

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-144
Revised June 6, 2013

For temporary pits, below-grade tanks, and multi-well fluid management pits, submit to the appropriate NMOCD District Office.
For permanent pits submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.

Pit, Below-Grade Tank, or
Proposed Alternative Method Permit or Closure Plan Application

RECEIVED
By kcollins at 10:17 am, Apr 05, 2016

15186

Type of action: ☐ Below grade tank registration
☐ Permit of a pit or proposed alternative method
☐ Closure of a pit, below-grade tank, or proposed alternative method
☒ Modification to an existing permit/or registration
☐ Closure plan only submitted for an existing permitted or non-permitted pit, below-grade tank, or proposed alternative method

Instructions: Please submit one application (Form C-144) per individual pit, below-grade tank or alternative request

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.
Operator: Burlington Resources Oil & Gas Company,LP OGRID # 14538
Address: P.O. Box 4289, Farmington, New Mexico 87499
Facility or well name: SCHUMACHER 10A
API Number: 30-045-26459 OCD Permit Number: _____
U/L or Qtr/Qtr P Section 18 Township 30N Range 10W County: San Juan
Center of Proposed Design: Latitude ____°N Longitude -°W NAD: 1927 ☐ 1983 ☒
Surface Owner: ☒ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.
☐ **Pit:** Subsection F, G or J of 19.15.17.11 NMAC
Temporary: ☐ Drilling ☐ Workover
☐ Permanent ☐ Emergency ☐ Cavitation ☐ P&A ☐ Multi-Well Fluid Management Low Chloride Drilling Fluid ☐ yes ☐ no
☐ Lined ☐ Unlined Liner type: Thickness ____ mil ☐ LLDPE ☐ HDPE ☐ PVC ☐ Other _____
☐ String-Reinforced
Liner Seams: ☐ Welded ☐ Factory ☐ Other _____ Volume: _____ bbl Dimensions: L _____ x W _____ x D _____

3.
☒ **Below-grade tank:** Subsection I of 19.15.17.11 NMAC
Volume: Max 120 bbl Type of fluid: Produced Water
Tank Construction material: Metal
☐ Secondary containment with leak detection ☒ Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off
☐ Visible sidewalls and liner ☐ Visible sidewalls only ☐ Other _____
Liner type: Thickness _____ mil ☐ HDPE ☐ PVC ☒ Other UNSPECIFIED

4.
☐ **Alternative Method:**
Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

5.
Fencing: Subsection D of 19.15.17.11 NMAC (Applies to permanent pits, temporary pits, and below-grade tanks)
☐ Chain link, six feet in height, two strands of barbed wire at top (Required if located within 1000 feet of a permanent residence, school, hospital, institution or church)
☐ Four foot height, four strands of barbed wire evenly spaced between one and four feet
☐ Alternate. Please specify 4' hog wire fence with a single strand of barbed wire on top

ch

6.

Netting: Subsection E of 19.15.17.11 NMAC (*Applies to permanent pits and permanent open top tanks*)

- ☐ Screen ☐ Netting ☐ Other _____
- ☐ Monthly inspections (If netting or screening is not physically feasible)

7.

Signs: Subsection C of 19.15.17.11 NMAC

- ☐ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers
- ☐ Signed in compliance with 19.15.16.8 NMAC

8.

Variations and Exceptions:

Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance.

Please check a box if one or more of the following is requested, if not leave blank:

- ☐ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval.
- ☐ Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

9.

Siting Criteria (regarding permitting): 19.15.17.10 NMAC

Instructions: The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Siting criteria does not apply to drying pads or above-grade tanks.

General siting

Ground water is less than 25 feet below the bottom of a low chloride temporary pit or below-grade tank.

- ☐ NM Office of the State Engineer - iWATERS database search; ☐ USGS; ☐ Data obtained from nearby wells

☐ Yes ☐ No
☐ NA

Ground water is less than 50 feet below the bottom of a Temporary pit, permanent pit, or Multi-Well Fluid Management pit .

NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells

☐ Yes ☐ No
☐ NA

Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. (**Does not apply to below grade tanks**)

- Written confirmation or verification from the municipality; Written approval obtained from the municipality

☐ Yes ☐ No

Within the area overlying a subsurface mine. (**Does not apply to below grade tanks**)

- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division

☐ Yes ☐ No

Within an unstable area. (**Does not apply to below grade tanks**)

- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map

☐ Yes ☐ No

Within a 100-year floodplain. (**Does not apply to below grade tanks**)

- FEMA map

☐ Yes ☐ No

Below Grade Tanks

Within 100 feet of a continuously flowing watercourse, significant watercourse, lake bed, sinkhole, wetland or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 200 horizontal feet of a spring or a fresh water well used for public or livestock consumption;.

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Temporary Pit using Low Chloride Drilling Fluid (maximum chloride content 15,000 mg/liter)

Within 100 feet of a continuously flowing watercourse, or any other significant watercourse or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). (Applies to low chloride temporary pits.)

- Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 300 feet from a occupied permanent residence, school, hospital, institution, or church in existence at the time of initial application.

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

☐ Yes ☐ No

Within 200 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 300feet of any other fresh water well or spring, in existence at the time of the initial application.

NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 100 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Temporary Pit Non-low chloride drilling fluid

Within 300 feet of a continuously flowing watercourse, or any other significant watercourse, or within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

☐ Yes ☐ No

Within 500 horizontal feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or 1000 feet of any other fresh water well or spring, in the existence at the time of the initial application;

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 300 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Permanent Pit or Multi-Well Fluid Management Pit

Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).

- Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.

- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image

☐ Yes ☐ No

Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application.

- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

Within 500 feet of a wetland.

- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site

☐ Yes ☐ No

10.

Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- ☐ Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

11.

Multi-Well Fluid Management Pit Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ A List of wells with approved application for permit to drill associated with the pit.
- ☐ Closure Plan (Please complete Boxes 14 through 18, if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC
- ☐ Hydrogeologic Data - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC

☐ Previously Approved Design (attach copy of design) API Number: _____ or Permit Number: _____

12.
Permanent Pits Permit Application Checklist: Subsection B of 19.15.17.9 NMAC

Instructions: Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Climatological Factors Assessment
- ☐ Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Quality Control/Quality Assurance Construction and Installation Plan
- ☐ Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- ☐ Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Nuisance or Hazardous Odors, including H₂S, Prevention Plan
- ☐ Emergency Response Plan
- ☐ Oil Field Waste Stream Characterization
- ☐ Monitoring and Inspection Plan
- ☐ Erosion Control Plan
- ☐ Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

13.
Proposed Closure: 19.15.17.13 NMAC

Instructions: Please complete the applicable boxes, Boxes 14 through 18, in regards to the proposed closure plan.

- Type: ☐ Drilling ☐ Workover ☐ Emergency ☐ Cavitation ☐ P&A ☐ Permanent Pit ☐ Below-grade Tank ☐ Multi-well Fluid Management Pit
☐ Alternative
- Proposed Closure Method: ☐ Waste Excavation and Removal
☐ Waste Removal (Closed-loop systems only)
☐ On-site Closure Method (Only for temporary pits and closed-loop systems)
☐ In-place Burial ☐ On-site Trench Burial
☐ Alternative Closure Method

14.
Waste Excavation and Removal Closure Plan Checklist: (19.15.17.13 NMAC) **Instructions:** Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.

- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection C of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- ☐ Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

15.
Siting Criteria (regarding on-site closure methods only): 19.15.17.10 NMAC

Instructions: Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria require justifications and/or demonstrations of equivalency. Please refer to 19.15.17.10 NMAC for guidance.

Ground water is less than 25 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Ground water is between 25-50 feet below the bottom of the buried waste - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Ground water is more than 100 feet below the bottom of the buried waste. - NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Within 100 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; Aerial photo; Satellite image	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within 300 horizontal feet of a private, domestic fresh water well or spring used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input type="checkbox"/> No
Written confirmation or verification from the municipality; Written approval obtained from the municipality	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within 300 feet of a wetland. US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site	<input type="checkbox"/> Yes <input type="checkbox"/> No
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance	

adopted pursuant to NMSA 1978, Section 3-27-3, as amended.

- Written confirmation or verification from the municipality; Written approval obtained from the municipality

☐ Yes ☐ No

Within the area overlying a subsurface mine.

- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division

☐ Yes ☐ No

Within an unstable area.

- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map

☐ Yes ☐ No

Within a 100-year floodplain.

- FEMA map

☐ Yes ☐ No

16.

On-Site Closure Plan Checklist: (19.15.17.13 NMAC) *Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.*

- ☐ Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- ☐ Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection E of 19.15.17.13 NMAC
- ☐ Construction/Design Plan of Burial Trench (if applicable) based upon the appropriate requirements of Subsection K of 19.15.17.11 NMAC
- ☐ Construction/Design Plan of Temporary Pit (for in-place burial of a drying pad) - based upon the appropriate requirements of 19.15.17.11 NMAC
- ☐ Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Waste Material Sampling Plan - based upon the appropriate requirements of 19.15.17.13 NMAC
- ☐ Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
- ☐ Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Re-vegetation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- ☐ Site Reclamation Plan - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC

17.

Operator Application Certification:

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): Crystal Walker Title: Staff Regulatory Technician

Signature:  Date: 3-2-16

e-mail address: Crystal.Walker@conocophillip.com Telephone: 505-326-9837

18.

OCD Approval: ☒ Permit Application (including closure plan) ☐ Closure Plan (only) ☐ OCD Conditions (see attachment)

OCD Representative Signature: Vanessa Fields Approval Date: 12-21-2016

Title: Environmental Specialist OCD Permit Number: _____

19.

Closure Report (required within 60 days of closure completion): 19.15.17.13 NMAC

Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.

☐ Closure Completion Date: _____

20.

Closure Method:

- ☐ Waste Excavation and Removal ☐ On-Site Closure Method ☐ Alternative Closure Method ☐ Waste Removal (Closed-loop systems only)
- ☐ If different from approved plan, please explain.

21.

Closure Report Attachment Checklist: *Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.*

- ☐ Proof of Closure Notice (surface owner and division)
- ☐ Proof of Deed Notice (required for on-site closure for private land only)
- ☐ Plot Plan (for on-site closures and temporary pits)
- ☐ Confirmation Sampling Analytical Results (if applicable)
- ☐ Waste Material Sampling Analytical Results (required for on-site closure)
- ☐ Disposal Facility Name and Permit Number
- ☐ Soil Backfilling and Cover Installation
- ☐ Re-vegetation Application Rates and Seeding Technique
- ☐ Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude _____ Longitude _____ NAD: ☐ 1927 ☐ 1983

Operator Closure Certification:

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): _____ Title: _____

Signature: _____ Date: _____

e-mail address: _____ Telephone: _____

Burlington Resources Oil & Gas Company, LP
BGT Modification

Burlington is requesting to modify the below-grade tank permit for SCHUMACHER 10A.

The below-grade tank was registered on 9/30/2004 as an existing below-grade tank with siting criteria provided. Burlington would like to modify the permit with latitude/longitude of the existing below-grade tank as well as the Design, Maintenance & Operating and Closure Plan.

The groundwater at the site was previously ranked for this site as:

_____ < 50'
_____ 50' - 100'
 X > 100'

Topo and Aerial Maps are attached for verification.

