PERMIT TO RECEIVE, STORE, HANDLE AND TREAT CERTAIN NONHAZARDOUS OIL AND GAS WASTES

Permit Nos: STF-0112, R9 08-1601

Disposal Pits – P012447, P012448, P012449, P012450, P012451, P012452, P012453, P012454, P012455, P012456, P012457, P012458, P012459, P012460, P012461, P012462, P012463, P012464, P012465, P012466, P012467;

Collecting Pits – P012468, P012469, P012472 and P012473;

Receiving/Collecting Pits – P012470A, P012470B and P012471

WEST SUN TEX LLC
600 N CARROLL AVE STE 100
SOUTHLAKE TX 76092

Based on the information contained in the original application received January 20, 2016, and subsequent information received to date, you are hereby authorized to receive, store, handle, treat and dispose of certain non-hazardous oil and gas wastes as specified below at the following facility:

Reeves County Commercial Disposal and Reclamation Facility (440 acres)
Latitude, Longitude: 31.431994°, -103.584109°
Reeves County, Texas
RRC District 08, Midland

NARRATIVE DESCRIPTION OF PROCESS:

The initial construction of the facility (Phase I) will include the following structures and waste management units; (1) eight unloading bays for Collecting Pit (P012471), (2) five unloading bays for Collecting Trench/Sump (P012470A and P012470B); (3) Collecting Pit (P012469); (4) Liquid Settling Area; (5) Drying Pad/Pit (P012473); (6) R9 08-1601 (Oil Centrifuge Processing Area); (7) Disposal Pits (P012462, P012463, P012464, P012459, P012460, and P012461); and (8) stormwater management units, consisting of the north and south drainage channel and the noncontact Stormwater Retention Pond.

The future expansion of the facility (Phase II) will include the following structures and waste management units; (1) Collecting Pit (P012468), (2) Drying Pad/Pit (P012472), (3) Disposal Pit Permit Nos. P012456, P012457, P012458, P012453, P012454, P012455, P012450, P012451, P012452, P012447, P012448, P012449, P012469, P012465, P012466 and P012467.
Incoming oil and gas wastes with low solids content will be received at the Receiving/Collecting Pit P012470A and P012470B. Trucks will drive through a jet-out system that will deposit the wastes into P012470A (concrete trench) where the waste will gravity drain to P012470B (sump pit). From the sump pit the liquid wastes will be conveyed to the gun-barrel, separators and saltwater tanks located in the Liquid Settling Area. Accumulated solids will be mechanically transferred to the drying pads (P012472 and P012473) for further processing, prior to disposal in an active Disposal Pit.

Incoming oil and gas wastes that have medium to high solids content will be received in the Collecting Pit P012471. Trucks will unload the wastes through a jet-out system that is located on the first 50 feet of the unloading area and is at a 4% slope. Concrete walls will be constructed to surround the jet-out area to contain the wastes. Liquid wastes will be transferred to the Oil Centrifuge Processing Area where 500-bbl thermal separation tanks will heat the waste before the waste is processed through a centrifuge for further separation. Accumulated solids will be transferred from the centrifuge to a roll-off container thence transported to the active Disposal Pit for disposal.

All liquid wastewater generated from the processing of incoming waste streams will be pumped to the Phase I and Phase II Collecting Pits (P012469 and P012468) where the liquids will be recycled for use in processing or transported off-site to a Class II injection well for disposal. Recovered hydrocarbons will be stored in oil tanks for re-sale.

Authority is granted by the Railroad Commission of Texas (RRC) to receive, store, handle, treat, reclaim, or dispose of certain nonhazardous oil and gas wastes in accordance 16 Texas Administrative Code (TAC) §3.57 (Statewide Rule 57) and TAC, §3.8 (Statewide Rule 8) and is subject to the following conditions:

I. GENERAL PERMIT CONDITIONS

A. The effective date of this permit is **April 25, 2018** and expires on **April 24, 2023**.

B. The permittee may not receive, store, handle, treat, reclaim and dispose of oil and gas wastes at the facility until financial security in the amount of **$3,508,520.00** is provided for and approved by the RRC for the referenced location. This amount provides financial security for the RRC permitted waste storage and treatment units as listed below.

C. In accordance with 16 TAC § 3.78 the permittee shall maintain financial security in the amount of **$3,508,520.00** until this facility and all of the referenced Phase I Permit Nos: STF-0112, R9 08-1601, (1) Disposal Pits (P012462, P012463, P012464, P012459, P012460, and 012461), (2) Collecting Pit (P012471), (3) Collecting Trench/Sump (P012470A and P012470B); (4) Collecting Pit (P012469); and (5) Drying Pad/Pit (P012473); have been closed in accordance with this permit. Technical Permitting reserves the right to revise this amount, as necessary. Prior to any modification or expansion of this facility that would require increased financial security, an updated closure cost estimate must be submitted to Technical Permitting in Austin, and any additional financial security must be filed with and approved by the RRC prior to making that modification.
D. No waste may be received at the referenced facility until a restrictive covenant is signed by a representative of the permittee, the landowner, and a representative of the RRC; and the signed document is filed in the Real Property Records Section of Reeves County, Texas, and proof of the filing with Reeves County is submitted to and approved by the RRC.

E. No waste may be received at the referenced facility until the groundwater monitoring wells required by Permit Condition XI. have been completed, developed and sampled. The documentation required by Permit Conditions XI.A. and XI.B. must be provided to and approved by Technical Permitting within 30 days after installation of the groundwater monitoring wells.

