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
Rec 5-24-16
Doc # 200439613
Rem #9685

OGCC Employee
☐ Spill ☐ Complaint
☐ Inspection ☐ 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: 10084
Name of Operator: Pioneer Natural Resources USA, Inc.
Address: 5205 N. O'Connor Blvd., Ste 200
City: Irving State: TX Zip: 75039

Contact Name and Telephone:
LaCretia White
No: 972-969-3738
Fax: 972-969-3559

API Number: 05-071-06721
Facility Name: Julieanna 42-22 offsite pit
Well Name: Julieanna

County: Las Animas
Facility Number: 256448
Well Number: 42-22 37.244255 -104.6536
Location: (QtrQtr, Sec, Twp, Rng, Meridian): SENE 22 32S 65W Latitude: XXXXXX Longitude: XXXXX

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.): forested

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Fuera-Dargol-Vamer complex, 10 to 45 percent slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): nearest water well - 4417' (if DWR point is accurate)
nearest surface water - 782' (if live water present)

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

Impacted Media (check):		Extent of Impact:	How Determined:
☑	Soils	soil within pit	soil sampling
☐	Vegetation		
☐	Groundwater		
☐	Surface Water		

REMEDIATION WORKPLAN

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

Produced water from this well was being stored in this offsite pit. The well is no longer going to the pit.

Describe how source is to be removed:

Produced water is not being sent to this pit and it is no longer needed.

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.:

Produced water may be surface discharged under a CDPS permit, disposed of in a Class II UIC injection well, or utilized for dust supression.

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Page 2

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: _____

REMEDIATION WORKPLAN (Cont.)

OGCC Employee:

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

It is not expected that produced water stored in this pit communicated with nor affected groundwater.

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 landowner has requested that the existing pond to the south of this well be left for rain water and snowmelt to collect for livestock and/or wildlife watering. Pioneer has also submitted a Form 4 variance request (DOC # 401053090), along with a letter signed by the landowner. Pioneer would like to terminate the permit for this facility.

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:

No impact to the surrounding environment ocurred from the use of this pit.

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

Produced water may be surface discharged under a CDPS permit, disposed of in a Class II UIC injection well, or utilized for dust supression.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 3/17/16	Date Site Investigation Completed: 3/17/16	Date Remediation Plan Submitted: 5/24/16
Remediation Start Date: n/a	Anticipated Completion Date: 3rd quarter 2016	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: LaCretia White Signed: LaCretia White

Title: Staff Environmental Specialist Date: 5/24/16

OGCC Approved: Jason Kosola Title: _____ Date: _____

Digitally signed by Jason Kosola
DN: cn=Jason Kosola, o=Colorado Oil and Gas Conservation Commission, ou=Environmental Department, email=jason.kosola@state.co.us, c=US
Date: 2016.06.03 09:53:23 -06'00'

CONDITIONS OF APPROVAL:

Approval of this Form 27 is conditional based on approval of pending Form 4 variance request (DocNum 401053090)

METALS

Analytical results demonstrate that background concentrations of arsenic (As) exceed Table 910-1 concentration levels. Analytical results demonstrate that concentrations of As in soils in the pit also exceed Table 910-1 concentration levels and the pit concentrations are less than or within analytical uncertainty of being equal to the background concentrations. COGCC and CDPHE have consulted and agree that operators do not need to request variances from CDPHE for instances where the concentrations of metals in impacted soils are equal to or less than background concentrations, but do not meet Table 910-1 concentration values.

Notify area Environmental Protection Specialist when variance request approved.

