FORM 27 Rev 3/16

State of Colorado
Oil and Gas Conservation Commission

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

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Report taken by: Stan Spencer

Site Investigation and Remediation Workplan (Supplemental Form)

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. However, this shall not preclude the Operator from taking immediate action to protect public health or safety, the environment, wildlife, or livestock.
This Form 27 describes site conditions as currently understood by the Operator; approval of this Form 27 by COGCC is based on the site conditions accurately described herein; any changes in site conditions identified during or subsequent to the performance of the approved workplan may necessitate additional investigation or remediation which shall be described on a supplemental Form 27.
This Form 27 is intended to provide basic information regarding the proposed site investigation and remediation actions, but the workplan may be more fully described in attached documentation.
Refer to Rules 340, 905, 906, 907, 908, 909, and 910

OPERATOR INFORMATON

Name of Operator: UTAH GAS OP LTD DBA UTAH GAS CORP Operator No: 10539
Address: 1125 ESCALANTE DR
City: RANGELY State: CO Zip: 81648
Contact Person: Charlie Jensen

Phone Numbers
Phone: (970) 6971550
Mobile: (970) 3091022
Email: cjensen@telesto-inc.com

PROJECT, PURPOSE & SITE INFORMATION

PROJECT INFORMATION

Remediation Project #: 5275 Initial Form 27 Document #: 2521567

PURPOSE INFORMATION

- [ ] 901.e. Sensitive Area Determination
- [ ] 909.c.(1), Rule 905: Pit or PW vessel closure
- [x] 909.c.(2), Rule 906: Spill/Release Remediation
- [ ] 909.c.(3), Rule 907.e.: Land treatment of oily waste
- [ ] 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure
- [ ] 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water
- [ ] Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b.
- [ ] Rule 909.e.(2)B.: Closure of remediation project
- [ ] Rule 906.c.: Director request
- [x] Other EARTHEN BLOWDOWN PIT CLOSURE

SITE INFORMATION

N Multiple Facilites (in accordance with Rule 909.c.)

Facility Type: LOCATION Facility ID: 315482 API #: County Name: RIO BLANCO
Facility Name: THUNDER COM C-64S102W 29SENE Latitude: 39.674761 Longitude: -108.860661
** correct Lat/Long if needed: Latitude: Longitude:
QtrQtr: SENE Sec: 29 Twp: 4S Range: 102W Meridian: 6 Sensitive Area? No

SITE CONDITIONS

General soil type - USCS Classifications CL
Most Sensitive Adjacent Land Use RANGELAND
Is domestic water well within 1/4 mile? No
Is surface water within 1/4 mile? No
Is groundwater less than 20 feet below ground surface? No

Other Potential Receptors within 1/4 mile

SITE INVESTIGATION PLAN

TYPE OF WASTE:

- [x] **E&P Waste**
  - [x] Produced Water
  - [ ] Oil
  - [ ] Condensate
  - [ ] Drilling Fluids
  - [ ] Drill Cuttings
- [ ] **Other E&P Waste**
  - [ ] Workover Fluids
  - [ ] Tank Bottoms
  - [ ] Pigging Waste
  - [ ] Rig Wash
  - [ ] Spent Filters
  - [ ] Pit Bottoms
  - [ ] Other (as described by EPA) _____
- [ ] **Non-E&P Waste** _____

DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	Subsurface ~ 19 feet below grade	VISUAL INSPECTION, lab results

INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

Excavation activities commenced in 2010 and again in 2011. The final extent of the excavation was 14'W x 20'L x 25'D. Due to safety constraints, the excavated material was amended with compounds to enhance bioremediation and rebackfilled. Site was reassessed using direct push and auger technology to collect and define the extents of the soil impacts. A passive biovent well was installed to assist in the soil remediation.

PROPOSED SAMPLING PLAN

Proposed Soil Sampling

- [x] Will soil samples be collected as part of this investigation? (Number, type (grab/composite), analyses, and locations of samples):

Two soil samples were collected to track soil remediation comparable to historical data. BTEX and TPH are the compounds of concern.