F. A copy of the site-specific Spill Control Plan that details means and methods of waste management and containment in the event of a release or discharge must be maintained on-site and made available to RRC staff for review and inspection upon request.

G. The facility’s Stormwater Management Plan shall be maintained on-site and made available upon request of the RRC.

H. A discharge permit from the Environmental Protection Agency (EPA) may be required for non-contact storm water discharges. If required, the permit from the EPA must be in place prior to commencement of discharge operations.

I. This permit does not authorize the discharge from the facility of any oil and gas waste, including contaminated or contact stormwater.

J. The permittee may not begin receiving, storing, handling, treating, reclaiming, or disposing of oil and gas waste at the facility until all necessary air permits or exemptions (if any) are obtained from the Texas Commission on Environmental Quality (TCEQ).

K. Technical Permitting in Austin and the appropriate District Office must be notified in writing when construction of the facility is initiated and with the completion of each disposal pit and/or waste management unit.

L. Technical Permitting in Austin and the appropriate District Office must be notified in writing upon final completion of construction of the facility. The permittee may not begin receiving, storing, handling, treating, reclaiming, or disposing of oil and gas waste until the appropriate District Office has performed its inspection of the completed facility and has verified that the facility is constructed in accordance with the application and this permit.

M. Unless otherwise required by conditions of this permit, construction, use, and maintenance of the facility must be in accordance with the information represented in the permit application and attachments thereto. When construction of the facility is completed, submit the “as-built” plans to be incorporated as part of the permit application.

N. The “Application For Permit To Operate A Reclamation Plant” (Form R-9), which is attached and incorporated into this permit as Permit Appendix A, grants authority for the active reclaiming of oil field related hydrocarbons and does not cover reclamation of any refined products. Commingling or blending of refined products with crude oil or condensate is not permitted unless written authority is granted by the RRC’s Director of
Field Operations following a formal written request for such blending by the Reclamation Plant operator. Any deliveries made containing products or crude blended with products must be clearly identified on the RRC Form R-2 as “Products” or “Crude Blended with Products.”

O. The removal of tank bottoms or other hydrocarbon wastes from the facility for which monthly reports are not filed with the RRC must be authorized in writing by the Commission prior to such removal. A written request for such authorization must be sent to Technical Permitting in Austin, and must detail the location, description, estimated volume, and specific origin of the material removed, as well as the name of the reclaimer and intended destination of the material.

P. The receipt of any tank bottoms or other hydrocarbons wastes from outside the State of Texas must be authorized in writing by the RRC prior to such receipt. Written approval is not required if another regulatory entity with jurisdiction over the waste will indicate, in the appropriate monthly report, a corresponding delivery of the same material.

Q. An On-Site Sewage Facility (OSSF) may be constructed, operated, and maintained within the boundaries of the subject facility without an additional permit from the Commission if: (1) the OSSF waste is not commingled with any other oil and gas waste; (2) the system is designed by a Professional Engineer registered in the state of Texas or a sewage system installer licensed in the state of Texas; and (3) the construction, operation, and maintenance of the OSSF complies with all applicable local, county, and state requirements.

R. Any deviation from this permit must be approved by amendment from Technical Permitting in Austin before implementation. No additional equipment may be added without prior written approval by Technical Permitting. A request for any additional equipment must be submitted in writing to Technical Permitting for review.

S. Any soil additives, stabilizers, bioaccelerators or treatment chemicals must be approved by Technical Permitting prior to use at the facility.

T. Safety Data Sheets (SDS) must be submitted to Technical Permitting in Austin for any chemical or compound proposed to be used in the treatment of waste at the facility. Use of the compound is contingent upon RRC approval. All chemicals must be stored according to the manufacturer’s specifications.

U. All chemical laboratory analyses required to be performed in accordance with this permit must be performed using appropriate Environmental Protection Agency (EPA) methods or Standard Methods by an independent National Environmental Laboratory Accreditation Program (NELAP) certified laboratory neither owned nor operated by the permittee. Any sample collected for chemical laboratory analysis must be collected and preserved in a manner appropriate for that analytical method and must be consistent with criteria specified in 40 CFR Part 136. All geotechnical testing must be performed by a laboratory certified to conduct geotechnical testing according to the standards specified by ASTM International (ASTM) and approved by a Professional Engineer licensed in the State of Texas.

V. The permittee must make all records required by this permit available for review and/or copying during normal business hours upon request of RRC personnel.
W. This permit may be considered for administrative renewal upon review by the RRC. Any request for renewal should be received at least 60 days prior to the permit expiration date.

X. This permit is nontransferable without consent of the RRC. Any request for permit transfer must be filed with Technical Permitting in Austin at least 60 days before the permittee wishes the transfer to take place.

Y. The permittee shall submit a Quarterly Report according to the following:

1. The report shall contain applicable information as required in Permit Conditions III.K., IV.O., V.J., VI.J., VIII.M., IX.J., X.D.17., XI. C. and XV.G.

2. The quarterly reporting periods shall be January 1 through March 31, April 1 through June 30, July 1 through September 30, and October 1 through December 31 of each year.

3. The reports shall be submitted to Technical Permitting in Austin and the appropriate District Office no later than the 30th day of the month following each reporting period, or each April 30th, July 30th, October 30th, and January 30th, respectively.