This is a topographic map of a region in Antarctica, specifically the Schumacher 10A area. The map features contour lines indicating elevation, with labels such as 6299, 6415, 6348, 6342, 6341, 6340, 6339, 6338, 6337, 6336, 6335, 6334, 6333, 6332, 6331, 6330, 6329, 6328, 6327, 6326, 6325, 6324, 6323, 6322, 6321, 6320, 6319, 6318, 6317, 6316, 6315, 6314, 6313, 6312, 6311, 6310, 6309, 6308, 6307, 6306, 6305, 6304, 6303, 6302, 6301, 6300, 6299, 6298, 6297, 6296, 6295, 6294, 6293, 6292, 6291, 6290, 6289, 6288, 6287, 6286, 6285, 6284, 6283, 6282, 6281, 6280, 6279, 6278, 6277, 6276, 6275, 6274, 6273, 6272, 6271, 6270, 6269, 6268, 6267, 6266, 6265, 6264, 6263, 6262, 6261, 6260, 6259, 6258, 6257, 6256, 6255, 6254, 6253, 6252, 6251, 6250, 6249, 6248, 6247, 6246, 6245, 6244, 6243, 6242, 6241, 6240, 6239, 6238, 6237, 6236, 6235, 6234, 6233, 6232, 6231, 6230, 6229, 6228, 6227, 6226, 6225, 6224, 6223, 6222, 6221, 6220, 6219, 6218, 6217, 6216, 6215, 6214, 6213, 6212, 6211, 6210, 6209, 6208, 6207, 6206, 6205, 6204, 6203, 6202, 6201, 6200, 6199, 6198, 6197, 6196, 6195, 6194, 6193, 6192, 6191, 6190, 6189, 6188, 6187, 6186, 6185, 6184, 6183, 6182, 6181, 6180, 6179, 6178, 6177, 6176, 6175, 6174, 6173, 6172, 6171, 6170, 6169, 6168, 6167, 6166, 6165, 6164, 6163, 6162, 6161, 6160, 6159, 6158, 6157, 6156, 6155, 6154, 6153, 6152, 6151, 6150, 6149, 6148, 6147, 6146, 6145, 6144, 6143, 6142, 6141, 6140, 6139, 6138, 6137, 6136, 6135, 6134, 6133, 6132, 6131, 6130, 6129, 6128, 6127, 6126, 6125, 6124, 6123, 6122, 6121, 6120, 6119, 6118, 6117, 6116, 6115, 6114, 6113, 6112, 6111, 6110, 6109, 6108, 6107, 6106, 6105, 6104, 6103, 6102, 6101, 6100, 6099, 6098, 6097, 6096, 6095, 6094, 6093, 6092, 6091, 6090, 6089, 6088, 6087, 6086, 6085, 6084, 6083, 6082, 6081, 6080, 6079, 6078, 6077, 6076, 6075, 6074, 6073, 6072, 6071, 6070, 6069, 6068, 6067, 6066, 6065, 6064, 6063, 6062, 6061, 6060, 6059, 6058, 6057, 6056, 6055, 6054, 6053, 6052, 6051, 6050, 6049, 6048, 6047, 6046, 6045, 6044, 6043, 6042, 6041, 6040, 6039, 6038, 6037, 6036, 6035, 6034, 6033, 6032, 6031, 6030, 6029, 6028, 6027, 6026, 6025, 6024, 6023, 6022, 6021, 6020, 6019, 6018, 6017, 6016, 6015, 6014, 6013, 6012, 6011, 6010, 6009, 6008, 6007, 6006, 6005, 6004, 6003, 6002, 6001, 6000, 5999, 5998, 5997, 5996, 5995, 5994, 5993, 5992, 5991, 5990, 5989, 5988, 5987, 5986, 5985, 5984, 5983, 5982, 5981, 5980, 5979, 5978, 5977, 5976, 5975, 5974, 5973, 5972, 5971, 5970, 5969, 5968, 5967, 5966, 5965, 5964, 5963, 5962, 5961, 5960, 5959, 5958, 5957, 5956, 5955, 5954, 5953, 5952, 5951, 5950, 5949, 5948, 5947, 5946, 5945, 5944, 5943, 5942, 5941, 5940, 5939, 5938, 5937, 5936, 5935, 5934, 5933, 5932, 5931, 5930, 5929, 5928, 5927, 5926, 5925, 5924, 5923, 5922, 5921, 5920, 5919, 5918, 5917, 5916, 5915, 5914, 5913, 5912, 5911, 5910, 5909, 5908, 5907, 5906, 5905, 5904, 5903, 5902, 5901, 5900, 5899, 5898, 5897, 5896, 5895, 5894, 5893, 5892, 5891, 5890, 5889, 5888, 5887, 5886, 5885, 5884, 5883, 5882, 5881, 5880, 5879, 5878, 5877, 5876, 5875, 5874, 5873, 5872, 5871, 5870, 5869, 5868, 5867, 5866, 5865, 5864, 5863, 5862, 5861, 5860, 5859, 5858, 5857, 5856, 5855, 5854, 5853, 5852, 5851, 5850, 5849, 5848, 5847, 5846, 5845, 5844, 5843, 5842, 5841, 5840, 5839, 5838, 5837, 5836, 5835, 5834, 5833, 5832, 5831, 5830, 5829, 5828, 5827, 5826, 5825, 5824, 5823, 5822, 5821, 5820, 5819, 5818, 5817, 5816, 5815, 5814, 5813, 5812, 5811, 5810, 5809, 5808, 5807, 5806, 5805, 5804, 5803, 5802, 5801, 5800, 5799, 5798, 5797, 5796, 5795, 5794, 5793, 5792, 5791, 5790, 5789, 5788, 5787, 5786, 5785, 5784, 5783, 5782, 5781, 5780, 5779, 5778, 5777, 5776, 5775, 5774, 5773, 5772, 5771, 5770, 5769, 5768, 5767, 5766, 5765, 5764, 5763, 5762, 5761, 5760, 5759, 5758, 5757, 5756, 5755, 5754, 5753, 5752, 5751, 5750, 5749, 5748, 5747, 5746, 5745, 5744, 5743, 5742, 5741, 5740, 5739, 5738, 5737, 5736, 5735, 5734, 5733, 5732, 5731, 5730, 5729, 5728, 5727, 5726, 5725, 5724, 5723, 5722, 5721, 5720, 5719, 5718, 5717, 5716, 5715, 5714, 5713, 5712, 5711, 5710, 5709, 5708, 5707, 5706, 5705, 5704, 5703, 5702, 5701, 5700, 5699, 5698, 5697, 5696, 5695, 5694, 5693, 5692, 5691, 5690, 5689, 5688, 5687, 5686, 5685, 5684, 5683, 5682, 5681, 5680, 5679,

30N 11W

Copyright: © 2013 National Geographic Society, i-cubed

Schumacher 10A
is the subject well.

0 0.1 0.2 0.4 Miles
 0 0.1 0.2 0.4 Miles
 Date: 3/23/2016
 Scale: 1:14,350
 Author:
 Compiled by:

Aerial Map - Schumacher 10A, Sec. 18, T30N, R10W



Legend

- DSM
- iWater
- Hydrogeologic
- COP Cathodic



ConocoPhillips

Schumacher 10A
is the subject well.

