

#6845

FORM

27

Rev 6/99



01761329

State of Colorado

Oil and Gas Conservation Commission

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



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): skim pit closure/tank battery

OGCC Employee:
☒ Spill ☐ Complaint
☐ Inspection ☒ NOAV
 Tracking No: 2214043

OGCC Operator Number: 20275

Name of Operator: CORAL PRODUCTION CORP.

Address: 1600 STOUT ST., SUITE 1500

City: DENVER

State: CO Zip: 80202

Contact Name and Telephone:

JIM WIEGER

No: 303 623-3573 #101

Fax: 303 623-2870

API Number: 05-121-05453-00 10711 SA

County: WASHINGTON

Facility Name: CHRISTIANSEN TANK BATTERY

Facility Number: 269686

Well Name: CHRISTIANSEN

Well Number: B-5 SA

Location (QtrQtr, Sec, Twp, Rng, Meridian): NW SEC 27, T3S, R50W

Latitude: 39.7675

Longitude: 102.9667

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): CRUDE OIL

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.): NATIVE PASTURE LAND

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: VALENT ALKALINE SAND

Potential receptors (water wells within 1/4 mi, surface waters, etc.): NONE IDENTIFIED

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

Impacted Media (check):



Soils



Vegetation



Groundwater



Surface Water

Extent of Impact:

VICINITY OF SKIM PITS & TANK BATTERY

How Determined:

VISUAL

REMEDIALATION WORKPLAN

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

DRAIN SKIM PITS; EXCAVATE SOIL TO VISUALLY CLEAN SOIL; REMOVE TWO TANKS TO BE REPLACED AT BATTERY; EXCAVATE BENEATH THOSE TWO TANKS TO VISUALLY CLEAN SOIL & CONDUCT CONFIRMATION SAMPLING

Describe how source is to be removed:

SOILS TO BE EXCAVATED AND PLACED ON PLASTIC FOR DETERMINATION OF DISPOSAL/TREATMENT PLAN;

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.:

IMPACTED SOIL TREATMENT ALTERNATIVES ARE BEING INVESTIGATED TO DETERMINE THE MOST PRACTICAL BASED ON VOLUME, ECONOMICS, AND TIME EFFECTIVE. THOSE ALTERNATIVES INCLUDE: LANDFARM, LANDFILL, ONSITE THERMAL DESORPTION, BENEFICIAL USE AS ROADBASE AT COUNTY; PLAN TO BE SUBMITTED AT LATER DATE.

Submit Page 2 with Page 1



REMEDIAL WORKPLAN (Cont.)

Tracking Number: Spill #2214043/Rem #1761329
Name of Operator: Coral Production Corp.
OGCC Operator No: 20275
Received Date: 2/9/12
Well Name & No: Christiansen B-5
Facility Name & No: Tank Battery

OGCC Employee: Axelsson

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

NO EVIDENCE OF IMPACTED GROUNDWATER. DATA SUGGESTS GROUNDWATER IS OVER 150' IN DEPTH;

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.

SKIM PIT RECLAMATION PLAN TO CONSIDER REMEDIAL ALTERNATIVE; IF THERMAL DESORPTION IS SELECTED, THE PROCESSED SOIL WILL BE RETURNED TO THE EXISTING EXCAVATION; SEEDING PLAN WILL BE OUTLINED WILL OCCUR

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:

WITHIN

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

TO BE DETERMINED; INVESTIGATION ONGOING, PLAN TO BE SUBMITTED AT LATER DATE; SOME SOILS HAULED TO KIT CARSON COUNTY LANDFILL & LOGAN COUNTY LANDFILL; AS MORE SOIL WAS EXCAVATED, HAULING WAS DISCONTINUED DUE TO EXCESSIVE VOLUME AND UNECONOMIC METHOD; CURRENT VOLUME ESTIMATE OF STOCKPILED SOIL IS 15,800 CY (WITHIN 20% ACCURACY)