4. An Executive Summary shall be included that describes facility operations and relevant activities that occurred during the specific quarter.

5. Data tables presenting volumes or amounts of treated waste shall be included.

6. Data tables presenting volumes or amounts of treated waste received and interred into each pit shall be included.

7. Laboratory analytical reports and the corresponding chain of custody as specified in Permit Conditions III.F., and III.G. shall be included.

Z. Failure to comply with any provision of this permit may be cause for modification, suspension, termination or cancellation of this permit in accordance with Statewide Rule 8 (d)(6)(E).

II. AUTHORIZED WASTES

A. Only oil and gas wastes subject to the jurisdiction of the RRC that are non-hazardous according to Subtitle C (Resource Conservation and Recovery Act (RCRA)), may be received. You may receive, store, handle, treat, process, and dispose of only the following oil and gas wastes:

1. Produced water;

2. Oil-based and water-based drilling fluids and associated cuttings;

3. Produced sand;
4. Well completion, treatment, stimulation, and packing fluids (i.e., spent acid, and waste cement);
5. Liners and bottoms from reserve pits;
6. Workover wastes (i.e., blowdown, swabbing, and bailing)
7. Pigging wastes from producer operated gathering lines;
8. Contaminated soils from crude oil spills, pipeline spills, and saltwater spills from production operations;
9. Absorbent pads from crude oil spills;
10. Gas dehydration wastes (i.e., glycol-based compounds, glycol filters, filter media, backwash, and molecular sieves);
11. Solid wastes from gas plant sweetening wastes for sulphur removal (i.e., amines, amine filters & filter media, amine backwash, amine sludge, iron sponge, iron sulphide scale, and hydrogen sulfide scrubber fluids, and sludge); and
12. Tank bottoms, other hydrocarbons waste, condensate and basic sediment and water from the storage facilities that hold product and exempt wastes (whether foreign or domestic) before it enters the refinery may be received for reclaiming.

B. No other waste may be accepted at this facility.

C. RCRA non-exempt wastes under the jurisdiction of the RRC may be accepted and processed at the facility if analytical results demonstrate that the waste is characteristically non-hazardous. See Permit Condition III.G.

D. No oil and gas Naturally Occurring Radioactive Material (NORM) waste as defined in 16 TAC, §4.603, or waste from a facility that is licensed by the Texas Department of State Health Services to handle, process or treat oil and gas NORM waste, may be received at this facility.

E. No asbestos-containing material regulated under the Clean Air Act or polychlorinated biphenyls (PCB) material regulated under the Toxic Substances Control Act may be accepted for processing at this facility.

F. All waste haulers received at the facility must be RRC permitted Oil and Gas Waste Haulers and must have the subject facility listed as an approved disposal facility on their “Oil and Gas Waste Hauler’s Authority to use Approved Disposal/Injection System” (Form WH-3).
III. WASTE TESTING AND RECORD KEEPING REQUIREMENTS

A. For the purposes of this permit a representative sample of incoming waste is defined as a composite sample composed of four grab samples from each 50 cubic yards of waste material from each job (e.g., from each well, pit, spill location).

B. Each load of incoming waste, other than water-based drilling fluids and associated cuttings, or oil-based drilling fluid and associated cuttings, must be scanned for the presence of NORM using a scintillation meter with a sodium iodide detector or other equivalent devices that comply with 25 TAC §289.259, Texas Regulations for Control of Radiation (TRCR Part 46). Manufacturer’s specifications must be submitted to Technical Permitting for equivalent devices used for NORM detection. Any load with a reading of 50 microroentgens per hour or greater may not be unloaded or processed at the facility unless further analysis of the waste demonstrates that the waste does not exceed 30 picocuries per gram of Radium-226 combined with Radium-228, or 150 picocuries per gram of any other radionuclide.

C. The operator of the Reclamation Plant must conduct a shakeout test on all tank bottoms or other hydrocarbon wastes upon removal from any producing lease tank, pipeline storage tank, or other production facility, to determine crude oil content and lease condensate thereof.

D. The shakeout test shall be conducted in accordance with the most current American Petroleum Institute (API) or ASTM method.

E. All waste shall pass a Paint Filter Test (EPA Method 9095) prior to interment into a disposal pit. Test results from each Paint Filter Test must be submitted to Technical Permitting in Austin.

F. Prior to receipt at the site, representative samples of waste from commercial oil and gas facilities and reclamation plants must be analyzed for either of the parameters listed below and may not exceed the limit for the respective parameters:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>LIMITATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Organic Halides (TOX)</td>
<td>100 mg/l</td>
</tr>
<tr>
<td>(EPA Method 9020B)</td>
<td></td>
</tr>
<tr>
<td>or</td>
<td></td>
</tr>
<tr>
<td>Extractable Organic Halides (EOX)</td>
<td>100 mg/kg</td>
</tr>
<tr>
<td>(EPA Method 9023)</td>
<td></td>
</tr>
</tbody>
</table>

Special authorization for disposal of waste with a TOX/EOX > 100 ppm may be considered. Authority must be obtained from Technical Permitting in Austin prior to acceptance of the waste.
G. Prior to receipt at the site, representative samples of incoming RCRA non-exempt waste or any international waste must be analyzed for the following Parameters and may not exceed the specified Limitations:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>LIMITATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrosivity</td>
<td>pH 2.0 -12.5 standard units (s.u.) (EPA Method 1110A, 9040C or equivalent)</td>
</tr>
<tr>
<td>Ignitability</td>
<td>Flash Point &lt; 60° C (EPA Method 1010A, 1020B, or 1030A)</td>
</tr>
<tr>
<td>Reactivity</td>
<td>No materials exhibiting the characteristic of reactivity as defined by RCRA</td>
</tr>
<tr>
<td>Toxicity</td>
<td>No materials exhibiting the characteristic of toxicity as defined by RCRA (EPA Method 1311)</td>
</tr>
</tbody>
</table>