Author	0.1	0.2	0.4	0.8	1.6	3.2	6.4	12.8	25.6	51.2	102.4	204.8	409.6	819.2	1638.4	3276.8	6553.6	13107.2	26214.4	52428.8	104857.6	209715.2	419430.4	838860.8	1677721.6	3355443.2	6710886.4	13421772.8	26843545.6	53687091.2	107374182.4	214748364.8	429496729.6	858993459.2	1717986918.4	3435973836.8	6871947673.6	13743895347.2	27487790694.4	54975581388.8	109951162777.6	219902325555.2	439804651110.4	879609302220.8	1759218604441.6	3518437208883.2	7036874417766.4	14073748835532.8	28147497671065.6	56294995342131.2	112589990684262.4	225179981368524.8	450359962737049.6	900719925474099.2	1801439850948198.4	3602879701896396.8	7205759403792793.6	14411518807585587.2	28823037615171174.4	57646075230342348.8	115292150460684697.6	230584300921369395.2	461168601842738790.4	922337203685477580.8	1844674407370955161.6	3689348814741910323.2	7378697629483820646.4	14757395258967641292.8	29514790517935282585.6	59029581035870565171.2	118059162071741130342.4	236118324143482260684.8	472236648286964521369.6	944473296573929042739.2	1888946593147858085478.4	3777893186295716170956.8	7555786372591432341913.6	15111572745182864683827.2	30223145490365729367654.4	60446290980731458735308.8	120892581961462917470617.6	241785163922925834941235.2	483570327845851669882470.4	967140655691703339764940.8	1934281311383406679529881.6	3868562622766813359059763.2	7737125245533626718119526.4	15474250491067253436239052.8	30948500982134506872478105.6	61897001964269013744956211.2	123794003928538027489912422.4	247588007857076054979824844.8	495176015714152109959649689.6	990352031428304219919299379.2	1980704062856608439838598758.4	3961408125713216879677197516.8	7922816251426433759354395033.6	15845632502852867518708790067.2	31691265005705735037417580134.4	63382530011411470074835160268.8	126765060022822940149670320537.6	253530120045645880299340641075.2	507060240091291760598681282150.4	1014120480182583521197362564300.8	2028240960365167042394725128601.6	4056481920730334084789450257203.2	8112963841460668169578900514406.4	16225927682921336339157801028812.8	32451855365842672678315602057625.6	64903710731685345356631204115251.2	129807421463370690713262408230502.4	259614842926741381426524816461004.8	519229685853482762853049632922009.6	1038459371706965525706099265844019.2	2076918743413931051412198531688038.4	4153837486827862102824397063376076.8	8307674973655724205648794126752153.6	16615349947311448411297588253504307.2	33230699894622896822595176507008614.4	66461399789245793645190353014017228.8	132922799578491587290380706028034457.6	265845599156983174580761412056068915.2	531691198313966349161522824112137830.4	1063382396627932698323045648224275660.8	2126764793255865396646091296448551321.6	4253529586511730793292182592897102643.2	8507059173023461586584365185794205286.4	17014118346046923173168730371588410572.8	34028236692093846346337460743176821145.6	68056473384187692692674921486353642291.2	136112946768375385385349842972707284582.4	27222589353675077077069968594541456916.8	54445178707350154154139937189082913833.6	108890357414700308308279874378165827667.2	217780714829400616616559748756331655334.4	435561429658801233233119497512663310668.8	871122859317602466466238995025326621337.6	174224571863520493293247799005065324267.2	348449143727040986586495598010130648534.4	696898287454081973172991196020261297068.8	1393796574908163946345982392040522594137.6	278759314981632789269196478408104518827.2	557518629963265578538392956816209037654.4	1115037259926531157076785913632418075308.8	2230074519853062314153571827264836150617.6	4460149039706124628307143654529672301235.2	8920298079412249256614287309059344602470.4	17840596158824498513228574618118689204940.8	35681192317648997026457149236237378409881.6	71362384635297994052914298472474756819763.2	142724769270595988105828596944949513639526.4	285449538541191976211657193889899027279052.8	57089907708238395242331438777979805455810.4	114179815416476790484662877555959610911620.8	228359630832953580969325755111919221823241.6	456719261665907161938651510223838443646483.2	91343852333181432387730302044767688729296.4	182687704666362864775460604089535377458592.8	365375409332725729550921208179070754917185.6	730750818665451459101842416358141509834371.2	146150163733090291820368483271628301966874.4	292300327466180583640736966543256603933748.8	584600654932361167281473933086513207867497.6	1169201309864722334562947866173026415734995.2	2338402619729444669125895732346052831469990.4	4676805239458889338251791464692105662939980.8	9353610478917778676503582929384211325879961.6	18707220957835557353007165858768422651759923.2	37414441915671114706014331717536845303519846.4	74828883831342229412028663435073690607039692.8	149657767662684458824057326870147381214079385.6	299315535325368917648114653740294762428158771.2	598631070650737835296229307480589524856317542.4	1197262141301475670592458614961179049712635084.8	2394524282602951341184917229922358099425270169.6	4789048565205902682369834459844716198850540339.2	9578097130411805364739668919689432397701080678.4	19156194260823610729479337839378864795402161356.8	38312388521647221458958675678757729590804322713.6	76624777043294442917917351357515459181608645427.2	153249554086588885835834702715030918363217290854.4	306499108173177771671669405430061836726434581708.8	612998216346355543343338810860123673452869163417.6	1225996432692711086686677621720247346905738326835.2	2451992865385422173373355243440494693811476653670.4	4903985730770844346746710486880989387622953307340.8	9807971461541688693493420973761978775245906614681.6	19615942923083377386986841947523957550491813229363.2	39231885846166754773973683895047915100983626458726.4	78463771692333509547947367790095830201967252917452.8	156927543384667019095894735580191660403934505834905.6	313855086769334038191789471160383320807869011669811.2	627710173538668076383578942320766641615738023339622.4	1255420347077336152767157884641533283231476046679244.8	251084069415467230553431576928306656646295209335848.8	502168138830934461106863153856613313292590418671697.6	1004336277661868922213726307713226626585180837343395.2	2008672555323737844427452615426453253170361674686790.4	4017345110647475688854905230852906506340723349373580.8	8034690221294951377709810461705813012681446698747161.6	16069380442589902755419620923411626025362893397494323.2	3213876088517980551083924184682325205072578679498864.6	6427752177035961102167848369364650410145157358997728.8	12855504354071922204335696738729300820290314717995457.6	25711008708143844408671393477458601640580629435990915.2	51422017416287688817342786954917203281161258871981830.4	102844034832575377634685573909834406562322517743963660.8	205688069665150755269371147819668813124645035487927321.6	411376139330301510538742295639337626249290070975854643.2	822752278660603021077484591278675252498580141951709286.4	1645504557321206042154969182557350504997160283903418572.8	329100911464241208430993836511470100999432056780683715.2	658201822928482416861987673022940201998864113561367430.4	1316403645856964833723975346045880403997728227122734860.8	263280729171392966744795069209176080799545645424546971.6	526561458342785933489590138418352161599091290849093943.2	1053122916685571866979180276836704323198182581698187886.4	2106245833371143733958360553673408646396365163396375772.8	4212491666742287467916721107346817292792730326792751545.6	8424983333484574935833442214693634585585460653585503091.2	168499666669691498716668844293872691711709213071711061822.4	336999333339382997433337688587745383423418426143222123644.8	673998666678765994866675377175490766846836852286444247289.6	1347997333357531989733350754350981533693673704572888494579.2	269599466671506397946670150870196306738734740914577698915.2	539198933343012795893340301740392613477469481829155397830.4	1078397866686025591786680603480785226954938963658310795660.8	2156795733372051183573361206961570453909877927316621591321.6	4313591466744102367146722413923140907819755854633243182643.2	8627182933488204734293444827846281815639511709266486365286.4	17254365866976409468586889655692563631279023418532972730572.8	34508731733952818937173779311385127262558046837065945461145.6	69017463467905637874347558622770254525116093674131890922291.2	138034926935811275748695117245540509050232187348263781844582.4	276069853871622551497390234491081018100464374696527563689164.8	552139707743245102994780468982162036200928749393055127378329.6	1104279415486490205989560937964324072401857498786110254756659.2	2208558830972980411979121875928648144803714997572220509513318.4	4417117661945960823958243751857296289607429995144441019026636.8	883423532389192164791648750371459257921485999028888203805327.2	1766847064778384329583297500742918515842971998057776407610654.4	3533694129556768659166595001485837031685943996115552815221308.8	7067388259113537318333190002971674063371887992231105630442617.6	14134776518227074636666380005943348126743775984462211260885235.2	28269553036454149273332760011886696253487551968924422521770470.4	56539106072908298546665520023773392506975103937848845043540940.8	113078212145816597093331040047546785013950207875697690087081881.6	226156424291633194186662080095093570027900415751395380174163763.2	452312848583266388373324160190187140055800831502790760348327526.4	904625697166532776746648320380374280111601663005581520696655052.8	1809251394333065553493296640760748560223203326011163041393310105.6	3618502788666131106986593281521497120446406652022326082786620211.2	7237005577332262213973186563042994240892813304044652165573240422.4	14474011154664524427946373126085988481785626608089304331146480844.8	28948022309329048855892746252171976963571253216178608662292961689.6	57896044618658097711785492504343953927142506432357217324585923379.2	115792089237316195423570985008687907854285012864714434649171846758.4	231584178474632390847141970017375815708570025729428869298343693516.8	463168356949264781694283940034751631417140051458857738596687387033.6	926336713898529563388567880069503262834280102917715477193374774067.2	1852673427797059126777135760139006525668560205835430954386749548134.4	3705346855594118253554271520278013051337120411670861908773499096268.8	7410693711188236507108543040556026102674240823341723817546998192537.6	14821387422376473014217086081112052205348481646683447635093996385075.2	29642774844752946028434172162224104410696963293366895270187992770150.4	59285549689505892056868344324448208821393926586733790540375985540300.8	118571099379011784113736688648896417642787853173467581080751971080601.6	237142198758023568227473377297792835285575706346935162161503942161203.2	474284397516047136454946754595585670571151412693870324323007884322406.4	948568795032094272909893509191171341142302825387740648646015768644812.8	1897137590064188545819787018382342682284605650775481297292031537289625.6	3794275180128377091639574036764685364569211301550962594584063074579251.2	7588550360256754183279148073529370729138422603101925189168126149158502.4	151771007
--------	-----	-----	-----	-----	-----	-----	-----	------	------	------	-------	-------	-------	-------	--------	--------	--------	---------	---------	---------	----------	----------	----------	----------	-----------	-----------	-----------	------------	------------	------------	-------------	-------------	-------------	-------------	--------------	--------------	--------------	---------------	---------------	---------------	----------------	----------------	----------------	----------------	-----------------	-----------------	-----------------	------------------	------------------	------------------	-------------------	-------------------	-------------------	-------------------	--------------------	--------------------	--------------------	---------------------	---------------------	---------------------	----------------------	----------------------	----------------------	----------------------	-----------------------	-----------------------	-----------------------	------------------------	------------------------	------------------------	-------------------------	-------------------------	-------------------------	-------------------------	--------------------------	--------------------------	--------------------------	---------------------------	---------------------------	---------------------------	----------------------------	----------------------------	----------------------------	----------------------------	-----------------------------	-----------------------------	-----------------------------	------------------------------	------------------------------	------------------------------	-------------------------------	-------------------------------	-------------------------------	-------------------------------	--------------------------------	--------------------------------	--------------------------------	---------------------------------	---------------------------------	---------------------------------	----------------------------------	----------------------------------	----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	-----------------------------------	------------------------------------	------------------------------------	------------------------------------	-------------------------------------	-------------------------------------	-------------------------------------	--------------------------------------	--------------------------------------	--------------------------------------	--------------------------------------	---------------------------------------	---------------------------------------	---------------------------------------	----------------------------------------	----------------------------------------	----------------------------------------	-----------------------------------------	-----------------------------------------	-----------------------------------------	-----------------------------------------	------------------------------------------	------------------------------------------	------------------------------------------	-------------------------------------------	------------------------------------------	------------------------------------------	-------------------------------------------	-------------------------------------------	-------------------------------------------	-------------------------------------------	-------------------------------------------	-------------------------------------------	-------------------------------------------	--------------------------------------------	-------------------------------------------	-------------------------------------------	--------------------------------------------	--------------------------------------------	--------------------------------------------	--------------------------------------------	---------------------------------------------	---------------------------------------------	---------------------------------------------	----------------------------------------------	----------------------------------------------	---------------------------------------------	----------------------------------------------	----------------------------------------------	----------------------------------------------	---------------------------------------------	----------------------------------------------	----------------------------------------------	----------------------------------------------	----------------------------------------------	----------------------------------------------	----------------------------------------------	-----------------------------------------------	-----------------------------------------------	-----------------------------------------------	-----------------------------------------------	------------------------------------------------	------------------------------------------------	------------------------------------------------	-------------------------------------------------	-------------------------------------------------	-------------------------------------------------	--------------------------------------------------	--------------------------------------------------	--------------------------------------------------	--------------------------------------------------	---------------------------------------------------	---------------------------------------------------	---------------------------------------------------	----------------------------------------------------	----------------------------------------------------	----------------------------------------------------	-----------------------------------------------------	-----------------------------------------------------	-----------------------------------------------------	-----------------------------------------------------	------------------------------------------------------	------------------------------------------------------	------------------------------------------------------	-------------------------------------------------------	-------------------------------------------------------	-------------------------------------------------------	--------------------------------------------------------	-------------------------------------------------------	-------------------------------------------------------	--------------------------------------------------------	--------------------------------------------------------	--------------------------------------------------------	--------------------------------------------------------	---------------------------------------------------------	--------------------------------------------------------	--------------------------------------------------------	---------------------------------------------------------	---------------------------------------------------------	---------------------------------------------------------	----------------------------------------------------------	----------------------------------------------------------	----------------------------------------------------------	----------------------------------------------------------	-----------------------------------------------------------	----------------------------------------------------------	----------------------------------------------------------	-----------------------------------------------------------	----------------------------------------------------------	----------------------------------------------------------	-----------------------------------------------------------	-----------------------------------------------------------	-----------------------------------------------------------	-----------------------------------------------------------	-------------------------------------------------------------	-------------------------------------------------------------	-------------------------------------------------------------	--------------------------------------------------------------	-------------------------------------------------------------	-------------------------------------------------------------	--------------------------------------------------------------	--------------------------------------------------------------	--------------------------------------------------------------	--------------------------------------------------------------	---------------------------------------------------------------	---------------------------------------------------------------	---------------------------------------------------------------	----------------------------------------------------------------	----------------------------------------------------------------	----------------------------------------------------------------	-----------------------------------------------------------------	-----------------------------------------------------------------	-----------------------------------------------------------------	----------------------------------------------------------------	-----------------------------------------------------------------	-----------------------------------------------------------------	-----------------------------------------------------------------	------------------------------------------------------------------	------------------------------------------------------------------	------------------------------------------------------------------	-------------------------------------------------------------------	-------------------------------------------------------------------	-------------------------------------------------------------------	-------------------------------------------------------------------	--------------------------------------------------------------------	--------------------------------------------------------------------	--------------------------------------------------------------------	---------------------------------------------------------------------	---------------------------------------------------------------------	---------------------------------------------------------------------	----------------------------------------------------------------------	----------------------------------------------------------------------	----------------------------------------------------------------------	----------------------------------------------------------------------	-----------------------------------------------------------------------	-----------------------------------------------------------------------	-----------------------------------------------------------------------	------------------------------------------------------------------------	------------------------------------------------------------------------	------------------------------------------------------------------------	-------------------------------------------------------------------------	-------------------------------------------------------------------------	-------------------------------------------------------------------------	-------------------------------------------------------------------------	--------------------------------------------------------------------------	--------------------------------------------------------------------------	--------------------------------------------------------------------------	-----------

