

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

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: 66571	Contact Name and Telephone: Daniel I. Padilla
Name of Operator: OXY USA WTP LP	No: 970.263.3637
Address: 760 Horizon Drive, Suite 101	Fax: 970.263.3694
City: Grand Junction State: CO Zip: 81508	
API Number: 05-045-10444	County: Garfield County
Facility Name: CC Pond 9 / 616-21-32	Facility Number: 291975 (PIT FACILITY ID)
Well Name: Cascade Creek	Well Number: 616-21-32
Location: (Qtr, Sec, Twp, Rng, Meridian): NENW, Sec 16, T6S, R97W, 8th PM	Latitude: 39.526811 Longitude: -108.228458

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): Not Applicable

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.): Non-crop land rangeland

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Parachute-Rhone Loam 5-30% slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Nearest water well is ~8710' to the west. A natural drainage is ~110 southwest of pad and connects to the intermittent unnamed drainage ~660' to the southwest. The unnamed drainage connects with Cascade Canyon ~3360' south of pit.

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

Impacted Media (check):	Extent of Impact:	How Determined:
<input type="checkbox"/> Soils	N/A	Laboratory analytical results
<input type="checkbox"/> Vegetation	N/A	Visual
<input type="checkbox"/> Groundwater	N/A	Visual inspection below pit liner
<input type="checkbox"/> Surface Water	N/A	Visual

REMEDIALTION WORKPLAN

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

Oxy permitted this pit as a production pit in August of 2007. Oxy closed the pit in 2008 and is providing this pit closure form/plan for COGCC review/approval.

Describe how source is to be removed:

Oxy removed liquids found inside the production pit; no solids were encountered. Liquids removed from the production pit were redistributed into Oxy's water system for reuse. Oxy disposed of the pit liner at the Garfield County Landfill. Based on the sampling results of the pit bottom, all analytes are found to be below allowable concentrations levels except for arsenic and electrical conductivity (EC). Although arsenic is above the COGCC regulated concentration, Oxy collected background samples in undisturbed locations which identified elevated concentrations of arsenic to be above concentrations found in the pit bottom. To account for the high EC concentrations found, the pit bottom was buried below a cap of three feet to ensure a sufficient agronomic zone is achieved.

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.:

Liquids were removed from the production pit and no solids were encountered. Liquids present in the production pit were redistributed into Oxy's water system for reuse. The 60-mil high-density polyethylene liner was disposed of at Garfield County Landfill. Analytical concentrations found in the pit bottom are below the COGCC's Table 910-1 concentrations, except for arsenic and EC. This pit was closed and sampled in 2008 under the old COGCC rules; therefore, PAHs and Chromium VI were omitted. Based on post reclamation analytical concentrations for TPH and total chromium, Oxy assumes no exceedances would be encountered for PAHs and Chromium VI. In 2010, Oxy collected background samples in undisturbed locations which identified elevated concentrations of arsenic to be above concentrations found in the pit bottom. The site was contoured to be level with the existing pad grade.

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

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REMEDIAL WORKPLAN (Cont.)

OGCC Employee: _____

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):
No groundwater was impacted by the pit. The pit was lined with a 60-mil HDPE liner. This pit was used as a production pit and no solids were encountered in the pit during closure activities. During excavation of the production pit liner, an Oxy contractor was present to observe the soil below the liner. The contractor collected soil samples from below the pit liner to ensure environmental impacts were not present. Laboratory analytical results are included which identify the approximate sampling location within the pit at depth and compliance with the COGCC Table 910-1 allowable concentrations, except for arsenic and EC. Oxy collected the post-reclamation sample from the pit bottom after the liner was removed, yet before the pit was backfilled. Oxy collected background samples in an undisturbed location which identified elevated concentrations of arsenic which are above concentrations found in the pit bottom. This pit was closed and sampled in 2008 under the old COGCC rules; therefore, PAHs and Chromium VI were omitted. Based on post reclamation analytical concentrations for TPH and total chromium, Oxy assumes no exceedances would be encountered for PAHs and Chromium VI.