Metals: Toxic Characteristic Leaching Procedure (TCLP)
(EPA Method 1311/6010/6020/7147A)

<table>
<thead>
<tr>
<th>Substance</th>
<th>Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arsenic (As)</td>
<td>&lt; 5.0 mg/L</td>
</tr>
<tr>
<td>Barium (Ba)</td>
<td>&lt; 100.0 mg/L</td>
</tr>
<tr>
<td>Cadmium (Cd)</td>
<td>&lt; 1.0 mg/L</td>
</tr>
<tr>
<td>Chromium (Cr)</td>
<td>&lt; 5.0 mg/L</td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>&lt; 5.0 mg/L</td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>&lt; 0.2 mg/L</td>
</tr>
<tr>
<td>Selenium (Se)</td>
<td>&lt; 1.0 mg/L</td>
</tr>
<tr>
<td>Silver (Ag)</td>
<td>&lt; 5.0 mg/L</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance</th>
<th>Limitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzene</td>
<td>&lt; 0.5 mg/L</td>
</tr>
</tbody>
</table>

(EPA Method 1311/8260/8021B)

H. Details of receipts, deliveries for incoming waste to be processed at the Reclamation Plant (R9 08-1601) and the stock on hand (available for re-sale) must be reported monthly on the Form R-2, Monthly Report for Reclaiming and Treating Plants. Submit the original of the Form R-2 report directly to Technical Permitting in Austin and a copy of the report to the appropriate District Office by the 15th day of the
calendar month following the month by the report. Form R-2 shall be completed in accordance with Statewide Rule 57.

I. The permittee must maintain the following records on each load of waste received at the facility for a period of three (3) years from the date of receipt:

1. Description of the site where the waste was generated, including:
   i. Generator name;
   ii. Lease name and number and well number(s), or gas ID number(s), or American Petroleum Institute (API) well number(s); or latitude and longitude coordinates in decimal degrees if the waste was not generated on a lease; and
   iii. County;

2. Name and RRC permit number of the transporter;

3. Volume of waste material (specify units); and

4. Detailed description of the type of waste, including any analysis required by Permit Conditions III.B., III.C., III.E., III.F. and III.G above.

J. The permittee shall maintain the following records on each load of waste removed at the facility for a period of three (3) years from the date of receipt:

1. Date waste is removed and hauled to a disposal facility;

2. Name and RRC permit number of the transporter;

3. Volume (specify units) of each shipment of waste hauled to a disposal facility;

4. Type of waste (basic sediment, water, water-based mud, etc.); and

5. Name and permit number of the disposal facility.

K. A report must be submitted to Technical Permitting in Austin and the appropriate District Office as part of the Quarterly Report required in Permit Condition I.Y. and shall include the following information:

1. All records required by Permit Conditions III.I., III.J., above, as well as a summary of waste receipts;

2. The total volume of each type of waste material received during the specific quarter; and

3. Total volume of each type of waste that leaves the facility for disposal or final disposition during the quarter.

IV. GENERAL FACILITY DESIGN/MAINTENANCE REQUIREMENTS

A. The general layout and arrangement of the facility shall be consistent with the “SITE PLAN” (Sheet R2-3B), the “SITE PLAN DETAIL” (Sheet R2-12) and the “PERIMETER CONTAINMENT BERM” (Sheet R2-2) diagrams dated April 28, 2017, which are attached and incorporated into this permit as Permit Appendix B.
B. The **Phase I** construction of the facility shall consist of the following waste management units:

1. Eight unloading bays and Collecting Pit (P012471);
2. Five unloading bays, one Collection Trench and one Collecting Sump Pit (P012470A and P012470B);
3. Liquids Settling Area;
   a. Two 750-bbl gun barrel separators;
   b. Four 500-bbl saltwater tanks; and
   c. Four 500-bbl reclaimed oil tanks.
4. Reclamation Plant (R9 08-1601 and Oil Centrifuge Processing Area);
   a. Six 500-bbl settling tanks;
   b. One centrifuge;
   c. One water tight roll-off container (40 cubic yards); and
   d. One boiler.
5. One Collecting Pit (P012469);
6. One Drying Pad/Pit (P012473);
7. Six Disposal Pits (P012462, P012463, P012464, P012459, P012460, and P012461); and
8. One noncontact Stormwater Retention Pond with two drainage diversion channels.

C. The **Phase II** construction of the facility shall consist of the following waste management units:

1. Collecting Pit (P012468);
2. Drying Pad/Pit (P012472);

D. Prior to any modification or expansion of this facility, an updated closure cost estimate must be submitted to Technical Permitting in Austin, and any additional financial security must be filed with and approved by the RRC prior to the construction of the Phase II of the waste management units specified in Permit Condition IV.C.

E. A sign must be posted at each entrance to the facility. The sign must be readily visible and show the operator name, facility name, and permit number in letters and numerals at least three inches in height.