Burlington Resources Oil & Gas Company
San Juan Basin
Below Grade Tank Design and Construction

In accordance with NMAC 19.15.17 the following information describes the design and construction of below grade tanks on Burlington Resources Oil & Gas Company, hereinafter known as BROG, locations. This is BROG's standard procedure for all below grade tanks (BGT). A separate plan will be submitted for any BGT which does not conform to this plan.

General Plan:

1. BROG will design and construct a properly sized and approved BGT which will contain liquids and should prevent contamination of fresh water to protect the public health and environment.
2. BROG signage will comply with 19.15.17.11.C NMAC.
3. BROG will construct all new fences around the below grade tank utilizing 48" steel mesh field-fence (hog-wire) on the bottom with a single strand of barbed wire on top. T-posts shall be installed every 12 feet and corners shall be anchored utilizing a secondary T-post. Below grade tanks will be fenced at all times regardless of location.
 - a. If the below grade tank is located within 1000 feet of an occupied permanent residence, school, hospital, institution or church, BROG will construct all new fences utilizing 72" chain link security fence with two strands of barbed wire on top. The operator shall ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.
4. BROG will construct a screened, expanded metal covering, on the top of the BGT.
5. BROG will ensure that a below-grade tank is constructed of materials resistant to the below-grade tank's particular contents and resistant to damage from sunlight as shown on design drawing and specification sheet.
6. The BROG below-grade tank system will have a properly constructed foundation consisting of a level base free of rocks, debris, sharp edges or irregularities to prevent punctures, cracks or indentations of the liner or tank bottom as shown on design drawing.
7. BROG shall operate and install the below-grade tank to prevent the collection of surface water run-on. BROG has built in shut off devices that do not allow a below-grade tank to overflow. BROG constructs berms and corrugated retaining walls at least 6" above ground to keep from surface water run-on entering the below grade tank as shown on the design plan.
8. BROG will construct and use a below-grade tank that does not have double walls. The below-grade tank's side walls will be open for visual inspection for leaks, the below-grade tank's bottom is elevated a minimum of six inches above

the underlying ground surface and the below-grade tank is underlain with a geomembrane liner to divert leaked liquid to a location that can be visually inspected.

