Pit Closures
Screening Soil Sample Results
Kleinfielder Project # 120019

Sample ID	BG4-36-072611	BG4-35-072611	BG5-35-072611	BG2-25-072611	BG7-25-072611	BG1-26-072611	BG5-24-072611
Method	4-36	4-35	5-35	2-25	7-25	1-26	5-24
Parameter	7/26/2011	7/26/2011	7/26/2011	7/26/2011	7/26/2011	7/26/2011	7/26/2011
Units	Value	Value	Value	Value	Value	Value	Value
COGCC Table 910-1 Standard	Value	Value	Value	Value	Value	Value	Value
9045D	8.4	8.5	7.1	8.7	8.8	8.1	7.9
Calc.	19	24	0.5	14	12	19	78
9050AMod	260	930	69	780	700	1200	88
METALS							
7471	0.024	0.14	<0.020	<0.020	0.021	0.36	0.027
60108	2.4	3	1.3	2.4	12	2.4	1.4
60108	3.3	4	2.6	5.3	21	3.7	2.2
60108	340	110	56	130	140	170	330
60108	<10	<10	<10	<10	<10	12	<10
60108	<0.25	0.38	<0.25	0.28	0.55	0.45	0.3
60108	11	10	3.9	12	13	17	12
3060A/7196A	23	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
60108	3100	10	6.6	10	11	12	12
60108	400	19	7.1	9.4	14	13	11
60108	1600	13	3.1	23	13	13	16
60108	390	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
60108	390	<0.50	<0.50	<0.50	0.56	<0.50	<0.50
60108	66	34	18	47	94	58	59
VOCs							
8021/8015	0.17	5.6	<0.0025	<0.025	<0.0025	<0.025	2.8
8021/8015	85	23	<0.025	<0.25	<0.025	4.4	7.4
8021/8015	100	0.42	<0.0025	0.2	<0.0025	<0.025	11
8021/8015	175	1.6	<0.0075	4.2	<0.0075	1.6	26
GRO	500*	890	<0.50	3000	<0.50	1500	3800
3546/DR0	500*	3900	<4.0	<4.0	<4.0	9.6	3000
SVOCs							
8270C-SIM	1000	<0.12	<0.0060	<0.0060	<0.0060	<0.0060	<0.15
8270C-SIM	1000	0.12	<0.0060	0.0098	<0.0060	<0.0060	<0.15
8270C-SIM	0.22	<0.12	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
8270C-SIM	0.022	<0.12	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
8270C-SIM	0.22	<0.12	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
8270C-SIM	2.2	<0.12	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
8270C-SIM	22.0	<0.12	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
8270C-SIM	0.022	<0.12	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
8270C-SIM	1000	<0.12	<0.0060	<0.0060	<0.0060	<0.0060	<0.15
8270C-SIM	1000	0.33	<0.0060	0.0079	<0.0060	<0.0060	<0.15
8270C-SIM	0.22	<0.12	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
8270C-SIM	23	0.064	<0.0060	0.24	<0.0060	0.083	1.5
8270C-SIM	1000	<0.12	<0.0060	<0.0060	<0.0060	<0.0060	<0.15

Notes
Bold - value exceeds concentrations as listed in COGCC Table 910-1
 Unless otherwise noted, the COGCC Table 910-1 Standard concentrations were taken from CDPHE-HMWMMD Table 1 Colorado Soil Evaluation Values (December 2007)
 (1) US EPA Region 9 April 2009 risk-based soil screening guidance for protection of groundwater resources
 (2) Concentrations taken from CDPHE-WQCC Regulation 41 - The Basic Standards for Ground Water
 * Value is a sum of total extractable and total volatile petroleum hydrocarbons

Fischer, Alex

From: Derek Bowman [DBowman@kleinfelder.com]
Sent: Friday, September 02, 2011 11:04 AM
To: Fischer, Alex; 'hgonzalez@VaqueroEnergy.com'
Cc: Doug Henderer
Subject: RE: Vaquero Form 27
Attachments: Vaquero Progress Letter, Pit Closures.pdf

Alex,
Please see the attached letter regarding the soil screening samples and intended plan moving forward for the Blue Gravel Pit closures with Vaquero.

With your approval, we'd like to proceed as written in this letter.

Thank you for your time.

Derek Bowman, CHMM
Project Manager
Kleinfelder

From: Derek Bowman
Sent: Wednesday, July 27, 2011 4:47 PM
To: Alex.Fischer@state.co.us; hgonzalez@VaqueroEnergy.com
Cc: Doug Henderer
Subject: Re: Vaquero Form 27

Thanks Alex.