F. No waste, treated or untreated, may be placed directly on the ground.
G. All storage tanks, equipment and roll-off boxes must be maintained in a leak-free condition. If inspection of a tank, roll-off box or storage vessel reveals deterioration or leaks, it must be repaired or replaced before resuming use of the tank.

H. Any spill of waste, chemical, or any other material must be collected and containerized within 24 hours and processed through the treatment process or disposed of in an authorized manner.

I. Any chemical used in the treatment process shall be stored in vessels designed for the safe storage of that particular compound and these vessels shall be maintained in a leak free condition.

J. A perimeter berm must be constructed to surround the entire facility and must be designed to prevent storm water run-on and prevent storm water runoff from the site. The perimeter berm must be constructed to a minimum height of four (4) feet above land surface with a slope no steeper than a three to one (horizontal to vertical) ratio on each side. The perimeter berm system includes wire-wrapped rock filter dams every 30 feet and rip-rap constructed on the corners to prevent erosion.

K. Berms or containment structures must be constructed around all waste management units and must be compacted or constructed of material that meets 95% Standard Proctor (ASTM D698) or 90-92% Modified Proctor (ASTM D1557) density. Each berm shall maintain a slope no steeper than one to three (vertical to horizontal) ratio, unless constructed of concrete or equivalent material (firewalls). These structures must be used to divert non-contact storm water around the waste management areas and contain and isolate contact storm water within the waste management units. Refer to the stormwater management requirements specified in Permit Condition XII.

L. The facility shall maintain security to prevent unauthorized access. Access shall be secured by a 24-hour attendant or a six-foot-high security fence and locked gate when unattended to prevent vehicle or livestock access. Fencing shall be required unless terrain or vegetation prevents truck or livestock access except through entrances with lockable gates.

M. Contact storm water must be contained within the waste management units. Any accumulated contact storm water must be removed within 72 hours and disposed of in an authorized manner.

N. No oil may be allowed to accumulate on top of the water or wastes stored in the pits. Any oil on top of the liquids must be collected and handled in accordance with RRC rules. Any recovered oil must be recorded and filed with the RRC on either a Skim Oil/Condensate Report (Form P-18) or a “Letter of Authority Request for Oil Movement” (Form T-1) Letter:

1. A Skim Oil/Condensate Report (Form P-18) must be filed with the RRC every month to record skim oil volumes recovered and sold during the operation of this facility. If no skim oil is recovered for a given month, a (Form P-18) should still be filed with the RRC.

OR
2. An original signed "Letter of Authority Request for Oil Movement" (Form T-1) must initially be submitted on letterhead to Field Operations, Austin, TX, Oil and Gas Division, for every event in which sellable skim oil is recovered and intended to be sold during the operation of this facility. Filing frequency requirements may be redefined after the initial oil movement request has been processed. The request must include:

   a. The time period for which oil movement authority is requested;
   b. The name of the applicant requesting to move the oil;
   c. Volume (barrels) of oil to be moved;
   d. Name and location of the facility which the oil will be moved to;
   e. Name, address, telephone, and fax number of facility buying the oil to be moved;
   f. Contact person, T-1 permit number, and P-5 Operator Number of the oil buyer; and
   g. A description of the source(s) of the oil at the facility.

O. Each month an inspection of the entire facility must be performed on all concrete slabs, processing equipment, berms, firewalls and aboveground storage tanks for deterioration, leaks and spills. Records of each inspection must be kept on-site and submitted as part of the Quarterly Report required by Permit Condition I.Y.

P. The permittee must maintain the following records for a period of three (3) years from the date of the inspection required by Permit Condition IV.O.:

   1. The results of the monthly inspection of concrete slabs within the facility for evidence of deterioration, leakage, or storm water run-on, and a description of corrective action taken, if any.
   2. The results of the monthly inspection of process equipment, tanks, and roll-off boxes for evidence of deterioration or leakage, and a description of corrective action taken, if any.
   3. The results of the monthly inspection of waste levels within the storage areas, tanks, and roll-off boxes, and a description of corrective action taken, if any.
   4. The results of the monthly inspections of the silt fencing/rock filter dams installed to control and modulate run-off to surface waters and indicate whether debris has been removed.

V. CONSTRUCTION AND OPERATION OF UNLOADING BAYS AND COLLECTING PIT (P012471)

A. The eight unloading bays and the Collecting Pit must be constructed and as shown on the "CELL 26 HEAVY LIQUID JETOUT" (Sheet 23-1) diagram, dated April 28, 2017, which is attached to and incorporated into this permit as Permit Appendix C.
B. The Unloading Area shall consist of an above grade structure that will have eight bays that are approximately 12 feet wide by 50 feet long. The slab shall consist of reinforced concrete with a minimum thickness of 10 inches. The entrance/exits to the unloading bays shall have a concrete curb constructed that is 12 inches in height by three feet wide and concrete containment walls that are 10 inches in height on the east and west sides. The unloading bays slope towards the Collecting Pit (P012471) at 4% so that the wastes gravity flow directly into the pit.

C. The jet-out equipment area is adjacent to the Collecting Pit and shall consist of slab that is constructed with reinforced concrete with a minimum thickness of 8 inches. One 500-bbl water storage tank and other associated equipment may be staged on this area.

D. Use of the Collecting Pit is limited to the collection of non-hazardous oil and gas wastes as specified in Permit Condition II.A. No other oil field fluids or oil and gas wastes may be stored or staged in the pit.

E. A sign shall be posted identifying the Collecting Pit permit number in letters and numerals at least three inches in height.