9. BROG has equipped the below-grade tanks with the ability to detect high level in the tank and provide alarm notification and shutdown process streams into the tank. Once high level is detected RTU logic closes the inlet separator sales valve and does not permit vent valve to open. This shutdown of the sales valve and gagging of the vent valves prevents any hydrocarbon process streams from entering the pit tank once a high level is detected. Furthermore, an electronic page is sent to the BROG MSO for that well site and to the designated contract "Water-Hauling" Company indicating a high level and that action must be taken to address this alarm. The environmental drain line from BROG'S compressor skid under normal operating conditions is in the open position. The environmental drain line is in place to capture any collected rain water or spilled lubricants from our compressor skids. The swab drain line is a manually operated drain and by normal operating procedures is in the closed position. The tank drain line is also a manually operated drain and during normal operations it is in the closed position.
10. The geomembrane liner consists of a 45-mil flexible LLDPE material manufactured by Raven Industries as J45BB. This product is a four layer reinforced laminated containing no adhesives. The outer layers consist of a high strength polyethylene film manufactured using virgin grade resins and stabilizers for UV resistance in exposed applications. The J45BB is reinforced with 1300 denier (minimum) tri-directional scrim reinforcement. It exceeds ASTM D3083 standard by 10%. J45BB has a warranty for 20 years from Raven Industries and is attached. It is typically used in Brine Pond, Oilfield Pit liner and other industrial applications. The manufacture specific sheet is attached and the design attached displays the proper installation of the liner.
11. The general specification for design and construction are attached in the BROG document.

- 1) PRODUCTION TANKS DRAINLINE
- 2) SWABLINE DRAIN LINE
- 3) ENVIROMENTAL DRAIN LINE
FROM COMPRESSOR SKID

- 1) VENT VALVE DRAIN LINE
- 2) DUMP LINE FROM SEPARATORS
- 3) AUTOMATIC SHUT OFF LSHH
ACTIVATES AT 10" FROM TOP
OF TANK



PRODUCED WATER PIT TANK
OPEN TOP GRAVITY FLOW TANK
INTERNALLY COATED WITH
12-14 MILS AMERON AMERCOAT 385

DURA-SKRIM®

J30, J36 & J45

PROPERTIES	TEST METHOD	J30BB		J36BB		J45BB	
		Min. Roll Averages	Typical Roll Averages	Min. Roll Averages	Typical Roll Averages	Min. Roll Averages	Typical Roll Averages
Appearance		Black/Black		Black/Black		Black/Black	
Thickness	ASTM D 5199	27 mil	30 mil	32 mil	36 mil	40 mil	45 mil
Weight, Lbs Per MSF (oz/yd ²)	ASTM D 5261	126 lbs (18.14)	140 lbs (20.16)	151 lbs (21.74)	168 lbs (24.19)	189 lbs (27.21)	210 lbs (30.24)
Construction		**Extrusion laminated with encapsulated tri-directional scrim reinforcement					
Ply Adhesion	ASTM D 413	16 lbs	20 lbs	19 lbs	24 lbs	25 lbs	31 lbs
Tensile Strength	ASTM D 7003	88 lbf MD 63 lbf DD	110 lbf MD 79 lbf DD	90 lbf MD 70 lbf DD	113 lbf MD 87 lbf DD	110 lbf MD 84 lbf DD	138 lbf MD 105 lbf DD
Tensile Elongation @ Break % (Film Break)	ASTM D 7003	550 MD 550 DD	750 MD 750 DD	550 MD 550 DD	750 MD 750 DD	550 MD 550 DD	750 MD 750 DD
Tensile Elongation @ Peak % (Scrim Break)	ASTM D 7003	20 MD 20 DD	33 MD 33 DD	20 MD 20 DD	30 MD 31 DD	20 MD 20 DD	36 MD 36 DD
Tongue Tear Strength	ASTM D 5884	75 lbf MD 75 lbf DD	97 lbf MD 90 lbf DD	75 lbf MD 75 lbf DD	104 lbf MD 92 lbf DD	100 lbf MD 100 lbf DD	117 lbf MD 118 lbf DD
Grab Tensile	ASTM D 7004	180 lbf MD 180 lbf DD	218 lbf MD 210 lbf DD	180 lbf MD 180 lbf DD	222 lbf MD 223 lbf DD	220 lbf MD 220 lbf DD	257 lbf MD 258 lbf DD
Trapezoid Tear	ASTM D 4533	120 lbf MD 120 lbf DD	146 lbf MD 141 lbf DD	130 lbf MD 130 lbf DD	189 lbf MD 172 lbf DD	160 lbf MD 160 lbf DD	193 lbf MD 191 lbf DD
Dimensional Stability	ASTM D 1204	<1	<0.5	<1	<0.5	<1	<0.5
Puncture Resistance	ASTM D 4833	50 lbf	64 lbf	65 lbf	83 lbf	80 lbf	99 lbf
Maximum Use Temperature		180° F	180° F	180° F	180° F	180° F	180° F
Minimum Use Temperature		-70° F	-70° F	-70° F	-70° F	-70° F	-70° F

MD = Machine Direction
DD = Diagonal Directions



Note: Minimum Roll Averages are set to take into account product variability in addition to testing variability between laboratories.

*Dimensional Stability Maximum Value

**DURA-SKRIM J30BB, J36BB & J45BB are a four layer reinforced laminate containing no adhesives. The outer layers consist of a high strength polyethylene film manufactured using virgin grade resins and stabilizers for UV resistance in exposed applications. DURA-SKRIM J30BB, J36BB & J45BB are reinforced with a 1300 denier (minimum) tri-directional scrim reinforcement.

Note: RAVEN INDUSTRIES MAKES NO WARRANTIES AS TO THE FITNESS FOR A SPECIFIC USE OR MERCHANTABILITY OF PRODUCTS REFERRED TO, no guarantee of satisfactory results from reliance upon contained information or recommendations and disclaims all liability for resulting loss or damage.

PLANT LOCATION

Sioux Falls, South Dakota

SALES OFFICE

P.O. Box 5107
Sioux Falls, SD 57117-5107
(605) 336-0174
(605) 331-0333 FAX
800-635-3456

RAVEN
INDUSTRIES

08/06

RAVEN INDUSTRIES INC.
EXPOSED GEOMEMBRANE LIMITED WARRANTY

Raven Industries Inc. warrants Dura-Skrim J30BB, J36BB, and J45BB to be free from manufacturing defects and to be able to withstand normal exposure to sunlight for a period of 20 years from the date of sale for normal use in approved applications in the U.S and Canada, excluding Hawaii. This warranty is effective for products sold and shipped from January 1, 2008 to December 31, 2008. These dates will be updated prior to December 31, 2008.