Proposed Groundwater Sampling

- [ ] Will groundwater samples be collected as part of this investigation? (Number, analyses, and locations of samples):

Proposed Surface Water Sampling

- [ ] Will surface water samples be collected as part of this investigation? (Number, analyses, and locations of samples):

Additional Investigative Actions

- [x] Additional alternative investigative actions described in attached Site Investigation Plan (summary):

Utah Gas Corp will reassess and evaluate a more aggressive remedial approach, which may include a more focused, active SVE system with wells screened below the former excavation (source).

SITE INVESTIGATION REPORT

SAMPLE SUMMARY

Soil

Number of soil samples collected: 2

Number of soil samples exceeeding 910-1: 2

Was the areal and vertical extent of soil contamination delineated? Yes

Approximate areal extent (square feet): 280

NA / ND

-- Highest concentration of TPH (mg/kg): 4971

NA Highest concentration of SAR:

BTEX > 910-1: Yes

Vertical Extent > 910-1 (in feet): 6

Groundwater

Number of groundwater samples collected: 0

Was extent of groundwater contaminated delineated? Yes

Depth to groundwater (below ground surface, in feet): `

Number of groundwater monitoring wells installed:

Number of groundwater samples exceeding 910-1:

Highest concentration of Benzene (µg/l):

Highest concentration of Toluene (µg/l):

Highest concentration of Ethylbenzene (µg/l):

Highest concentration of Xylene (µg/l):

Highest concentration of Methane (mg/l):

Surface Water

0 Number of surface water samples collected

Number of surface water samples exceeding 910-1

If surface water is impacted, other agency notification may be required.

OTHER INVESTIGATION INFORMATION

☐ Were impacts to adjacent property or offsite impacts identified?

☒ Were background samples collected as part of this site investigation?

Only to quantify arsenic.

☐ Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards):

Volume of liquid waste (barrels):

☐ Is further site investigation required?

REMEDIAL ACTION PLAN

Does this Supplemental Form 27A include changes to a previously approved Remedial Action Plan? No

SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Original excavation was performed and extent of excavation was 14'W x 20'L x 25'D. Encana decided at the time for safety concerns to return the impacted soil to the excavation and schedule additional site assessment activities using hydraulic probe or auger drilling technologies. Vertical and lateral extent of the soil impacts were completed in September 2012, including the installation of a passive biovent well.

REMEDIATION SUMMARY

Describe how remediation of existing impacts to soil and groundwater is to be accomplished (i.e. summarize remedial action plan). Provide a brief narrative description including: technical justification, schedule for implementation, estimated time to attain NFA status, plus plans and specifications for the selected remedial action technology.

The two soil samples collected continue to show soil at the base of the original excavation exceeding the Table 910-1 standard for benzene and TPH. One sample shows a decrease in concentrations and one shows an increase; review of the file revealed that the mixed outcome may be the result of the original source material not being "removed" but placed back in the ground for safety reasons.
Utah Gas Corp will reevaluate the potential to redesign a more active SVE system with a targeted screened interval at and below the original excavation. The existing SVE biovent well is screened within the backfill material and is not designed for source are removal - plus there may be air "short-circuiting" within the backfilled material.

Soil Remediation Summary

☒ **In Situ**

- Yes — Bioremediation (or enhanced bioremediation)
- ____ — Chemical oxidation
- Yes — Air sparge / Soil vapor extraction
- Yes — Natural Attenuation
- ____ — Other ____

☐ **Ex Situ**

- ____ — Excavate and offsite disposal
  - If Yes: Estimated Volume (Cubic Yards) ____
  - Name of Licensed Disposal Facility or COGCC Facility ID # ____
- ____ — Excavate and onsite remediation
  - ____ — Land Treatment
  - ____ — Bioremediation (or enhanced bioremediation)
  - ____ — Chemical oxidation
  - ____ — Other ____

Groundwater Remediation Summary

- No — Bioremediation (or enhanced bioremediation)
- ☐ — Chemical oxidation
- ☐ — Air sparge / Soil vapor extraction
- ☐ — Natural Attenuation
- ☐ — Other ____

GROUNDWATER MONITORING

If groundwater has been impacted, describe proposed monitoring plan, including # of wells or sample points, monitoring schedule, analytical methods, points of compliance. Attach a groundwater monitoring location diagram.

