

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



#7258

FOR OGCC USE ONLY

RECEIVED  
8/21/2012

**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>66571</u>	Contact Name and Telephone: <u>Daniel I. Padilla</u>
Name of Operator: <u>OXY USA WTP LP</u>	No: <u>970.263.3637</u>
Address: <u>760 Horizon Drive, Suite 101</u>	Fax: <u>970.263.3694</u>
City: <u>Grand Junction</u> State: <u>CO</u> Zip: <u>81506</u>	

API Number: _____	County: <u>Garfield County</u>
Facility Name: <u>Mesa Cuttings Disposal Area</u>	Facility Number: <u>423444 (Location ID)</u>
Well Name: _____	Well Number: _____
Location: (QtrQtr, Sec, Twp, Rng, Meridian): <u>NWSE, Sec 9, T6S, R97W, 6th PM</u>	Latitude: <u>39.53471</u> Longitude: <u>-108.22424</u>

**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 **Included in Form 2A submittal**

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: Parachute-Irigul complex, 5 to 30 percent slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Nearest water well is a privately owned monitoring well ~1.58 miles northwest, the nearest surface water body is an unnamed intermittent drainage ~500' to the southeast, nearest natural drainage is ~500' to the southeast.

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

Impacted Media (check):	Extent of Impact:	How Determined:
<input type="checkbox"/> Soils	<u>Not applicable</u>	<u>Laboratory analytical data</u>
<input type="checkbox"/> Vegetation	<u>Not applicable</u>	<u>Visual</u>
<input type="checkbox"/> Groundwater	<u>Not applicable</u>	<u>Laboratory analytical data</u>
<input type="checkbox"/> Surface Water	<u>Not applicable</u>	<u>Laboratory analytical data</u>

**REMEDIATION WORKPLAN**

**Describe initial action taken** (if previously provided, refer to that form or document):  
Oxy submitted a Form 2A on February 23, 2011 requesting approval of the included Mesa Cuttings Disposal Area (MCDA) cuttings management plan. The COGCC approved the cuttings management plan for the MCDA on June 03, 2011. As requested in the approved document, Oxy is providing this Form 27 to initiate closure of the MCDA drill cuttings disposal area for COGCC review and approval.

**Describe how source is to be removed:**  
As described in the drill cuttings materials management plan Oxy transported drill cuttings via truck from the 697-04D, 608-41, 608-43-31, 609-33, 697-16-28, and 697-05C well pads to the MCDA cuttings disposal area. The cuttings were transported to the receiving/mixing area on the location, mixed with native material, and then stacked at the permanent disposal location until approximately 14,189 cubic yards of cuttings were disposed. Oxy collected and analyzed mixed cuttings samples within the MCDA disposal area and analyzed them for COGCC Table 910-1. Oxy will cap the cuttings with at least 3 feet of native material for a sufficient agronomic zone, to allow for final reclamation.

**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.:**  
Oxy collected cuttings samples following the transport of cuttings to the disposal location. Sample results identified elevated concentrations of arsenic, pH, and sodium adsorption ratio. Additionally, sample results identified episodic elevated concentrations of TPH, Benzo(A)pyrene, Dibenzo(A,H)anthracene, and Benzene which were collected prior to mixing. The cuttings were then mixed and Oxy resampled the mixed cuttings once staged for final disposal to ensure elevated concentrations of TPH and PAH's were not present within the mixed cuttings. Oxy will cap the cuttings disposal location with at least 3 feet of native material to ensure a sufficient agronomic zone. Oxy will collect confirmation samples of the cap to ensure adequate native material is placed on the disposal location.

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Tracking Number: Name of Operator: OGCC Operator No: Received Date: Well Name & No: Facility Name & No: AKDA, Location # 423444

REMEDIATION 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 during the disposal of the drill cuttings. The transported cuttings were stabilized with sawdust on each well pad to absorb de minimus amounts of fluids present in the cuttings. After the cuttings were transported to the disposal area the cuttings were additionally mixed with native material prior to disposal. Oxy monitored down gradient surface water before, during, and after cuttings disposal operations (as shown on the attached data table and analytical data). Currently surface water sampling data shows no change to surface water analytical concentrations in the stock pond. As outlined the Cuttings Management Plan, Oxy has four additional quarterly surface water samples to collect following the final reclamation of the area, and will provide the data to the COGCC when completed.