This Limited Warranty does not include damages or defects in the Raven geomembrane resulting from acts of God, casualty or catastrophe including but not limited to: earthquakes, floods, piercing hail, or tornadoes. The term "normal use" as used herein does not include, among other things improper handling during transportation, unloading, storage or installation, the exposure of Raven geomembranes to harmful chemicals, atypical atmospheric conditions, abuse of Raven geomembranes by machinery, equipment or people; improper site preparation or covering materials, excessive pressures or stresses from any source or improper application or installation. Raven geomembrane material warranty is intended for commercial use only and is not in effect for the consumer as defined in the Magnuson Moss Warranty or any similar federal, state, or local statutes. The parties expressly agree that the sale hereunder is for commercial or industrial use only.

Should defects or premature loss of use within the scope of the above Limited Warranty occur, Raven Industries Inc. will, at its option, repair or replace the Raven geomembrane on a pro-rata basis at the then current price in such manner as to charge the Purchaser/User only for that portion of the warranted life which has elapsed since purchase of the material. Raven Industries Inc. will have the right to inspect and determine the cause of any alleged defect in the Raven geomembrane and to take appropriate steps to repair or replace the Raven geomembrane if a defect exists which is covered under this warranty. This Limited Warranty extends only to Raven's geomembrane, and does not extend to the installation service of third parties nor does it extend to materials furnished or installed by others in connection with the intended use of the Raven geomembranes.

Any claim for any alleged breach of this warranty must be made in writing, by certified mail, to the General Manager of Engineered Films Division of Raven Industries Inc. within ten (10) days of becoming aware of the alleged defect. Should the required notice not be given, the defect and all warranties are waived by the Purchaser, and Purchaser shall not have any rights under this warranty. Raven Industries Inc. shall not be obligated to perform repairs or replacements under this warranty unless and until the area to be repaired or replaced is clean, dry, and unencumbered. This includes, but is not limited to, the area made available for repair and/or replacement of Raven geomembrane to be free from all water, dirt, sludge, residuals and liquids of any kind. If after inspection it is determined that there is no claim under this Limited Warranty, Purchaser shall reimburse Raven Industries Inc. for its costs associated with the site inspection.

In the event the exclusive remedy provided herein fails in its essential purpose, and in that event only, the Purchaser shall be entitled to a return of the purchase price for so much of the material as Raven Industries Inc. determines to have violated the warranty provided herein. Raven Industries Inc. shall not be liable for direct, indirect, special, consequential or incidental damages resulting from a breach of this warranty including, but not limited to, damages for loss of production, lost profits, personal injury or property damage. Raven Industries Inc. shall not be obligated to reimburse Purchaser for any repairs, replacement, modifications or alterations made by Purchaser unless Raven Industries Inc. specifically authorized, in writing, said repairs, replacements, modifications or alteration in advance of them having been made. Raven Industry's liability under this warranty shall in no event exceed the replacement cost of the material sold to the Purchaser for the particular installation in which it failed.

Raven Industries Inc. neither assumes nor authorizes any person other than the undersigned of Raven Industries Inc. to assume for it any other or additional liability in connection with the Raven geomembrane made on the basis of the Limited Warranty. The Limited Warranty on the Raven geomembrane herein is given in lieu of all other possible material warranties, either expressed or implied, and by accepting delivery of the material; Purchaser waives all other possible warranties, except those specifically given. This Limited Warranty may only be modified by written document mutually executed by Owner and Raven Industries Inc.

Limited Warranty is extended to the purchaser/owner and is non-transferable and non-assignable; i.e., there are no third-party beneficiaries to this warranty.

Purchaser acknowledges by acceptance that the Limited Warranty given herein is accepted in preference to any and other possible materials warranties.

THIS LIMITED WARRANTY SHALL BE GOVERNED BY SOUTH DAKOTA LAW AND VENUE FOR ALL LEGAL PROCEEDINGS IN CONNECTION WITH THIS LIMITED WARRANTY SHALL BE IN MINNEHAHA COUNTY, SOUTH DAKOTA. RAVEN INDUSTRIES INC. MAKES NO WARRANTY OF ANY KIND OTHER THAN THAT GIVEN ABOVE AND HEREBY DISCLAIMS ALL WARRANTIES, BOTH EXPRESSED OR IMPLIED, OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THIS IS THE ONLY WARRANTY THAT APPLIES TO THE MATERIALS REFERRED TO HEREIN AND RAVEN INDUSTRIES INC. DISCLAIMS ANY LIABILITY FOR ANY WARRANTIES GIVEN BY ANY OTHER PERSON OR ENTITY, EITHER WRITTEN OR ORAL.

RAVEN INDUSTRIES' WARRANTY BECOMES AN OBLIGATION OF RAVEN INDUSTRIES INC. TO PERFORM UNDER THE WARRANTY ONLY UPON RECEIPT OF FINAL PAYMENT AND EXECUTION BY A DULY AUTHORIZED OFFICER OF RAVEN INDUSTRIES INC.

Burlington Resources Oil & Gas Company, LP
San Juan Asset
Below Grade Tank Maintenance and Operating Plan

In accordance with Rule 19.15.17 the following information describes the operation and maintenance of a below-grade tank (BGT) on a Burlington Resources Oil & Gas Company, LP (BR) location. This is BR's standard procedure for all BGT's. A separate plan will be submitted for any BGT which does not conform to this plan.

General Plan:

1. BR will operator and maintain a BGT to contain liquids and solids and maintain the integrity of the liner, liner system and secondary containment system to prevent contamination of fresh water and protect public health and the environmental. BR will perform an inspection on a monthly basis, install cathodic protection and automatic overflow shutoff devices as seen on the design plan.
2. BR will not discharge into or store any hazardous waste in the BGT.
3. BR shall operator and install the BGT to prevent the collection of surface water run-on. BR has built in shut-off devices that do not allow a BGT to overflow. BR constructs berms and corrugated retained walls at least 6" above grade to keep surface water run-on from entering the BGT as shown on the design plan.
4. As per 19.15.17.12.D(3), BR will inspect the BGT for leakage and damage at least monthly. The operator will document the integrity of each tank at least annually and maintain a written record for 5 years. Inspections may include 1) containment berms adequate and no oil present, 2) tanks had no visible leaks or sign of corrosion, 3) tank valves, flanges, and hatches had no visible leaks and 4) no evidence of significant spillage of produced liquids. BR shall remove any visible or measurable layer of oil from the fluid surface of the BGT in an effort to prevent significant accumulation of oil overtime.
5. BR shall maintain adequate freeboard to prevent overtopping of the BGT.
6. If a BGT develops a leak, then BR shall removal all liquid above the damage or leak within 48 hours of discovery, notify the appropriate division office pursuant to 19.15.29 NMAC and repair the damage or replace BGT as applicable.
7. If BR discovers a BGT designed in accordance with 19.15.17.11.1(5) has lost integrity the BGT will promptly be drained and removed from service and BR will follow the approved closure plan. If BR discovers a retrofitted BGT designed in accordance with 19.15.17.11.1(4)(a-c), does not demonstrate integrity or that the BGT develops any of the conditions identified in Paragraph (5) of Subsection A of 19.15.17.12 NMAC shall repair the damage or close the existing BGT pursuant to the closure requirements of 19.15.17.13 NMAC.
8. If BR equips or retrofits the existing BGT to comply with Paragraphs (1) through (4) of Subsection I of 19.15.17.11 NMAC, BR shall visually inspect the area beneath the BGT during the retrofit and document any areas that are wet, discolored or showing other evidence of a release on form C-141. BR shall measure and report to the division the concentration of contaminants in the wet or discolored soil with respect to the standards set forth in Table I of 19.15.17.13 NMAC. If there is no wet or discolored soil or if the concentration of contaminants in the wet or discolored soil is less than the standard set forth in Table I of 19.15.17.13 NMAC, then BR will proceed with the closure requirements of 19.15.17.13 NMAC prior to initiating the retrofit or replacement.

