

FORM  
**27**  
Rev 6/99

*Supplemental Form 27*



01642189



**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  
*Feb 22, 2015*

**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 Employee:  
 Spill  Complaint  
 Inspection  NOAV  
Tracking No:  
*REM 7058*

OGCC Operator Number: <u>10352</u>	Contact Name and Telephone: <u>Curtis Ditzell - V.P. and Chief Exploration Officer</u>
Name of Operator: <u>CM Production, LLC</u>	No: <u>(720) 645-2092</u> Cell: <u>(303) 808-8840</u>
Address: <u>390 Union Blvd, Suite 620</u>	Fax: <u>(303) 479-1318</u>
City: <u>Lakewood</u> State: <u>CO</u> Zip: <u>80228</u>	

API Number: <u>N/A</u>	County: <u>Jackson</u>
Facility Name: <u>Lone Pine Soil Stockpile/Treatment Pits</u>	Facility Number: <u>420409, Location #324634, (COGCC REM #7058)</u>
Well Name: <u>N/A</u>	Well Number: _____
Location: (QtrQtr, Sec, Twp, Rng, Meridian): <u>SW SE 28 T9N, R81W, 6 P.M.</u>	Latitude: <u>40.717416</u> Longitude: <u>-106.49915</u>

**TECHNICAL CONDITIONS**

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): Crude Oil and 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.): ranch - dryland pasture

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Fluetsch-Tiagos Assoc (Fh) & Cryaquents (Ct)

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Spring Gulch, No Water Wells w/in 3/4 of a 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>Soil Stockpile and Produced Water Pits</u>	<u>Soil Sampling/Visual</u>
<input type="checkbox"/> Vegetation	_____	_____
<input type="checkbox"/> Groundwater	_____	_____
<input type="checkbox"/> Surface Water	_____	_____

**REMEDATION WORKPLAN**

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

Previously treated stockpiled soils from the overflow treater pit are to be landfarmed onsite to meet Table 910-1 soil parameter concentrations/levels as previously requested. An agreement was reached with the surface owner, Silver Spur Land and Cattle, LLC on September 3, 2014. (See Attached).

**Describe how source is to be removed:**

The soils will be landfarmed in accordance with the draft workplan submitted to the COGCC on January 14, 2015. Confirmation soil samples will be analyzed for the Table 910-1 soil TPH ranges to assess progress, and Table 910-1 soil parameters for confirmation. Landfarming may require a period of up to three years starting in June 2015.

**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 soils will be treated using an aggressive landfarming approach to reduce concentrations of the Table 910-1 soil parameters. Progress samples may be analyzed only for the TPH ranges of GRO, DRO, and ORO. If the results of these show that concentrations are below the 500 mg/kg concentration level, additional samples will be collected to confirm that remediation is complete.

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[Redacted]



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.):

Groundwater monitoring has been conducted using the six monitoring wells onsite. Laboratory results for groundwater samples from downgradient monitoring well MW-1 have shown petroleum constituents were detected; however, these have been below the COGCC Table 910-1 concentrations. CM Production and Olsson Associates request suspending groundwater monitoring.

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.

This Form 27 is provided as a supplement to previously submitted remediation workplans. An agreement with the surface owner, Silver Spur Land and Cattle, LLC (See Attached) was reached on September 3, 2014. Once the soils have been tested and found to meet Table 910-1 soil concentrations, and upon receiving approval from the COGCC, the area will be reclaimed as part of the working surface for CM Production's Lone Pine field operations. Treated soils will be used onsite.

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:

Additional site investigation is required to assess the conditions of the soils beneath the remaining five pits. Based on a preliminary soil sample collected from pit 5 in June 2014, it is expected that the pits have a bentonite clay liner that may have limited the extent of E&P waste impacts to the soils. Materials in the bottoms of the pits will be treated insitu and will be assessed to determine if they meet the Table 910-1 concentrations. Confirmation soil samples will be collected from native soil beneath the bentonite liner to assess subsurface impacts. Subsurface impacted soils will be land treated onsite in the area agreed upon with the Silver Spur Land and Cattle, LLC.

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

Once the soil analytical results indicate that the treated soil stockpile soils meet the Table 910-1 concentration levels, CM Production will reclaim the pits. Once the soils have been moved, CM Production will have the room onsite necessary to remediate any impacted soils associated with the remaining five pits. CM Production proposes to start with pits #4 and #5 since these were the last in the process, are larger, and not expected to have significant impacts. These pits will be closed, reclaimed, and re-seeded with a grass seed mixture approved by the Silver Spur Ranch. Pits #1, #2, and #3 will be assessed and closed as soon as soon as practicable. Due to space constraints CM Production would like to use the pits to landfarm impacted soils if encountered above the Table 910-1 concentration levels.