F. The Collecting Pit (P012471) must be 50 feet long by 96 feet wide by 4.5 feet deep. The pit must be lined with reinforced concrete with a minimum thickness of 10 inches. The usable capacity for the pit must not exceed 1,070 barrels.

G. At least two feet of freeboard must be maintained between the fluid level in the Collecting Pit and the top of the pit wall.

H. The concrete liner must be installed and maintained in accordance with best management and sound engineering practices.

I. The ground surface surrounding the unloading bays and pit must be graded such that all surfaces slope away from the pit to prevent surface flow storm water from entering the pit.

J. The pit must be emptied and visually inspected annually for deterioration and leaks. A record of each inspection and photographs of the interior of each pit must be maintained for the life of the pit and shall be submitted to Technical Permitting in Austin as part of the Quarterly Report required in Permit Condition I.Y. The District Office must be notified by phone or email at least 48 hours before emptying the pit for inspection.

K. The concrete liner must be inspected whenever evidence of liner leakage arises. If inspection of the concrete liner reveals a leak or other loss of integrity, the liner must be replaced or repaired and re-inspected by RRC personnel before resuming use of the pit.

L. This permit does not authorize discharge of waste from the pits to the surface or surface water.

M. Unless otherwise required by conditions of this permit, construction, use, and maintenance of the pit must be in accordance with the information represented on the application (Form H-11) and attachments thereto.
VI. CONSTRUCTION AND OPERATION OF UNLOADING BAYS AND COLLECTING PITS (P012470A and P012470B)

A. The Collecting Pits must be constructed and arranged as shown on the “CELL 25 LIGHT LIQUID JETOUT” (Sheet 18-1) diagram, dated April 28, 2017, which is attached to and incorporated into this permit as Permit Appendix D.

B. The Unloading Area shall consist of an above grade structure that will have five bays that are approximately 15 feet wide by 60 feet long each. The slab shall consist of reinforced concrete with a minimum thickness of 12 inches. The entrance/exits to the unloading bays shall have a concrete curb constructed that is 12 inches in height by three feet wide and concrete containment walls that are two feet in height on the east and west sides. The bays slope towards the Collection Trench (P012470A) located in the middle of the bays, and the wastes then gravity flow to the Collecting Sump Pit (P012470B).

C. Use of the Collection Trench (P012470A) and Collecting Sump Pit (P012470B) is limited to the collection of non-hazardous oil and gas wastes as specified in Permit Condition II.A. No other oil field fluids or oil and gas wastes may be stored or staged in the pits.

D. A sign shall be posted identifying the Collection Trench and Collecting Pit permit numbers in letters and numerals at least three inches in height.

E. The floor of each bay shall have a minimum slope of 2% allowing for wastes to drain into the grated Collection Trench (P012470A) which shall consist of one channel that is six-feet wide and four to five-feet deep and extend the full length of the unloading bays. The capacity of the Collection Trench must not exceed 360 barrels.

F. The Collecting Sump Pit (P012470B) must be 24 feet long by 15 feet wide by 10 feet deep. The pit must be lined with reinforced concrete with a minimum thickness of 12 inches. The usable capacity the pit must not exceed 640 barrels.

G. At least two feet of freeboard must be maintained between the fluid level in the Collecting Pit and the top of the pit wall.

H. The concrete liner must be installed and maintained in accordance with best management and sound engineering practices.

I. The ground surface surrounding the unloading bays and pit must be graded such that all surfaces slope away from the pit to prevent surface flow storm water from entering the pit.

J. Each pit must be emptied and visually inspected annually for deterioration and leaks. A record of this inspection and photographs of the interior of each pit must be maintained and shall be submitted to Technical Permitting in Austin as part of the Quarterly Report required in Permit Condition I.Y. The District Office must be notified by phone or email at least 48 hours before emptying the pit for inspection.

K. The concrete liner must be inspected whenever evidence of liner leakage arises. If inspection of the concrete liner reveals a leak or other loss of integrity, the liner must be replaced or repaired and re-inspected by RRC personnel before resuming use of the pit.
L. This permit does not authorize the discharge of waste from any pits to the land
surface or to surface water.

M. Unless otherwise required by conditions of this permit, construction, use, and
maintenance of the pit must be in accordance with the information represented on the
application (Form H-11) and attachments thereto.

VII. CONSTRUCTION AND OPERATION OF THE LIQUIDS SETTLING AREA
AND THE OIL CENTRIFUGE PROCESSING AREA – RECLAMATION
PLANT (R9 08-1601)

A. The general layout and arrangement of the Liquids Settling Area and the Centrifuge
Oil Processing Area must be consistent with the schematic diagrams “MATERIALS
PROCESSING AREAS” (Sheets 12-2 and 12-3) dated May 9, 2016, which are
attached to and incorporated into this permit as Permit Appendix E.

B. The Liquids Settling Area and the Oil Centrifuge Processing Area shall be lined with
a compacted clay liner with a minimum thickness of two (2) feet. The clay liner
must meet a hydraulic conductivity of 1 x 10^-7 cm/sec or less and be compacted to
95% Standard Proctor (ASTM D698) or 90-92% Modified Proctor (ASTM D1557)
density, at a soil moisture content of 2 to 3%. The compacted clay liner must be
overlain by 12 inches of protective soil.