Table 910-1

PIONEER NATURAL RESOURCES

CONCENTRATION LEVELS

Contaminant of Concern	Concentrations	Units	JULIEANNA 42-22 OFFSITE TOP OF PIT	JULIEANNA 42-22 OFFSITE BOTTOM OF PIT	JULIEANNA 42-22 OFFSITE NATIVE SOUTH	JULIEANNA 42-22 OFFSITE NATIVE WEST	JULIEANNA 42-22 OFFSITE NATIVE NORTH	JULIEANNA 42-22 OFFSITE NATIVE EAST
Organic Compounds in Soil								
TPH (Gasoline Range Organics)		mg/kg		ND				
TPH (Diesel Range Organics)		mg/kg		ND				
Benzene	0.17	mg/kg		ND				
Toluene	85	mg/kg		ND				
Ethylbenzene	100	mg/kg		ND				
Xylenes (total)	175	mg/kg		ND				
Acenaphthene	1000	mg/kg						
Anthracene	1000	mg/kg						
Benzo(A)anthracene	0.22	mg/kg						
Benzo(B)fluoranthene	0.22	mg/kg						
Benzo(K)fluoranthene	2.2	mg/kg						
Benzo(A)pyrene	0.022	mg/kg						
Chrysene	22	mg/kg						
Dibenzo(A,H)anthracene	0.022	mg/kg						
Fluoranthene	1000	mg/kg						
Fluorene	1000	mg/kg						
Indeno(1,2,3,C,D)pyrene	0.22	mg/kg						
Napthalene	23	mg/kg						
Pyrene	1000	mg/kg						
Organic Compounds in Ground Water								
Benzene	5	µg/l						
Toluene	560 to 1000	µg/l						
Ethylbenzene	700	µg/l						
Xylenes (total)	1400 to 10,000	µg/l						
Inorganics in Soils								
Electrical Conductivity (EC)	<4000 or 2x background	umhos/cm	200	570				
Sodium Adsorption Ratio (SAR)	<12	NA	1.6	3.9				
pH	6.0-9.0	NA	7.15	8.21				
Inorganics in Ground Water								
Total Dissolved Solids (TDS)	<1.25 x background	NA						
Chlorides	<1.25 x background	NA						
Sulfates	<1.25 x background	NA						
Metals in Soils								
Arsenic	0.39	mg/kg	1.1	1.2	2.2	0.91	2.2	1.2
Barium Total	15,000	mg/kg		210				
Boron	NA	mg/kg		ND				
Boron (Hot Water Soluble)	2	mg/L		NT				
Cadmium	70	mg/kg		ND				
Chromium (III)	120,000	mg/kg		33				
Chromium (VI)	23	mg/kg		ND				
Copper	3,100	mg/kg		33				
Lead	400	mg/kg		14				
Mercury	23	mg/kg		0.050				
Nickel	1,600	mg/kg		20				
Selenium	390	mg/kg		0.28				
Silver	390	mg/kg		ND				
Zinc	23,000	mg/kg		95				
Chromium	NA	mg/kg		33				
Liquid Hydrocarbons in Soils and Ground Water								
Liquid hydrocarbons including condensate and oil	Below detection level	NA		ND				

NA - not applicable
NT - not tested
ND - below the method detection limit
Cr - if Total Cr is >23 mg/kg, an analysis is completed for Cr VI, to facilitate calculation of Cr III

Client Sample ID: JULIEANNA 42-22 OFFSITE TOP OF PIT **Lab Sample ID: 280-80918-1**
Date Collected: 03/17/16 10:24 **Matrix: Solid**
Date Received: 03/18/16 10:05

Method: 20B - Sodium Adsorption Ratio - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium Adsorption Ratio	1.6		1.2		No Unit		03/19/16 12:34	03/31/16 05:10	10
Sodium	2.2		1.0		mg/Kg		03/19/16 12:34	03/31/16 05:10	1
Calcium	0.98		0.20		mg/Kg		03/19/16 12:34	03/31/16 05:10	1
Magnesium	0.35		0.20		mg/Kg		03/19/16 12:34	03/31/16 05:10	1

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	6.8		0.1		%			03/20/16 09:18	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	7.15		0.100		SU		03/23/16 11:03	04/05/16 12:22	1
Specific Conductance (25C)	200		10		umhos/cm		03/23/16 11:03	03/25/16 12:51	1

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-80918-1

Client Sample ID: JULIEANNA 42-22 OFFSITE TOP OF PIT
Lab Sample ID: 280-80918-1
Date Collected: 03/17/16 10:24
Matrix: Solid
Date Received: 03/18/16 10:05
Percent Solids: 93.2