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. Oxy will cap the area and then prepare the site for reclamation to include contouring and seed bed preparation. Oxy will append to the final Form 27 a closure assessment of the cuttings management plan. The assessment will include a summary of spills, cutting samples, surface water samples, status of reclamation efforts, and recommendations for future cuttings materials management plans, if any.

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? [X] Y [ ] N If yes, describe:

Oxy will follow up with a final Form 27 for closure, revegetation efforts, monitoring for stormwater, and semi-annual inspections on the site.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.): Disposal occurred on site for the drill cuttings following the cuttings materials management plan approved on June 3, 2011. Site revegetation will be monitored semi-annually for stormwater. Oxy will include status of revegetation efforts in subsequent Form 36 inspections.

IMPLEMENTATION SCHEDULE

Table with 3 columns: 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: Daniel I. Padilla Signed: [Signature] Date: 8/21/12

OGCC Approved: [Signature] Title: FOR Date: 09/06/2012

Chris Canfield EPS NW Region

<b>Mesa Cuttings Disposal Area</b>	
Pad #:	
Sample Date:	
Clearance Achieved Date:	

Lab Report #	Sample Identifications (mg/kg)																																						
	L538906	L538906	L5440513	L542149	L543367-01	L546375-01	L545613-01	L549668	L549975	L550534	L550993	L552050	L552659	L554751	L555241	L555699	L556914	L556270	L556820	L559207	L559381	L559381	L559381	L559381	L559381	L560365	L560365	L561390	L561390	L561390	L561390	L566821	L566821	L566821	L566821	L566821	L588966		
Date Sampled	9/27/2011	9/27/2011	10/5/2011	10/14/2011	10/20/2011	11/10/2011	11/7/2011	12/2/2011	12/5/2011	12/7/2011	12/9/2011	12/13/2011	12/20/2011	1/5/2012	1/10/2012	1/12/2012	1/20/2012	1/17/2012	1/31/2012	2/3/2012	2/7/2012	2/7/2012	2/7/2012	2/7/2012	2/7/2012	2/9/2012	2/9/2012	2/16/2012	2/16/2012	2/16/2012	2/16/2012	7/25/2012	7/25/2012	7/25/2012	7/25/2012	7/25/2012	8/7/2012		
Sample Name	609-33-54-DISPOSAL-N	609-33-54-DISPOSAL-NW	MCDA-SE	609-33-54-Cuttings	MCDA-South	MCDA-CUTW-111011	MCDA-11711	MCDA-120211	MCDAS	MCDA-12711	MCDA-12911	MCDA-121311	MCDA-122011	MCDA-CM-1512	MCDA-MC11012	MCDA-MC11212	MCDA-MC12012	MCDA-MC11712	MCDA-PC-13112	MCDA-MPC-2312	MCDA1 8-10-IN	MCDA2 8-10-IN	MCDA3 8-10-IN	MCDA4 8-10-IN	MCDA5 8-10-IN	MCDA1	MCDA2	MCDA-MCNE-21612	MCDA-MCN-21612	MCDA-MCS-21612	MCDA-MCC-21612	MCDA-S-072512	MCDA-N-072512	MCDA-NW-072512	MCDA-SW-072512	MCDA-SC-072512	MCDA-CENTER-080712		
Organics in Soil																																							
MCL (mg/Kg)																																							