Date Site Investigation Began: June 2014 Date Site Investigation Completed: \_\_\_\_\_ Date Remediation Plan Submitted: \_\_\_\_\_  
Remediation Start Date: June 2015 Anticipated Completion Date: December 2017 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 W. Hix - As Agent for CM Production, LLC Signed: \_\_\_\_\_  
Title: Project Geologist Date: \_\_\_\_\_

OGCC Approved: [Signature] Title: Env. Supt. Date: 3/9/15

*See Attached Conditions of Approval*

**Document Number: 1642189**

**CM Production, LLC**

**Lone Pine Pit Location ID: 115241, 112265, 112266, 112267, 112268, and 112269 REM 7058**

**Supplemental Form 27 Conditions of Approval (COAs)**

Approval of this Form 27 does not grant approval for extending date(s) contained in paragraph 4 of the COGCC Administrative Order by Consent (AOC) and paragraph 14.b of the CDPHE AOC. Nor does it provide approval of dates set forth in the following Documents. The operator shall be actively remediating Pit Facilities at this location.

**COGCC Document Number 2313707:**

- January 14, 2015 DRAFT Request for Compliance Date Extension CM Production LLC, Lone Pine Oil Field Remediation and Decommissioning the Remaining Five Pits 112265, 112266, 112267, 112268, and 112269. Olsson Project #013-1489.

**COGCC Document Number 2313708:**

- January 13, 2015 DRAFT CM Production, LLC – Lone Pine Treatment Pits Facility, REM #7058, Lone Pine Pit Id # 112265, 112266, 112267, 112268, 112269, and 115241, Location ID 324634, and Order 1V-413 Jackson County, Colorado

**COGCC Document Number 2313709:**

- January 14, 2015 Lone Pine Field - Produced Water Treatment Pits and E&P Soils Remediation Time Line.

**CONDITIONS OF APPROVAL**

- By April 3, 2015 or earlier, provide to the COGCC the construction start date of the landfarm treatment facility.
- The Margaret Spaulding 14 (API 057-06108), Margaret Spaulding 4-B (API 057-06046) and Margaret Spaulding 4 (API 057-06031) are in the footprint of proposed land treatment area. The land treatment area should be designed such that normal field operations will not need to access the land treatment area. Lease road between the two treatment areas should be unimpeded at all times.
- Appropriate fencing shall be installed around ALL treatment area(s) to prevent access by wildlife, migratory birds, domestic animals, or members of the general public.
- Berms around the land treat location(s) shall be sufficient to prevent stormwater run on and runoff. Berms shall be maintained at all times.
- Precautions (such as a synthetic liner) shall be implemented to prevent percolation and infiltration of fluids and potential contaminants in the subsurface soil and shallow ground water.
- Any accumulation of fluid in treatment area(s) including the pits shall be removed upon detection. All treatment area(s) including the pits shall monitored after any significant precipitation event.
- The frequency of farming (tilling, disking, nutrient loading, surfactants, etc.) shall be provided to the COGCC as a subsequent report to this workplan.
- Equipment not necessary for use on the lease shall be removed (Rule 603.f) by May 1, 2015.

- The Margaret Spaulding #4-B, (API-057- 06047) is permitted as a UIC well, COGCC records show this well as SI. This well will need a MIT prior to 7/22/2016 as the last MIT was 7/22/2011. Failure to conduct this MIT prior to the due date will result in the well being removed from the UIC program.
- Prior to 3-years of operations and if materials have not met the Table 910-1 Standards, the Operator shall have submitted and received approval of a Form 28 Centralized Exploration and Production (CE&P) Facility meeting all of the requirements, including financial assurance. If the landfarm is not permitted as a Form 28 at that time, then prior to the 3-year anniversary, ALL impacted landfarm material shall be removed and disposed at an approved facility. No time extensions to the landfarm will be granted.
- Only impacted material from the existing pits shall be placed and treated in the landfarm. No additional wastes shall be treated in the landfarm. Addition of other waste will result in a violation of use of the landfarm and the location will be converted a CE&P facility at that meeting 908. d. requirements.
- It is stated in the Form 27 that materials in the bottom of the pits will be treated in situ. Provide the proposed in situ process. No additional wastes shall be added or treated in any of the Pit Facilities.
- Sampling of all monitoring wells shall continue until Pit Facilities: 115241, 112265, 112266, and 112267 have been closed to 910-1 standards. The frequency can be reduced from quarterly monitoring and sampling to semi-annual (twice per year) sampling at times where the shallow groundwater level is at a seasonal high and a seasonal low.
- Samples shall analyzed for benzene, toluene, ethyl benzene, xylenes (BTEX), total petroleum hydrocarbons (TPH) including gasoline range hydrocarbons (GRO), and diesel range hydrocarbons (DRO).