REMEDIATION PROGRESS UPDATE

PERIODIC REPORTING

Frequency: ☐ Quarterly ☐ Semi-Annually ☐ Annually ☒ Other Progress update

Report Type: ☐ Groundwater Monitoring ☐ Land Treatment Progress Report ☐ O&M Report

☒ Other Legacy blowdown earthen pit remediation

WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? No

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

Volume of E&P Waste (solid) in cubic yards

E&P waste (solid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

Volume of E&P Waste (liquid) in barrels

E&P waste (liquid) description

COGCC Disposal Facility ID #, if applicable:

Non-COGCC Disposal Facility:

REMEDIATION COMPLETION REPORT

REMEDIATION COMPLETION SUMMARY

Is this a Final Closure Request for this Remediation Project? No

Do all soils meet Table 910-1 standards? No

Does the previous reply indicate consideration of background concentrations?

Are the only residual soil impacts pH, SAR, or EC at depths greater than 3 feet below ground surface? No

Does Groundwater meet Table 910-1 standards? Yes

Is additional groundwater monitoring to be conducted? No

RECLAMATION PLAN

RECLAMATION PLANNING

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.

Well pad is in active production; interim reclaim conditions.

Is the described reclamation complete? Yes

Does the reclamation described herein constitute interim or final reclamation of the Oil and Gas Location?

☒ Interim? ☐ Final?

Did the Surface Owner approve the seed mix? Yes

If NO, does the seed mix comply with local soil conservation district recommendations? Yes

IMPLEMENTATION SCHEDULE

PRIOR DATES

Date of Surface Owner notification/consultation, if required. _____

Actual Spill or Release date, if known. _____

SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). _____

Date of commencement of Site Investigation. 07/26/2010

Date of completion of Site Investigation. 08/13/2010

REMEDIAL ACTION DATES

Date of commencement of Remediation. _____

Date of completion of Remediation. _____

SITE RECLAMATION DATES

Date of commencement of Reclamation. _____

Date of completion of Reclamation. _____

OPERATOR COMMENT

Attention Stan Spencer: Utah Gas Corp legacy pit closure project. This is an update with current soil data and review. Data shows mixed results; after review of the original excavation report, the impacted soil was returned to the excavation due to safety concerns. The on-going source material may be the reason for the mixed results. Reevaluation and redesign to a more efficient SVE system may be warranted. Utah Gas Corp is reviewing going forward. Please see attached reports.

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

Signed:` Charlie Jensen Title: Hydrogeologist

Submit Date:` 06/22/2018 Email: cjensen@telesto-inc.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: Stan Spencer Date: 06/25/2018

Remediation Project Number: 5275

COA Type	Description

Attachment Check List

Upon approval, the approved Form 27 and all listed attachments will be indexed to the Remediation Project file. Only the approved Form 27 will also be indexed to the related Facilities.

Att Doc Num	Name
401683302	FORM 27-SUPPLEMENTAL-SUBMITTED
401683345	MAP
401683347	ANALYTICAL RESULTS
401683349	SITE INVESTIGATION REPORT
401683350	ANALYTICAL RESULTS

Total Attach: 5 Files

General Comments

User Group	Comment	Comment Date
Environmental	Progress report shows TPH continuing to exceed Table 910-1 by 600% after ~ 7 years after biotreatment and venting. Benzene also exceeds 910-1. Operator must submit a revised remediation plan with an active and aggressive system to bring the blowdown pit into Table 910-1 compliance within one year. Condsider alternative methods in addition to SVE to expedite cleanup.	06/25/2018

Total: 1 comment(s)