TPH (GRO and DRO)	500	1902.1	1603.1	1200.5	940.0	176.0	572.3	782.5	455.0	698.9	925.0	425.3	350.0	414.5	256.4	652.7	275.3	472.5	632.4	36.0	94.0	822.9	351.8	251.0	40.4	185.1	486.8	58.0	600.0	594.0	228.0	220.0	460.4	170.6	310.8	351.0	390.5	6.7	
Benzene	0.17	0.44	0.025	0.14	BDL	0.097	0.028	0.079	0.17	0.058	0.3	1	0.081	0.021	0.012	0.034	0.18	0.055	0.024	0.0017	0.0018	0.081	0.016	0.023	0.0071	0.029	0.014	U	0.027	0.044	0.066	0.054	0.002	U	0.0022	0.0063	0.0055	U	
Toluene	85	0.24	0.04	0.16	0.00	0.53	0.04	0.09	0.52	0.07	0.73	1.10	0.21	0.052	0.026	0.048	0.220	0.130	0.049	0.008	0.060	0.087	0.031	0.064	0.020	0.058	0.033	0.016	0.044	0.091	0.065	0.170	0.005	U	0.004	0.011	0.0064	U	
Ethylbenzene	100	0.03	0.00	0.03	BDL	0.40	0.00	0.01	0.05	0.01	0.043	0.17	0.01	0.006	0.0054	0.034	0.043	0.052	0.014	0.0067	0.042	0.0077	0.0068	0.029	0.0078	0.017	0.012	0.02	0.011	0.03	0.011	0.054	U	U	0.002	U	U		
Xylenes	175	0.066	0.037	0.140	0.009	1.400	0.031	0.080	0.590	0.077	0.610	0.500	0.220	0.056	0.040	0.043	0.230	0.250	0.081	0.160	1.100	0.120	0.100	0.490	0.170	0.100	0.220	0.540	0.140	0.620	0.120	1.000	0.004	U	0.003	0.008	0.004	U	
Organics in Soil (PAH's)																																							
Acenaphthene	1000	BDL	BDL	0.066	0.073	BDL	0.02	0.059	0.021	0.019	0.078	0.037	0.0093	0.0017	U	0.026	0.028	0.0094	0.0068	0.034	0.0068	0.035	U	0.0095	0.009	U	0.011	0.0049	0.029	0.0074	BDL	0.019	0.03	0.019	0.031	0.019	0.037	0.035	
Anthracene	1000	BDL	0.045	BDL	BDL	BDL	0.025	0.059	0.018	0.011	0.053	0.012	0.0096	0.0011	U	0.023	U	U	0.0033	0.043	0.0068	0.033	0.0091	0.017	0.0038	0.0078	0.017	0.022	0.02	0.019	0.008	0.013	0.016	U	U	U	0.018	U	
Benzo(A)anthracene	0.22	0.12	0.12	BDL	0.029	0.012	0.032	0.098	U	U	0.11	0.018	U	0.013	U	0.053	0.023	0.0092	U	U	0.056	0.015	0.044	U	0.019	0.021	U	0.015	0.026	0.011	BDL	0.029	U	0.031	U	0.032	0.032		
Benzo(B)fluoranthene	0.22	BDL	BDL	BDL	BDL	BDL	0.024	0.082	0.02	0.017	0.051	0.019	0.007	U	U	0.037	U	U	U	0.0014	U	0.036	0.015	0.02	U	U	0.016	U	0.023	0.027	BDL	0.012	0.02	U	U	0.02	0.028	0.019	
Benzo(K)fluoranthene	2.2	BDL	BDL	BDL	BDL	BDL	BDL	BDL	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	BDL	BDL	BDL	BDL	U	U	U	U	U	U	U	
Benzo(A)pyrene	0.022	BDL	BDL	BDL	BDL	BDL	0.021	0.015	0.026	0.021	0.009	0.0036	0.019	0.021	0.014	U	0.0054	0.00075	U	0.036	0.013	0.03	U	0.0092	0.011	U	0.016	0.024	0.007	0.01	0.018	U	0.015	U	0.02	0.035	0.018		
Chrysene	22	0.076	0.11	BDL	BDL	0.014	0.08	0.21	0.035	0.039	0.073	0.044	U	0.021	U	0.095	0.023	0.018	0.0065	0.004	U	0.13	0.024	0.074	U	0.021	0.031	U	0.055	0.053	0.014	0.041	0.035	U	0.034	0.061	0.1	0.044	
Dibenzo(A,H)anthracene	0.022	BDL	BDL	BDL	BDL	BDL	BDL	0.039	U	U	0.03	U	U	U	U	0.01	U	U	0.0015	U	U	0.015	U	U	U	U	U	BDL	BDL	BDL	BDL	U	U	U	U	U	U	U	