Burlington Resources Oil & Gas Company
San Juan Basin: New Mexico Assets
Production BGT Closure Plan

In accordance with Rule 19.15.17.13 NMAC, the following plan describes the general closure requirements of below-Grade Tanks (BGT) on Burlington Resources Oil & Gas Company, LP locations in the San Juan Basin of New Mexico. This is BR's standard closure procedure for all BGTs regulated under Rule 19.15.17 NMAC and operated by BR. For those closures which do not conform to this standard closure plan, a separate BGT specific closure plan will be developed and utilized.

Closure Conditions and Timing for BGT:

- Within 60 days of cessation of operation BR will:
 - Remove all liquids and sludge and dispose in a division approved manner.
- Within 72 Hrs or 1 week prior to closure BR will:
 - Give notice to surface owners by certified mail. For public entities by email as specified on the variance page.
 - Give notice to Division District Office verbally and in writing/email.
- Within 6 months of cessation of operation BR will:
 - Remove BGT and dispose, recycle, reuse, or reclaim in a division approved manner.
 - Remove unused onsite equipment associated with the BGT.
- Within 60 days of closure BR will:
 - Send the Division District Office a Closure Report per 19.15.17.13.F (1).

General Plan Requirements:

1. Prior to initiating any BGT closure, except in the case of an emergency, BR will notify the surface owner of the intent to close the BGT by certified mail no later than 72 hours or one week before closure and a copy of this notification will be included in the closure report. In the case of an emergency, the surface owner will be notified as soon as practical.
2. Notice of closure will be given to the Division District office between 72 hours and one week of the scheduled closure via email or phone. The notification of closure will include the following:
 - a. Operators Name
 - b. Well Name and API Number
 - c. Location
3. All liquids will be removed from the BGT following cessation of operation. Produced water will be disposed of at one of COP's approved Salt Water Disposal facilities or at a Division District Office approved facility.
4. Solids and sludge's will be shoveled and/or vacuumed out for disposal at one of the Division District Office approved facilities, depending on the proximity of the BGT site: Envirotech Land Farm (Permit #NM-01-011), Industrial Ecosystems Inc. JFJ Land Farm (Permit #NM-01-0010B), and Basin Disposal (Permit #NM-01-005).
5. BR will obtain prior approval from the Division District Office to dispose, recycle, reuse, or reclaim the BGT and provide documentation of the disposition of the BGT in the closure report. Steel materials will be recycled or reused as approved by the Division District Office. Fiberglass tanks will be empty, cut up or shredded, and EPA cleaned for disposal as solid waste. Liner materials will be cleaned without soils or contaminated material for disposal as solid waste. Fiberglass tanks and liner materials will meet the conditions of 19.15.35 NMAC.

Revised 9/4/2014

Disposal will be at a licensed disposal facility, presently San Juan County Landfill operated by Waste Management under NMED Permit SWM-052426.

6. Any equipment associated with the BGT that is no longer required for some other purpose, following the closure, will be removed.
7. Following removal of the tank and any liner material, BR will test the soils beneath the BGT as follows:
 - a. At a minimum, a five-point composite sample will be taken to include any obvious stained or wet soils or any other evidence of contamination.
 - b. The laboratory sample shall be analyzed for the constituents listed in Table I of 19.15.17.13.

Table I			
Closure Criteria for Soils Beneath Below-Grade Tanks, Drying Pads Associated with Closed-Loop Systems and Pits where Contents are Removed			
Depth below bottom of pit to groundwater less than 10,000	Constituent	Method*	Limit**
≤50 feet	Chloride	EPA 300.0	600 mg/kg
	TPH	EPA SW-846 Method 418.1	100 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8015M	10 mg/kg
51 feet-100 feet	Chloride	EPA 300.0	10,000 mg/kg
	TPH	EPA SW-846 Method 418.1	2,500 mg/kg
	GRO+DRO	EPA SW-846 Method 8015M	1,000 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8015M	10 mg/kg
> 100 feet	Chloride	EPA 300.0	20,000 mg/kg
	TPH	EPA SW-846 Method 418.1	2,500 mg/kg
	GRO+DRO	EPA SW-846 Method 8015M	1,000 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8015M	10 mg/kg

*Or other test methods approved by the division

**Numerical limits or natural background level, whichever is greater

(19.15.17.13 NMAC-Ro, 19.15.17.13 NMAC 3/28/2013)

Revised 9/4/2014

8. If the Division District Office and/or BR determine there is a release, BR will comply with 19.15.17.13.C.3b.
9. Upon completion of the tank removal, pursuant to 19.15.17.13.C.3c, if all contaminant concentrations are less than or equal to the parameters listed in Table I of 19.15.17.13 NMAC, the excavation will be backfilled with non-waste containing earthen material compacted and covered with a minimum of one foot top soil, or background thickness of top soil, whichever is greater. The surface will then be re-contoured to match the native grade, prevent ponding of water, and prevent erosion of cover material.
10. For those portions of the former BGT area no longer required for production activities, BR will seed the disturbed area in the first favorable growing season following the closure of the BGT. Seeding will be accomplished via drilling on the contour whenever practical, or by other Division District Office approved methods. BR will notify the Division District Office when reclamation and re-vegetation is complete.

Reclamation of the BGT shall be considered complete when:

- Established vegetative cover reflects a life form ratio of +/- 50% of pre disturbance levels.
- Total plant cover is at least 70% of pre-disturbance levels (Excluding noxious weeds)
OR
- Pursuant to 19.15.17.13.H.5d BR will comply with obligations imposed by other applicable federal or tribal agencies in which there re-vegetation and reclamation requirements provide equal or better protection of fresh water, human health and the environment.

11. For those portions of the former BGT area required for production activities, reseeding will be done at well abandonment, and following the procedure noted above.

Closure Report:

All closure activities will include proper documentation and will be submitted to OCD within 60 days of the BGT closure on a Closure Report using Division District Office Form C-144. The Report will include the following:

- Proof of Closure Notice (surface owner and Division District Office)
- Backfilling & cover installation
- Confirmation Sampling Analytical Results
- Application Rate & Seeding techniques
- Photo Documentation of Reclamation