STATE OF  
COLORADO

Fischer - DNR, Alex <alex.fischer@state.co.us>

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## RE: Form 27 Remediation Workplan - Lone Pine Soil Landfarming Agreement with the Silver Spur Ranch (REM 7058)

1 message

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James Hix <jhix@olssonassociates.com>

Sun, Feb 22, 2015 at 8:36 PM

To: "Fischer, Alex (Alex.Fischer@state.co.us)" <Alex.Fischer@state.co.us>

Cc: "Curtis Ditzell (curtisd@cmproductionllc.com)" <curtisd@cmproductionllc.com>, "Roger Freeman (roger.freeman@dgslaw.com)" (roger.freeman@dgslaw.com)" <roger.freeman@dgslaw.com>

Alex,

Attached is the supplemental Form 27 Remediation Workplan for the soil stockpile at CM Production's Lone Pine Field in Jackson County, Colorado along with the executed agreement between CM Production and the Silver Spur Land and Cattle Company.

James

James W. Hix, PG| **Olsson Associates**

4690 Table Mountain Drive, Suite 200 | Golden, CO 80403 | [jhix@olssonassociates.com](mailto:jhix@olssonassociates.com)

TEL 303.237.2072 | DIR 303.374.3139 | CELL 303.589.1572 | FAX 303.237.2659



Form 27 Supplemental Soil Landfarm Agreement fnl Binder 022015.pdf

362K

August 4, 2014

Silver Spur Land and Cattle, LLC  
PO Box 714  
Encampment, WY 82325

**RE: Surface Owner Approval to Land Treat Exploration and Production Waste at the Lone Pine Oil Field Production Facility SW ¼ SE ¼ Section 28, Township 9 North, Range 81 West, 6<sup>th</sup> Principal Meridian, Jackson County, Colorado.**

The letter agreement will serve as a follow up to the June 30, 2014, email from CM Production LLC's (CM Production) attorney and subsequent on-site meeting with CM Production and Silver Spur Land and Cattle, LLC (Silver Spur) personnel.

Under the supervision of the Colorado Oil and Gas Conservation Commission (COGCC), CM Production seeks permission from Silver Spur to land treat Exploration and Production Waste contaminated soils on location of the Lone Pine Field Production Facility.

#### **Proposed Land Treatment of Exploration and Production Wastes**

CM Production proposes to continue land treating the pile of existing Exploration and Production (E&P) Waste contaminated soil, left on location by the previous operator, as well as, excavate and land treat other E&P Waste contaminated soils as necessary. The land treatment process will continue until such time as the E&P wastes and impacted soils meet the COGCC Table 910-1 requirements for soil contaminant concentrations or the COGCC and Silver Spur approve a waiver of those requirements.

The proposed treatment area map and Table 910-1 accepted contaminant concentration levels are attached.

#### **Conditions of Approval**

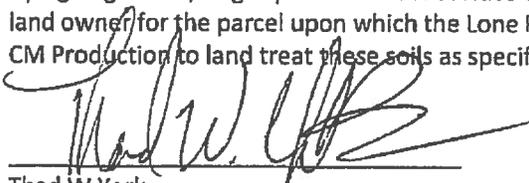
The treatment of contaminated soils may take place on the Lone Pine Oil Field Production Facility within the existing berm west of the main facility road that extends from the Spaulding #14 well location, north of the Spaulding #4 well location; inside pits #1, #2, #3, #4, and #5 (after emptied and dried) and the area west of the excavated pit and pit #3 as shown by the dotted outlines on Figure 1 of this document.

Treatment of all contaminated soils will be accomplished in a proper and environmentally acceptable manner consistent with and subject to COGCC regulations and approval.



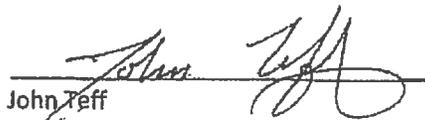
**Surface Owner Approval to Land Treat E&P Wastes and Impacted Soils**

By signing below, I signify that I am the surface owner or an authorized representative of the surface land owner for the parcel upon which the Lone Pine Oil Field Production Facility is located. I authorize CM Production to land treat these soils as specified in this agreement.



