

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

**#6128**

**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): Pit Closure

OGCC Employee:

☐ Spill ☐ Complaint  
☐ Inspection ☐ NOAV

Tracking No:

OGCC Operator Number: 10323

Name of Operator: Entek GRB, LLC

Address: 535 16th Street, Suite 620

City: Denver State: CO Zip: 80202

Contact Name and Telephone:

Kristen Stocks

No: (307) 200-1930

Fax: (866) 435-9424

API Number: 05-081-07231

County: Moffatt

Facility Name: Slater Dome

Facility Number: 289418

Well Name: Brownlee

Well Number: 13-9

Location: (QtrQtr, Sec, Twp, Rng, Meridian): NESE 13, 12N, 89W, 6th Latitude: 40.992714 Longitude: -107.32093

**TECHNICAL CONDITIONS**

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): Drilling fluid with 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.): undeveloped rangeland

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

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

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

Impacted Media (check):



Soils



Vegetation



Groundwater



Surface Water

Extent of Impact:

residual drilling materials contained within unlined pit

How Determined:

visual observation and drilling materials sample taken

**REMEDIATION WORKPLAN**

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

Residual drilling fluid materials are present in the unlined pit located on the Brownlee 13-9 well pad (see Figure 1 for approximate pit location). A sample of the residual material has been obtained and tested for total petroleum hydrocarbons (TPH). Figure 2 illustrates the sample location. The sample analysis results indicate concentrations of greater than 500 mg/kg of TPH exist in the residual materials. Accordingly, the proposed initial action will be to uniformly mix the residual drilling materials with clean fill obtained from on-site borrow sources; to reduce TPH concentrations and other Table 910-1 parameter concentrations to acceptable levels and use the mixed material to backfill the pit.

Describe how source is to be removed:

To minimize the impact of the TPH contaminated material on areas adjacent to the Brownlee 13-9 pit, an earthen berm, constructed of clean, compactable fill material will be installed at, or near the midpoint of the pit. Once the earthen berm is in place, the residual drilling material from one side of the pit (excavation side) will be excavated and placed in the other side of the pit (stockpile side). Once in the stockpile side of the pit, all residual drilling materials will be uniformly mixed with clean soils.

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.:

Once the residual material has been removed from the excavation side, the excavation side bottom and sidewalls will be visually inspected for oil staining. Any visually identified oil stained materials will be excavated, placed in the stockpile side and mixed with clean soil. Confirmatory soil samples (discrete) will be collected from 2 locations in the excavation side and sampled for Table 910-1 parameters. In addition, 2 confirmatory soil samples (composite) of the uniformly mixed material located in the stockpile side will be sampled for Table 910-1 parameters. If all sample results are at or below Table 910-1 soil standards, stockpiled material will be excavated, placed and compacted in the excavation side. Once all material has been removed from the stockpile side, confirmatory soil samples (discrete) will be collected from 2 locations in the pit bottom and sampled for Table 910-1 parameters. If all sample results are at or below Table 910-1 soil standards, the stockpile side will be backfilled.

Submit Page 2 with Page 1



Page 2  
REMEDIATION WORKPLAN (Cont.)

Tracking Number: \_\_\_\_\_  
Name of Operator: \_\_\_\_\_  
OGCC Operator No: \_\_\_\_\_  
Received Date: \_\_\_\_\_  
Well Name & No: \_\_\_\_\_  
Facility Name & No: \_\_\_\_\_

OGCC Employee: \_\_\_\_\_

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

Depth to groundwater in the vicinity of the Brownlee 13-9 pit location is reported to be greater than 400'. Accordingly, it is unlikely that groundwater has been impacted by the residual drilling materials.

**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.

Once the pit has been backfilled with the mixed residual drilling material/clean fill, clean fill only will be placed in the upper two feet of the pit and the surface elevation of the backfilled pit will be shaped and graded to match the existing grade around the perimeter of the pit. Once activity at the well location has ceased, the surface will be roughened and broadcast seeded in accordance with revegetation procedures included in the Entek Storm Water Management Plan (SWMP). Well location restoration and revegetation shall be conducted in a manner consistent with BLM Best Management Practices for Noxious and Invasive Weed Prevention and the SWMP.