Method: 6020 - Total Metals by ICP-MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.1		0.075		mg/Kg	☼	03/28/16 14:40	03/30/16 04:45	1

Client Sample ID: JULIEANNA 42-22 OFFSITE BOTTOM OF PIT

Date Collected: 03/17/16 10:28
Date Received: 03/18/16 10:05

Lab Sample ID: 280-80918-2
Matrix: Solid
Percent Solids: 78.5

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		0.0069		mg/Kg	☼	03/18/16 17:00	03/18/16 20:57	1
Ethylbenzene	ND		0.0069		mg/Kg	☼	03/18/16 17:00	03/18/16 20:57	1
Toluene	ND		0.0069		mg/Kg	☼	03/18/16 17:00	03/18/16 20:57	1
Xylenes, Total	ND		0.0069		mg/Kg	☼	03/18/16 17:00	03/18/16 20:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*109*		*58 - 140*	*03/18/16 17:00*	*03/18/16 20:57*	*1*
Toluene-d8 (Surr)	*110*		*80 - 126*	*03/18/16 17:00*	*03/18/16 20:57*	*1*
4-Bromofluorobenzene (Surr)	*110*		*76 - 127*	*03/18/16 17:00*	*03/18/16 20:57*	*1*
Dibromofluoromethane (Surr)	*105*		*75 - 121*	*03/18/16 17:00*	*03/18/16 20:57*	*1*

Method: 8015B - Gasoline Range Organics - (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO) -C6-C10	ND		1.5		mg/Kg	☼	03/29/16 11:02	03/30/16 00:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
a,a,a-Trifluorotoluene	*85*		*77 - 123*	*03/29/16 11:02*	*03/30/16 00:16*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics [C10-C28]	ND		4.9		mg/Kg	☼	03/22/16 21:04	03/29/16 00:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
o-Terphenyl	*85*		*49 - 115*	*03/22/16 21:04*	*03/29/16 00:28*	*1*

Method: 20B - Sodium Adsorption Ratio - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Sodium Adsorption Ratio	**3.9**		1.2		No Unit		03/19/16 12:34	03/31/16 05:13	10

Method: 6010B - Total Metals

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**210**		0.95		mg/Kg	☼	03/28/16 14:40	03/30/16 23:57	1
Boron	ND	F1	9.5		mg/Kg	☼	03/28/16 14:40	03/30/16 23:57	1
Cadmium	ND		0.47		mg/Kg	☼	03/28/16 14:40	03/30/16 23:57	1
Calcium	**4200**		47		mg/Kg	☼	03/28/16 14:40	03/30/16 23:57	1
Magnesium	**4500**		19		mg/Kg	☼	03/28/16 14:40	03/30/16 23:57	1
Molybdenum	ND		1.9		mg/Kg	☼	03/28/16 14:40	03/30/16 23:57	1
Silver	ND		0.95		mg/Kg	☼	03/28/16 14:40	03/30/16 23:57	1
Sodium	**1700**		470		mg/Kg	☼	03/28/16 14:40	03/30/16 23:57	1

Method: 6020 - Total Metals by ICP-MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**1.2**	**F1**	0.11		mg/Kg	☼	03/28/16 14:40	03/30/16 04:49	1
Chromium	**33**	**F1**	0.23		mg/Kg	☼	03/28/16 14:40	03/30/16 04:49	1
Copper	**33**		0.29		mg/Kg	☼	03/28/16 14:40	03/30/16 04:49	1
Lead	**14**	**F1**	0.11		mg/Kg	☼	03/28/16 14:40	03/30/16 04:49	1
Nickel	**20**	**F1**	0.17		mg/Kg	☼	03/28/16 14:40	03/30/16 04:49	1
Selenium	**0.28**		0.23		mg/Kg	☼	03/28/16 14:40	03/30/16 04:49	1
Zinc	**95**	**F1**	1.1		mg/Kg	☼	03/28/16 14:40	03/30/16 04:49	1