Thad W York  
Silver Spur Land and Cattle, LLC  
General Manager

Date: 9/3/2014

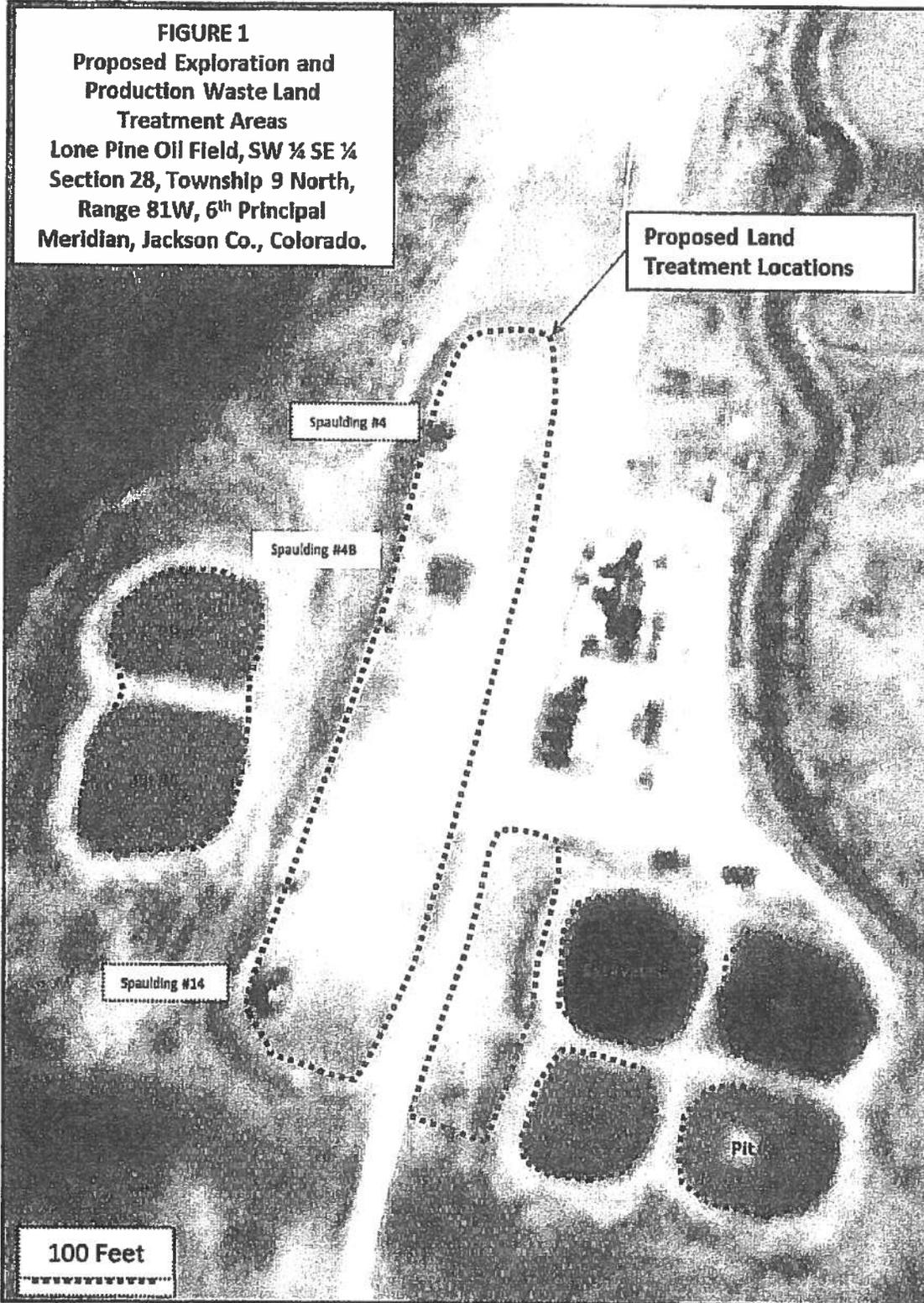


John Teff  
Business Manager-CM Production, LLC

Date: 8/13/14



# FIGURES



# ATTACHMENTS

Table 910-1  
Concentration Levels

Contaminant of Concern	Concentrations
<b>Organic Compounds in Soil</b>	
TPH (total petroleum hydrocarbons) GRO or DRO	500 mg/kg
Benzene	0.17 mg/kg
Toluene	85 mg/kg
Ethylbenzene	100 mg/kg
Xylenes	175 mg/kg
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
Naphthalene	23 mg/kg
Pyrene	1000 mg/kg
<b>Inorganic Compounds in Soil</b>	
Electrical Conductivity (EC)	< 4 mmhos/cm or 2x background
Sodium Adsorption Ratio (SAR)	< 12
pH	6 to 9 standard units
<b>Metals in Soil</b>	
Arsenic	0.39 mg/kg
Barium	15,000 mg/kg
Cadmium	70 mg/kg
Chromium (III)	120,000 mg/kg
Chromium (VI)	23 mg/kg
Copper	3,100 mg/kg
Lead (inorganic)	400 mg/kg
Mercury	23 mg/kg
Nickel (soluble salts)	1,600 mg/kg
Selenium	390 mg/kg
Silver	390 mg/kg
Zinc	23,000 mg/kg