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 5/3/11 Date Site Investigation Completed: _____ Date Remediation Plan Submitted: _____
Remediation Start Date: 5/31/11 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: James Wieger Signed: _____

Title: Geologist Date: 2/8/12

OGCC Approved: [Signature] Title: EPS Date: 2/16/12

Christiansen Lease

Constituent	Tank Battery Excavaton Soil Sample Results		
	Sample 1W mg/Kg	Sample 2E mg/Kg	Regulatory Limit mg/Kg
Total Petroleum Hydrocarbons			
Diesel Range Organics	410	430	500
Gasoline Range Organics	BDL	BDL	500
 Benzene	 BDL	 BDL	 0.17
Toluene	BDL	BDL	85
Ethylbenzene	BDL	BDL	100
Total Xylenes	BDL	BDL	175

Diesel Range Organics

Method SW8015M Revision B

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1201059

Client Name: Gardiner's Go-Fers, LLC

ClientProject ID: Christerson

Field ID: 2 E
Lab ID: 1201059-2

Sample Matrix: SOIL

% Moisture: 5.3

Date Collected: 04-Jan-12

Date Extracted: 09-Jan-12

Date Analyzed: 13-Jan-12

Prep Method: METHOD

Prep Batch: EX120109-1

QCBatchID: EX120109-1-1

Run ID: HCD120112-3

Cleanup: NONE

Basis: Dry Weight

File Name: F3F41775

Sample Aliquot: 20.01 G

Final Volume: 5 ML

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
68334-30-5	Diesel Range Organics	1	430	5.3	H,M	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	10.6		13.2	80	47 - 142

The chromatogram for Diesel Range Organics indicates the presence of hydrocarbons in the range of C12-C40.

Data Package ID: HCD1201059-1

Date Printed: Monday, January 16, 2012

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LIMS Version: 6.550

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Diesel Range Organics

Method SW8015M Revision B

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1201059

Client Name: Gardiner's Go-Fers, LLC

ClientProject ID: Christerson

Field ID:	1 W
Lab ID:	1201059-1

Sample Matrix: SOIL

% Moisture: 4.3

Date Collected: 04-Jan-12

Date Extracted: 09-Jan-12

Date Analyzed: 13-Jan-12

Prep Method: METHOD

Prep Batch: EX120109-1

QCBatchID: EX120109-1-1

Run ID: HCD120112-3

Cleanup: NONE

Basis: Dry Weight

File Name: F3F41774

Sample Aliquot: 20.01 G

Final Volume: 5 ML

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
68334-30-5	Diesel Range Organics	1	410	5.2	H,M	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
84-15-1	O-TERPHENYL	10.2		13.1	78	47 - 142

The chromatogram for Diesel Range Organics indicates the presence of hydrocarbons in the range of C12-C40.

Data Package ID: HCD1201059-1

Date Printed: Monday, January 16, 2012

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LIMS Version: 6.550

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Gasoline Range Organics

Method SW8015 Revision B

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1201059

Client Name: Gardiner's Go-Fers, LLC

ClientProject ID: Christerson

Field ID:	1 W
Lab ID:	1201059-1

Sample Matrix: SOIL

% Moisture: 4.3

Date Collected: 04-Jan-12

Date Extracted: 09-Jan-12

Date Analyzed: 09-Jan-12

Prep Method: SW5035 Rev C

Prep Batch: HCG120109-1

QCBatchID: HCG120109-1-1

Run ID: HCG120109-1A

Cleanup: NONE

Basis: Dry Weight

File Name: 06076.dat

Sample Aliquot: 1.06 G

Final Volume: 5 ML

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
8006-61-9	GASOLINE RANGE ORGANICS	1	0.49	0.49	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
193533-92-5	2,3,4-TRIFLUOROTOLUENE	0.457		0.493	93	76 - 126