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 production pit was constructed at grade with Oxy's Cascade Creek 616-21-32 well pad, and was approximately 12 feet deep. The pit liner was sent to the Garfield County Landfill for disposal. The reclaimed pit was contoured to be level with the pad grade to minimize stormwater runoff. Final pad reclamation will occur at the end of the life of the pad.

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:

Oxy will monitor the site for stormwater compliance as the pit was made level with the well pad surface. Final reclamation will occur at time of pad closure and Oxy will follow up during the next growing season to determine if revegetation efforts were successful.

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

Oxy removed all liquids within the production pit and redistributed them into Oxy's water system for reuse. No solids were encountered during removal of the liquids from the production pit. Note that the production pit liner was disposed of at the Garfield County Landfill.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 8/25/2008 Date Site Investigation Completed: 12/1/2008 Date Remediation Plan Submitted: 3/1/11
Remediation Start Date: ~9/25/2008 Anticipated Completion Date: 2/15/2011 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: Daniel I. Padilla Signed: _____
Title: Regulatory Advisor Date: 3/1/11

OGCC Approved: _____ Title: FOR Date: 06/1
Chris Canfield
EPS NW Region

Pit Reclaims - Cascade Creek

Pad #:	Pond 9 / 616-21-32
Facility ID #:	291975
Sample Date:	11/26/2008
Clearance Achieved Date:	

	MCL (mg/kg)	Post Reclaim	Sample Identifications (mg/kg)			
			SW Background 10/21/2010	NE Background 10/21/20010	NW Background 10/21/2010	SE Background 10/21/2010
Organics in Soil						
TPH (GRO and DRO)	500	<4.0/<0.50	1.30	<1.0	3.9	<1.0
Benzene	0.17	<0.0025	<0.00090	<0.00090	<0.00090	<0.00090
Toluene	85	<0.025	<0.0015	<0.0015	<0.0015	<0.0015
Ethylbenzene	100	<0.0025	<0.0013	<0.0013	<0.0013	<0.0013
Xylenes	175	<0.0075	<0.0028	<0.0028	<0.0028	<0.0028
Organics in Soil (PAH's)						
Acenaphthene	1000	NA	NA	NA	NA	NA
Anthracene	1000	NA	NA	NA	NA	NA
Benzo(A)anthracene	0.22	NA	NA	NA	NA	NA
Benzo(B)fluoranthene	0.22	NA	NA	NA	NA	NA
Benzo(K)fluoranthene	2.2	NA	NA	NA	NA	NA
Benzo(A)pyrene	0.022	NA	NA	NA	NA	NA
Chrysene	22	NA	NA	NA	NA	NA
Dibenzo(A,H)anthracene	0.022	NA	NA	NA	NA	NA
Fluoranthene	1000	NA	NA	NA	NA	NA
Flourene	1000	NA	NA	NA	NA	NA
Indeno(1,2,3,C,D)pyrene	0.22	NA	NA	NA	NA	NA
Napthalene	23	NA	NA	NA	NA	NA
Pyrene	1000	NA	NA	NA	NA	NA
Inorganics in Soil						
EC	<4 mmhos/cm or 2X background	6.10	0.089	0.094	0.084	0.075
SAR	<12	2.6	2.2	1.7	0.96	1.8
pH	6-9	7.6	8.7	8.6	8.0	8.6
Metals in Soils						
Arsenic	0.39	9.9	20.0	22.0	14.0	12.0
Barium (LDNR True Total)	15000	380				
Boron (Hot Water Soluble)	2 (mg/L)	<0.20 (SPLP)				
Cadmium	70	0.58				
Chromium	12000	71.0				
Chromium VI	23	NA				
Copper	3100	12.0				
Lead	400	16.0				
Mercury	23	<0.020				
Nickel	1600	39.0				
Selenium	390	2.60				
Silver	390	1.2				
Zinc	23000	51.0				



OXY USA WTP LP

760 Horizon Drive, Suite 101
Grand Junction, CO 81506

Pond 9 Sampling Figures

Revised: Feb. 14, 2011 Garfield County, Colorado

0 0.02 0.04 0.06 0.08 Miles