C. A secondary containment berm shall be constructed to a minimum height of two feet
and maintain a slope no steeper than a one to three (vertical to horizontal) ratio on
both sides. Refer to Permit Condition IV.K. for compaction requirements.

D. All the storage tanks containing fluid waste or fuel shall be contained within dikes.
Secondary containment of 120% total storage capacity is recommended, however a
firewall capacity that will capture 100% of the volume of the largest tank plus the
volume of a 25 year/24-hour rainfall event for Reeves County is acceptable.

E. Spills within the secondary containment berms shall be containerized immediately
and contact stormwater must be managed as waste.

VIII. CONSTRUCTION AND OPERATION OF THE COLLECTING PITS P012469
AND P012468 (PHASE I AND PHASE II)

A. The general layout and arrangement of the Collecting Pits (P012469 and P012468)
must be consistent with the schematic diagram “SITE PLAN DETAIL” (Sheet R2-
12), provided in Permit Appendix A.

B. The Collecting Pits (P012469 and P012468) may store untreated and partially treated
waste and contact stormwater, and must be constructed and arranged as shown on the
“CELL 24 DETAIL” (Sheet 28-2) diagram dated April 28, 2017, the “CELL DETAIL
23” (Sheet 28-1) diagram dated May 9, 2016, and the “LINER AND SUMP DETAILS
FOR DISPOSAL PITS 012447-012467 (CELLS 1-21) AND COLLECTING PITS
012468 & 012469” (Sheet R2-17) diagrams dated August 25, 2016, which are
attached and incorporated into this permit as Permit Appendix F.
C. Use of the Collecting Pits is limited to the collection of non-hazardous oil and gas wastes as specified in Permit Condition II.A. and the collection of contact stormwater for processing or disposal by injection in a Class II disposal well. No other oil field fluids or oil and gas wastes may be stored or staged in the pit.

D. A sign shall be posted identifying each Collecting Pit by name and permit number in letters and numerals at least three inches in height.

E. The Collecting Pit (P012469) must have dimensions no greater than 488 feet by 423 feet by 18 feet (4.73 acres). The usable capacity must not exceed 363,767 barrels.

F. The Collecting Pit (P012468) must have dimensions no greater than 988 feet by 423 feet by 18 feet (9.59 acres). The usable capacity must not exceed 835,357 barrels.

G. At least two feet of freeboard must be maintained between the fluid level in each Collecting Pit and the crest of the containment berm.

H. The Collecting Pits (P012469 and P012468) must be constructed in accordance with the liner system installation methods included in the application and consist of a base layer of a Geosynthetic Clay Liner (GCL), a 60-mil high-density polyethylene (HDPE) secondary liner, and a 60-mil HDPE primary liner. The primary liner shall be covered with 12 inches of protective soil that is excavated from on-site soils.

I. The pit must be equipped with a leak detection system (LDS), which will consist of a HDPE drainage layer with a thickness of at least 200-mil placed between the primary and secondary liners, along with a leak detection trench/sump and riser that are designed to maintain sufficient capacity to allow continuous flow and fluid evacuation.

J. The liner systems and the LDS must be installed in accordance with the manufacturer’s specifications and sound engineering practices.

K. The floor of the pit must have at least a 2% slope to allow fluids to drain to the leak detection sump.

L. The LDS must be monitored at least weekly, and the permittee must maintain a record of when the liner and the leak detection system are inspected and the results of each inspection. This record shall include:

   1. Date of fluid level measuring;
   2. Fluid level or volume;
   3. Volume of fluid removed;
   4. Electrical conductivity; and
   5. Chloride concentration of the fluids removed.

M. A summary of all records required by Permit Condition VIII.L above must be submitted in table form within the Quarterly Report required by Permit Condition I.Y. The physical record must be maintained by the permittee for the life of the pit. The physical record shall be filed with the RRC upon request.

N. If the leak detection system indicates a possible liner system failure, the liner system must be inspected for deterioration and leaks within five days of the initial detection
of the failure. The appropriate District Office must be notified by phone or email within 24 hours of the initial detection of the failure. No additional waste shall be added to the pit in the event of a failure. After inspection, the identified failed component must be replaced or repaired and re-inspected by RRC personnel before resuming use of the pit.

O. A liner system failure for Collecting Pit (P012469) is defined as any of the following:
   1. A leak rate from the primary liner greater than the Action Leakage Rate (ALR) of 4,730 gallons per day or 1,000 gallons per acre per day (GPAD).
   2. Any failure in the leak detection and return system or any component thereof.
   3. Any detected damage to or leakage from the secondary liner.

P. A liner system failure for Collecting Pit (P012468) is defined as any of the following:
   1. A leak rate from the primary liner greater than the Action Leakage Rate (ALR) of 9,590 gallons per day or 1,000 gallons per acre per day (GPAD).
   2. Any failure in the leak detection and return system or any component thereof.
   3. Any detected damage to or leakage from the secondary liner.

Q. The Collecting Pits (P012469 and P012468) shall be surrounded by an earthen containment berm that meets compaction requirements specified in Permit Condition IV.K. and may function as an access road. Refer to Permit Appendix F (Sheet R2-17) for the berm details.

R. This permit does not authorize the discharge of waste from any pits to the land surface or surface water.

S. Unless otherwise required by conditions of this permit, construction, use, and maintenance of the pit must be in accordance with the information represented on the application (Form H-11) and attachments thereto.