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-80918-1

Client Sample ID: JULIEANNA 42-22 OFFSITE BOTTOM OF PIT
Date Collected: 03/17/16 10:28
Date Received: 03/18/16 10:05

Lab Sample ID: 280-80918-2
Matrix: Solid
Percent Solids: 78.5

Method: 7471A - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	0.050		0.023		mg/Kg	☼	03/21/16 10:30	03/21/16 21:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	ND		0.50		mg/Kg	☼	04/04/16 15:00	04/05/16 16:44	1

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (III)	33		2.0		mg/Kg			04/06/16 10:59	1
Percent Moisture	21.5		0.1		%			03/20/16 09:18	1

General Chemistry - Soluble

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
pH	8.21		0.100		SU		03/23/16 11:03	04/05/16 12:22	1
Specific Conductance (25C)	570		10		umhos/cm		03/23/16 11:03	03/25/16 12:51	1

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-80918-1

Client Sample ID: JULIEANNA 42-22 OFFSITE NATIVE SOUTH
Date Collected: 03/17/16 10:33
Date Received: 03/18/16 10:05

Lab Sample ID: 280-80918-3
Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	15.4		0.1		%			03/20/16 09:18	1

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-80918-1

Client Sample ID: JULIEANNA 42-22 OFFSITE NATIVE SOUTH **Lab Sample ID: 280-80918-3**
Date Collected: 03/17/16 10:33 **Matrix: Solid**
Date Received: 03/18/16 10:05 **Percent Solids: 84.6**

Method: 6020 - Total Metals by ICP-MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.2		0.098		mg/Kg	☼	03/28/16 14:40	03/30/16 05:06	1

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-80918-1

Client Sample ID: JULIEANNA 42-22 OFFSITE NATIVE WEST **Lab Sample ID: 280-80918-4**
Date Collected: 03/17/16 10:35 **Matrix: Solid**
Date Received: 03/18/16 10:05

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	3.5		0.1		%			03/20/16 09:18	1

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-80918-1

Client Sample ID: JULIEANNA 42-22 OFFSITE NATIVE WEST **Lab Sample ID: 280-80918-4**
Date Collected: 03/17/16 10:35 **Matrix: Solid**
Date Received: 03/18/16 10:05 **Percent Solids: 96.5**

Method: 6020 - Total Metals by ICP-MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.91		0.091		mg/Kg	☼	03/28/16 14:40	03/30/16 05:21	1

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-80918-1

Client Sample ID: JULIEANNA 42-22 OFFSITE NATIVE NORTH **Lab Sample ID: 280-80918-5**
Date Collected: 03/17/16 10:37 **Matrix: Solid**
Date Received: 03/18/16 10:05

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	5.6		0.1		%			03/20/16 09:18	1

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-80918-1

Client Sample ID: JULIEANNA 42-22 OFFSITE NATIVE NORTH **Lab Sample ID: 280-80918-5**
Date Collected: 03/17/16 10:37 **Matrix: Solid**
Date Received: 03/18/16 10:05 **Percent Solids: 94.4**

Method: 6020 - Total Metals by ICP-MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.2		0.076		mg/Kg	☼	03/28/16 14:40	03/30/16 05:24	1

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-80918-1

Client Sample ID: JULIEANNA 42-22 OFFSITE NATIVE EAST **Lab Sample ID: 280-80918-6**
Date Collected: 03/17/16 10:30 **Matrix: Solid**
Date Received: 03/18/16 10:05

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	19.2		0.1		%			03/20/16 09:18	1

Client: Pioneer Natural Resources USA, Inc.
Project/Site: Soil Testing Suite

TestAmerica Job ID: 280-80918-1

Client Sample ID: JULIEANNA 42-22 OFFSITE NATIVE EAST — **Lab Sample ID: 280-80918-6**
Date Collected: 03/17/16 10:30 — **Matrix: Solid**
Date Received: 03/18/16 10:05 — **Percent Solids: 80.8**

Method: 6020 - Total Metals by ICP-MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.2		0.11		mg/Kg	☼	03/28/16 14:40	03/30/16 05:28	1