

State of Colorado
Oil and Gas Conservation Commission



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#8378

FOR OGCC USE ONLY
Received
3/31/2014
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: <u>100322</u> | Contact Name and Telephone: <u>Jacob Evans</u> |
| Name of Operator: <u>Noble Energy, Inc.</u> | No: <u>303-228-4000</u> |
| Address: <u>1625 Broadway, Suite 2200</u> | Fax: <u>303-228-4286</u> |
| City: <u>Denver</u> State: <u>CO</u> Zip: <u>80202</u> | |

| | |
|--|--|
| API Number: <u>05-123-13653</u> | County: <u>Weld</u> |
| Facility Name: <u>Lilli Unit 10-2</u> | Facility Number: <u>112019</u> |
| Well Name: <u>Lilli Unit</u> | Well Number: <u>10-2</u> |
| Location: (QtrQtr, Sec, Twp, Rng, Meridian): <u>NWSE 2 8N 58W 6 PM</u> | Latitude: <u>40.690185</u> Longitude: <u>-103.827344</u> |

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.): Rangeland

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Kim-shingle complex, 6% to 30% slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Unnamed stream approximately 650 feet west

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>Unknown</u> | <u>TBD via excavation</u> |
| <input type="checkbox"/> Vegetation | _____ | _____ |
| <input type="checkbox"/> Groundwater | _____ | _____ |
| <input type="checkbox"/> Surface Water | _____ | _____ |

REMEDIALTION WORKPLAN

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

A site assessment was conducted to evaluate potential soil impact at the pit. A hand auger was advanced to 5 feet below ground surface at the pit. One discrete soil sample was collected from 5 feet below ground surface. The soil sample was submitted for laboratory analysis of BTEX, TPH, EC, SAR, and pH. A site map is attached.

Describe how source is to be removed:

Analytical results indicate there are elevated benzene, TPH, and SAR concentrations in the pit. The pit will be excavated until confirmation soil samples from the sidewalls and floor of the excavation demonstrate concentrations within COGCC allowable levels.

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.:

The impacted soil will be treated on site via exsitu chemical oxidation. The excavated soil will be placed in a soil shredder. The soil shredder will loosen the soil and spray it with hydrogen peroxide to reduce hydrocarbon impacts to levels below COGCC Table 9-10 standards. The treated soil will be utilized as backfill for the excavation once confirmation soil samples demonstrate concentrations within COGCC allowable levels for BTEX, TPH, and naphthalene. If the laboratory analytical results indicate the material is not suitable for backfill, additional remediation will be conducted.



Tracking Number: Name of Operator: Noble Energy, Inc. OGCC Operator No: 100322 Received Date: 3/31/2014 Well Name & No: Lilli Unit 10-2 Facility Name & No: Lilli Unit 10-2 112019

REMIEDIATION WORKPLAN (Cont.)

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

Groundwater was not encountered during the site assessment.

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 pit will be filled and graded to match adjacent topography. Reclamation activities at the site will be compliant with COGCC regulations.

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:

The results of the excavation and soil treatment will be provided under a separate cover.

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

The impacted soil will be treated on site via exsitu chemical oxidation. The treated soil will be used to backfill the excavation.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 5-31-2011 Date Site Investigation Completed: --- Date Remediation Plan Submitted: 9-04-2013 Remediation Start Date: 5-31-2011 Anticipated Completion Date: --- Actual Completion Date: TBD

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: Jacob Evans Signed: [Signature] Title: Senior Environmental Specialist Date: 9-04-2013