Fluoranthene	1000	BDL	BDL	BDL	0.06	BDL	BDL	BDL	U	0.013	0.026	U	0.0059	0.0015	U	U	U	U	0.004	0.0024	U	0.038	U	0.014	0.0027	U	0.011	U	0.017	0.015	BDL	BDL	BDL	U	U	U	0.038	0.032	
Flourene	1000	0.120	0.140	BDL	BDL	BDL	0.083	0.210	0.074	0.057	0.3	0.040	0.0092	0.034	0.093	0.056	0.034	0.017	0.16	0.021	0.12	0.047	0.088	0.036	0.03	0.046	0.062	0.081	0.068	0.054	0.054	0.074	0.12	0.049	0.15	0.08			
Indeno(1,2,3,C,D)pyrene	0.22	BDL	BDL	BDL	BDL	BDL	0.022	U	U	0.014	U	U	U	U	0.0049	U	U	U	U	U	U	U	U	U	U	U	U	BDL	BDL	BDL	BDL	U	U	U	U	U	U		
Naphthalene	23	0.88	0.42	0.032	0.037	0.049	0.4	1.2	0.27	0.41	0.89	0.24	0.1	0.041	0.19	0.37	0.34	0.25	0.1	1.1	0.29	0.7	0.27	0.58	0.35	0.19	0.32	0.14	0.41	0.42	0.35	0.36	0.36	0.24	0.48	0.32	0.74	0.3	
Pyrene	1000	0.35	0.064	BDL	BDL	BDL	0.033	0.098	0.026	0.025	0.026	0.0032	0.0014	0.02	0.032	0.044	0.18	0.0079	0.0048	0.0014	0.064	0.045	U	0.017	0.02	0.00092	0.038	0.016	0.027	0.065	0.031	0.042	0.06	0.091	0.046				
Inorganics in Soil																																							
EC	<4 mmhos/cm or 2X background	0.19	0.21	0.12	0.16	1.90	1.90	1.00	1.70	2.00	2.00	2.5	2.6	1.7	2.4	3.5	2.2	1.7	1.4	0.95	0.53	2.4	1.5	1.3	0.81	1.7	0.94	0.56	1.7	1.3	1.1	1.2	2.9	0.73	1.1	2.1	1.4	0.69	
SAR	<12	36.0	35.0	35.0	14.0	61.0	35.0	36.0	8.8	46.0	40	45	48	43	30	56	19	18	16	4.7	2.5	34	16	17	3.4	16	8.5	2.8	23	17	13	14	16	16	5.5	6.7	16	12	6.7
pH	6-9	9.2	8.4	8.6	8.2	8.9	8.7	9.6	8.9	9.7	8.4	8.7	8.9	9.3	10	9.6	10	11	8.7	11	9.5	9.7	10	9.1	8.7	9.5	9.3	9.9	8.7	8.9	8.7	8.7	8.1	8.1	8.1	8.2	8.2	8.6	
Metals in Soils																																							
Arsenic	0.39	2.6	3.7	8.1	2.5	10.0	3.1	0.4	3.5	2.3	2.4	30.0	0.67	1.0	6.6	3.5	6.7	6.4	6.4	6.7	7.4	3.6	7	6.9	8.5	13	6.1	8.9	3.3	4.1	5.3	4.3	8.7	11	9.4	11	12	3.9	
Barium (LDNR True Total)	15,000	590	1400	1900	2000	210	140	230	200	520	260	850	400	300	310	230	310	300	330	300	290	200	350	350	300	360	330	330	270	280	300	250	270	420	420	450	500		
Cadmium	70	0.54	0.59	1.20	0.69	0.79	0.16	BDL	0.23	U	0.38	7.70	U	0.15	U	0.08	0.57	0.64	0.38	0.42	0.13	0.16	0.18	0.23	0.15	0.2	0.32	0.37	0.14	0.16	0.33	0.083	U	U	U	U	0.32		
Chromium III	120,000	9.6	11.0	10.0	7.6	11.0	10.0	17.0	11.0	U	12.0	170.0	9.3	9.5	14.0	18	20	46	30	37	8.4	19	22	32	20	25	25	37	12	16	24	20	14	32	27	19	24	28	
Chromium VI	23	1.1	BDL	BDL	BDL	1.4	2	1.2	1.4	11	2	U	U	1.2	1.1	1.6	1.5	U	0.88	U	0.88	1.3	U	1.3	U	1.4	1.1	U	1.1	1.6	1.4	1.5	U	U	0.76	U	U		
Copper	3100	16.0	11.0	31.0	22.0	15.0	17.0	56.0	22.0	18.0	860.0	18.0	26.0	20.0	16.0	22	22	12	18	19	18	20	19	18	20	19	18	17	18	17	16	24	24	20	25	22			
Lead	400	7.4	10.0	13.0	9.5	17.0	9.4	12.0	12.0	9.3	9.9	1600.0	9.9	9.2	9.7	9.3	9.8	12	7.3	11	13	9.2	9.6	11	11	11	11	11	12	16	10	14	11	14	27	28	19	23	13
Mercury	23	0.0072	0.0100	0.0480	0.																																		