From: Fischer, Alex <Alex.Fischer@state.co.us>
To: Hector Gonzalez <hgonzalez@VaqueroEnergy.com>; Derek Bowman
Cc: Doug Henderer
Sent: Wed Jul 27 06:58:57 2011
Subject: RE: Vaquero Form 27

Thanks. I am still in Rifle and will not be back to Moffat Routt Counties until Thurs. Continue with the sampling not need for COGCC to be on site.

Alex Fischer, P.G.
Environmental Supervisor - Western Colorado
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, CO 80203
(303) 894-2100 ext. 5138
(303) 894-2109 fax
alex.fischer@state.co.us

From: Hector Gonzalez [mailto:hgonzalez@VaqueroEnergy.com]
Sent: Tuesday, July 26, 2011 8:33 AM

To: Derek Bowman; Fischer, Alex
Cc: Doug Henderer
Subject: RE: Vaquero Form 27

Derek,

Not sure if this will work for everyone. No need to rush. COGCC might want to be there for the testing. I need to let the lease operator know someone will be on location.

Alex,
Will this work?

Hector Gonzalez
Production Foreman
Vaquero Energy
15545 Hermosa Road
Bakersfield, CA 93307
661 363-7240 ext. 206 office
661 979-3984 cell

From: Derek Bowman [mailto:DBowman@kleinfelder.com]
Sent: Tuesday, July 26, 2011 8:02 AM
To: Fischer, Alex
Cc: Hector Gonzalez; Doug Henderer
Subject: RE: Vaquero Form 27

Alex and Hector,
We will be collecting the screening samples in the pits starting this afternoon (Tuesday) and finishing up tomorrow morning.

Thanks,

Derek Bowman, CHMM
Project Manager
Kleinfelder

From: Fischer, Alex [mailto:Alex.Fischer@state.co.us]
Sent: Friday, July 22, 2011 11:08 AM
To: Derek Bowman
Cc: hgonzalez@VaqueroEnergy.com; Doug Henderer
Subject: RE: Vaquero Form 27

No issues with your proposing to collect the screening samples. What date(s) are you going to be out there next week?

Alex Fischer, P.G.
Environmental Supervisor - Western Colorado
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, CO 80203
(303) 894-2100 ext. 5138
(303) 894-2109 fax
alex.fischer@state.co.us

From: Derek Bowman [mailto:DBowman@kleinfelder.com]
Sent: Friday, July 22, 2011 10:25 AM
To: Fischer, Alex
Cc: Hector Gonzalez (hgonzalez@VaqueroEnergy.com); Doug Henderer
Subject: RE: Vaquero Form 27

Alex,
The signed Form 27s for the Blue Gravel pits in Moffat County will arrive at your office on Monday. We have identified seven (7) pits that represent the site conditions that we are planning to collect soil samples for screening. With your approval, we'd like to collect these samples next week and get them submitted for the Table 910-1 contaminants. Do you have any problems with us collecting the screening samples next week? Here are the pit locations:

Blue Gravel 1-26
Blue Gravel 2-25
Blue Gravel 7-25
Blue Gravel 5-24
Blue Gravel 4-35
Blue Gravel 1-35
Blue Gravel 4-36

Please advise.

Thanks,

Derek Bowman, CHMM
Project Manager
Kleinfelder

From: Fischer, Alex [mailto:Alex.Fischer@state.co.us]
Sent: Thursday, July 21, 2011 9:28 AM
To: Derek Bowman
Subject: RE: Vaquero Form 27

Electronic signatures will work.

Alex Fischer, P.G.
Environmental Supervisor - Western Colorado
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, CO 80203
(303) 894-2100 ext. 5138
(303) 894-2109 fax
alex.fischer@state.co.us

From: Derek Bowman [mailto:DBowman@kleinfelder.com]
Sent: Thursday, July 21, 2011 8:55 AM
To: Fischer, Alex
Subject: RE: Vaquero Form 27

Fischer, Alex

To: Doug Henderer; hgonzalez@VaqueroEnergy.com
Cc: Brad Baum; Derek Bowman
Subject: RE: Vaquero Form 27

Doug,

I feel that this would be a good practical approach and should be included in the Form 27s.