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:

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

Mixed with site soils and used to backfill pit up to 2' below ground surface. Remaining 2' to be backfilled with clean fill only.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 8/1 Date Site Investigation Completed: 8/31 Date Remediation Plan Submitted: 9/9  
Remediation Start Date: 9/14 Anticipated Completion Date: 10/15 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: Tim Hopkins

Signed:

Title: Regional Manager

Date: 9/9/11

OGCC Approved:

Title:

FOR Chris Canfield

Date: 09/16/2011

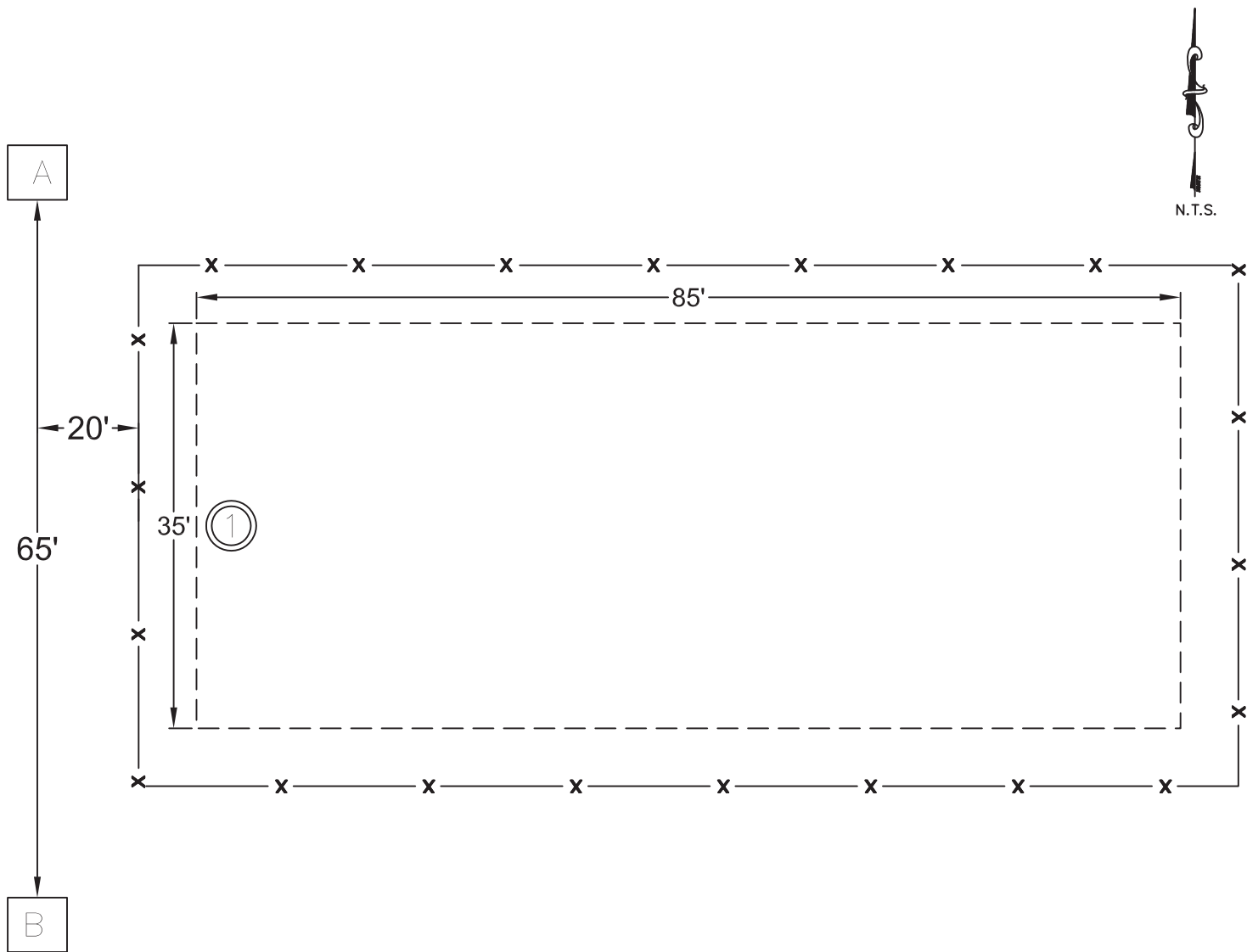
EPS NW Region

COAs: 1) If SAR, pH, Ec > Table 910-1





for backfill material, use 3' of clean soil at the top.

2) When compacting material in pit, do it so that permeability does not decrease too much (avoid over-compacting)





# LEGEND

-  PIT SAMPLE LOCATION
-  BACKGROUND SAMPLE LOCATION (TPH ONLY)
-  PIT PERIMETER
-  FENCE

**FIGURE 2**  
 BROWNLEE 13-9  
 SLATER DOME FIELD  
 SEPTEMBER 9, 2011