OGCC Approved: Title: Northeast EPS Date: 4/24/2014

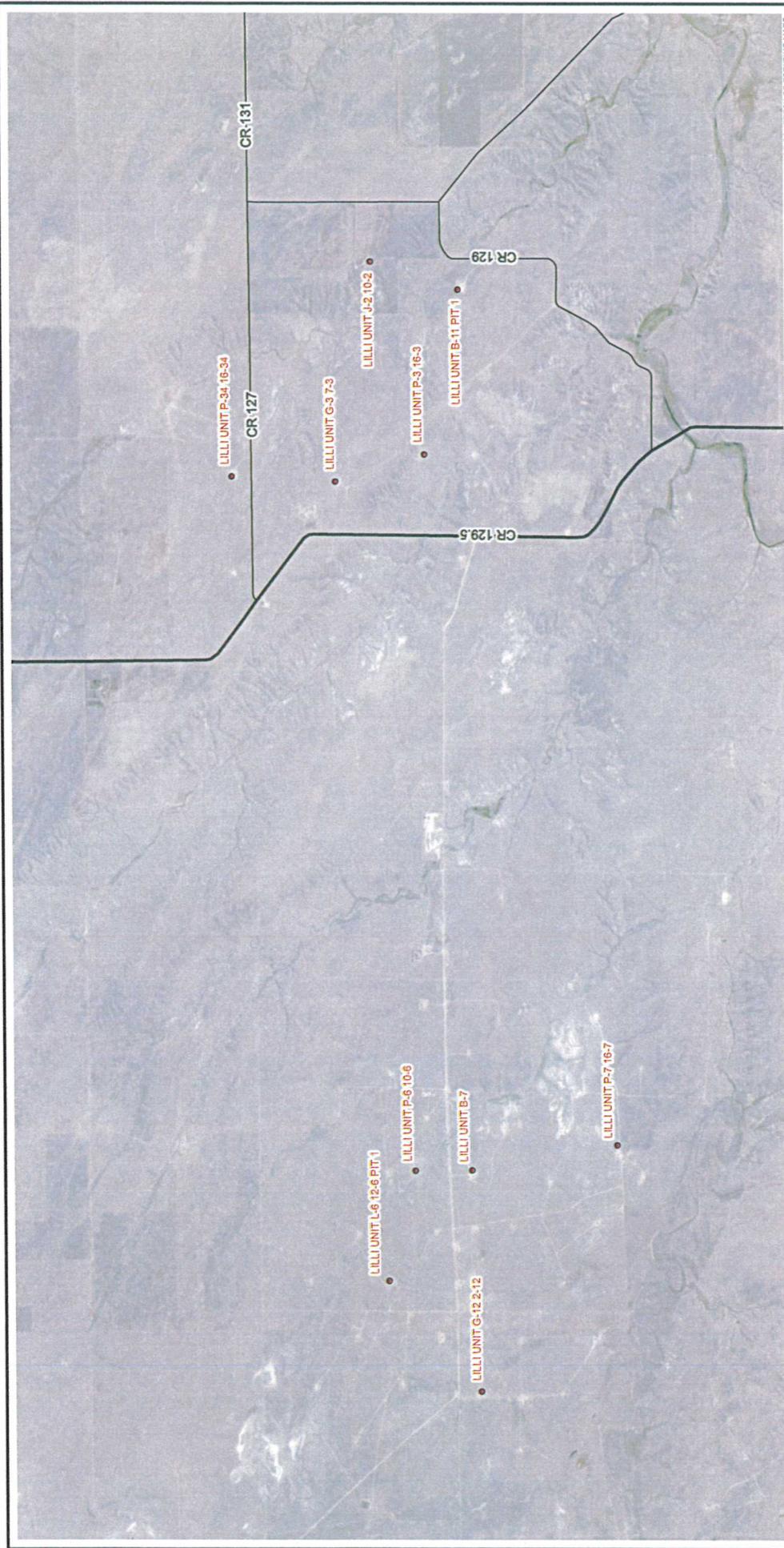
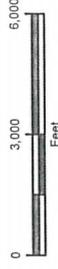


IMAGE COURTESY OF ESRI/BING MAPS



LEGEND

- SITE
- MAJOR ROAD
- LOCAL ROAD

FIGURE 1
LILLI PIT SITE LOCATION MAP
WELD COUNTY, COLORADO



NOBLE ENERGY, INC.

Photo: Energy Information Systems, Inc. Sample Location: LILLI PIT LOC. UNIT1 LANDSCOPE.DWG