Thanks
Alex

Alex Fischer, P.G.
Environmental Supervisor - Western Colorado
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, CO 80203
(303) 894-2100 ext. 5138
(303) 894-2109 fax
alex.fischer@state.co.us

From: Doug Henderer [<mailto:dhenderer@kleinfelder.com>]
Sent: Monday, July 11, 2011 5:20 PM
To: Fischer, Alex; hgonzalez@VaqueroEnergy.com
Cc: Brad Baum; Derek Bowman
Subject: RE: Vaquero Form 27

Alex,

Our thoughts were to screen several pits for the full 910 soil list to identify the constituents of concern. From that we would develop a background sampling program if needed, and identify a subset of constituents (TPH, benzene, etc.) for monitoring the progress of the excavation work. Do you find this approach acceptable? Do you recommend that the full 910 list be analyzed for samples from the pit prior to final closure?

Thank you,

Doug

From: Fischer, Alex [<mailto:Alex.Fischer@state.co.us>]
Sent: Monday, July 11, 2011 2:12 PM
To: Doug Henderer; hgonzalez@VaqueroEnergy.com
Cc: Brad Baum; Derek Bowman
Subject: RE: Vaquero Form 27

Doug and Hector,

Alex,
Do you need original Form 27s with the signatures, or can I send you the hard copies with scanned signatures?

Thanks,

Derek Bowman, CHMM
Project Manager
Kleinfelder

From: Fischer, Alex [mailto:Alex.Fischer@state.co.us]
Sent: Tuesday, July 12, 2011 2:47 PM
To: Doug Henderer; hgonzalez@VaqueroEnergy.com
Cc: Brad Baum; Derek Bowman
Subject: RE: Vaquero Form 27

Folks,

Please see attached. The remediation number for this facility is: 5922 Please reference this on subsequent correspondence as it relates to this facility.

Thanks
Alex

Alex Fischer, P.G.
Environmental Supervisor - Western Colorado
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, CO 80203
(303) 894-2100 ext. 5138
(303) 894-2109 fax
alex.fischer@state.co.us

From: Doug Henderer [mailto:dhenderer@kleinfelder.com]
Sent: Monday, July 11, 2011 5:20 PM
To: Fischer, Alex; hgonzalez@VaqueroEnergy.com
Cc: Brad Baum; Derek Bowman
Subject: RE: Vaquero Form 27

Alex,

Our thoughts were to screen several pits for the full 910 soil list to identify the constituents of concern. From that we would develop a background sampling program if needed, and identify a subset of constituents (TPH, benzene, etc.) for monitoring the progress of the excavation work. Do you find this approach acceptable? Do you recommend that the full 910 list be analyzed for samples from the pit prior to final closure?

Thank you,

Doug

From: Fischer, Alex [mailto:Alex.Fischer@state.co.us]
Sent: Monday, July 11, 2011 2:12 PM
To: Doug Henderer; hgonzalez@VaqueroEnergy.com
Cc: Brad Baum; Derek Bowman
Subject: RE: Vaquero Form 27

Doug and Hector,

Were you going to collect samples for characterization to determine impact, if any? And are you sampling for the entire 910-1 list?

Please include the API number for the Blue Gravel 1-35).

Thanks
Alex

Alex Fischer, P.G.
Environmental Supervisor - Western Colorado
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801
Denver, CO 80203
(303) 894-2100 ext. 5138
(303) 894-2109 fax
alex.fischer@state.co.us

From: Doug Henderer [mailto:dhenderer@kleinfelder.com]
Sent: Thursday, July 07, 2011 11:27 AM
To: Fischer, Alex; Hector Gonzalez (hgonzalez@VaqueroEnergy.com)
Cc: Brad Baum; Derek Bowman
Subject: Vaquero Form 27

Alex,

Thank you again for your time last month to meet with us concerning the closure of the Vaquero Blue Gravel pits. As discussed, attached is the first Form 27 for your review. Upon your approval, we will forward executed forms 27 for the remaining pits.

Concerning the salamanders present at the Blue Gravel 1-35 pit, we do not believe that they are protected. Our research indicates that there are no USFWS listed amphibian T&E species in Moffat County, and no salamanders are listed in the state species of concern or BLM special status species databases. A photograph of a salamander is attached for your reference.

We appreciate your assistance, please let us know if you have any questions or concerns.

Doug

Douglas Henderer, PE

Sr. Principal Professional
300 E. Mineral Ave, Suite 7
Littleton, CO 80122
O| 303.781.8211 x 231
C| 303.809.2427
F| 303.781.1167



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