Data Package ID: HCG1201059-1

Date Printed: Friday, January 13, 2012

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LIMS Version: 6.550

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Gasoline Range Organics

Method SW8015 Revision B

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1201059

Client Name: Gardiner's Go-Fers, LLC

ClientProject ID: Christerson

Field ID:	2 E
Lab ID:	1201059-2

Sample Matrix: SOIL

% Moisture: 5.3

Date Collected: 04-Jan-12

Date Extracted: 09-Jan-12

Date Analyzed: 09-Jan-12

Prep Method: SW5035 Rev C

Prep Batch: HCG120109-1

QCBatchID: HCG120109-1-1

Run ID: HCG120109-1A

Cleanup: NONE

Basis: Dry Weight

File Name: 06077.dat

Sample Aliquot: 1.08 G

Final Volume: 5 ML

Result Units: MG/KG

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
8006-61-9	GASOLINE RANGE ORGANICS	1	0.49	0.49	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
193533-92-5	2,3,4-TRIFLUOROTOLUENE	0.451		0.489	92	76 - 126

Data Package ID: HCG1201059-1

Date Printed: Friday, January 13, 2012

ALS Environmental -- FC

LIMS Version: 6.550

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GC/MS Volatiles

Method SW8260 Revision C

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1201059

Client Name: Gardiner's Go-Fers, LLC

ClientProject ID: Christerson

Field ID:	1 W
Lab ID:	1201059-1

Sample Matrix: SOIL

% Moisture: 4.3

Date Collected: 04-Jan-12

Date Extracted: 11-Jan-12

Date Analyzed: 11-Jan-12

Prep Method: SW5035 Rev A

Prep Batch: VL120111-3

QCBatchID: VL120111-3-2

Run ID: VL120111-3A

Cleanup: NONE

Basis: Dry Weight

File Name: C33692

Sample Aliquot: 5G

Final Volume: 5ML

Result Units: UG/KG

Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
71-43-2	BENZENE	1	5.2	5.2	U	
108-88-3	TOLUENE	1	5.2	5.2	U	
100-41-4	ETHYLBENZENE	1	5.2	5.2	U	
136777-61-2	M+P-XYLENE	1	5.2	5.2	U	
95-47-6	O-XYLENE	1	5.2	5.2	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	60.4		52.2	116	52 - 151
1868-53-7	DIBROMOFLUOROMETHANE	50.5		52.2	97	61 - 134
2037-26-5	TOLUENE-D8	52.3		52.2	100	57 - 135

Data Package ID: VL1201059-1

Date Printed: Friday, January 13, 2012

ALS Environmental -- FC

LIMS Version: 6.550

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GC/MS Volatiles

Method SW8260 Revision C

Sample Results

Lab Name: ALS Environmental -- FC

Work Order Number: 1201059

Client Name: Gardiner's Go-Fers, LLC

ClientProject ID: Christerson

Field ID: 2 E
Lab ID: 1201059-2

Sample Matrix: SOIL
% Moisture: 5.3
Date Collected: 04-Jan-12
Date Extracted: 11-Jan-12
Date Analyzed: 11-Jan-12
Prep Method: SW5035 Rev A

Prep Batch: VL120111-3
QCBatchID: VL120111-3-2
Run ID: VL120111-3A
Cleanup: NONE
Basis: Dry Weight
File Name: C33693

Sample Aliquot: 5G
Final Volume: 5ML
Result Units: UG/KG
Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
71-43-2	BENZENE	1	5.3	5.3	U	
108-88-3	TOLUENE	1	5.3	5.3	U	
100-41-4	ETHYLBENZENE	1	5.3	5.3	U	
136777-61-2	M+P-XYLENE	1	5.3	5.3	U	
95-47-6	O-XYLENE	1	5.3	5.3	U	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	61		52.8	115	52 - 151
1868-53-7	DIBROMOFLUOROMETHANE	50.1		52.8	95	61 - 134
2037-26-5	TOLUENE-D8	52.3		52.8	99	57 - 135

Data Package ID: VL1201059-1

Date Printed: Friday, January 13, 2012

ALS Environmental -- FC

LIMS Version: 6.550

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