IX. CONSTRUCTION AND OPERATION OF DRYING PAD/PITS (P012473 and P012472)

A. The general layout and arrangement of the Drying Pads/Pits (P012473 and P012472) must be consistent with the schematic diagram “SITE PLAN DETAIL” (Sheet R2-12), provided in Permit Appendix A.

B. The Drying Pads/Pits (P012473 and P012472) must be constructed and arranged as shown on the “WEST DRYING PAD (CN-012473)” (Sheet R2-14) and “EAST DRYING PAD (CN-012472)” (Sheet R2-13) diagrams dated August 25, 2016, which are attached and incorporated into this permit as Permit Appendix G.

C. Use of the Drying Pads/Pits is limited to the collection of solid non-hazardous oil and gas wastes as specified in Permit Condition II.A. prior to processing and must pass a paint filter test before placement in the active disposal pit. No other oil field fluids or oil and gas wastes may be stored or staged in the pit.
D. A sign shall be posted identifying each Drying Pad/Pit by name and permit number in letters and numerals at least three inches in height.

E. Each Drying Pad/Pit (P012473 and P012472) must have dimensions no greater than 140 feet by 400 feet by one foot. The usable capacity for each pad/pit must not exceed 10,000 barrels or 2,079 cubic yards.

F. The Drying Pads/Pits shall consist of reinforced concrete with a minimum thickness of 10 inches. The entrance/exits to the unloading bays shall have a concrete curb constructed that is 12 inches in height by three feet wide and concrete containment walls that are two feet in height on the east and west sides. The Drying Pads/Pits slope towards Collecting Pits (P012468 and P012469) and are separated by a bar screen that will trap solids while allowing the fluids to drain into the pits.

G. A four-foot buffer must be maintained between the bottom edge of the staged waste in the Drying Pad/Pits and the toe of the surrounding concrete containment walls.

H. The concrete liner must be installed and maintained in accordance with best management and sound engineering practices.

I. The ground surface surrounding the unloading bays for the Drying Pad/Pits must be graded such that all surfaces slope away from the waste management units to prevent surface flow storm water from entering.

J. Each Drying Pad/Pit must be emptied and visually inspected annually for deterioration and leaks. A record of this inspection and photographs of the interior of each pit must be maintained and shall be submitted to Technical Permitting in Austin as part of the Quarterly Report required in Permit Condition I.Y. The District Office must be notified by phone or email at least 48 hours before emptying the pit for inspection.

K. The concrete liner must be inspected whenever evidence of liner leakage arises. If inspection of the concrete liner reveals a leak or other loss of integrity, the liner must be replaced or repaired and re-inspected by RRC personnel before resuming use of the pit.

L. This permit does not authorize the discharge of waste from the pads or pits to the land surface or to surface water.

M. Unless otherwise required by conditions of this permit, construction, use, and maintenance of the pit must be in accordance with the information represented on the application (Form H-11) and attachments thereto.

X. CONSTRUCTION AND OPERATION OF THE DISPOSAL PITS

A. CONSTRUCTION OF THE PHASE I DISPOSAL PITS P012462 P012463, P012464, P012459, P012460 AND P012461

1. The general layout, arrangement and construction of the Phase I Disposal Pits, P012462(Cell 16), P012463(Cell 17), P012464(Cell 18), P012459(Cell 13), P012460(Cell 14), and P012461(Cell 15), shall be consistent with the schematic diagrams “DISPOSAL PIT 012447
(CELL 1) DETAIL TYPICAL DISPOSAL PITS 012447-012467” (Sheet 33-1), “CELL 16 DETAIL” (Sheet 33-16), “CELL 17 DETAIL” (Sheet 33-17) “CELL 18 DETAIL” (Sheet 33-18), “CELL 13 DETAIL” (Sheet 33-13), “CELL 14 DETAIL” (Sheet 33-14), and “CELL 15 DETAIL” (Sheet 33-15), dated April 28, 2017, which are attached and incorporated into this permit as Permit Appendix H.

2. The general layout and sequenced construction of the Phase I Disposal Pits, temporary containment berms, contact diversion channel, drainage swales, down chute details, and final cap details, shall be consistent with the schematic diagrams “PHASE 1 (CELL 16)” (Sheet R4-6A), “PHASE 1 (CELL 17)” (Sheet R4-6B), “PHASE 2” (Sheet R4-6C), “PHASE 3” (Sheet R4-6D), “PHASE 4” (Sheet R4-6E), and “PHASE 5” (Sheet R4-6F), dated April 28, 2017, which are attached and incorporated into this permit as Permit Appendix I.

3. Technical Permitting in Austin and the Midland District Office must be notified in accordance with Permit Condition I.J. upon the initiation and final completion of construction of each Phase I Disposal Pit. The permittee may not begin using the Disposal Pits until the District Office has completed an inspection of the specific pit and provided verification that the pit is constructed in accordance with the application and permit.

4. The capacity of each Phase I Disposal Pit shall not exceed the volume, or the waste limit heights listed below;

<table>
<thead>
<tr>
<th>Phase I Disposal Pit Permit Nos.</th>
<th>Total Volume (bbls)</th>
<th>Total Volume (cubic yards)</th>
<th>Height Above Grade feet *1</th>
<th>Depth Below Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage One</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P012462 (Cell 16)</td>
<td>1,437,333</td>
<td>298,884</td>
<td>20.3 (North)</td>
<td>10</td>
</tr>
<tr>
<td>P012463 (Cell 17)</td>
<td>1,573,187</td>
<td>327,134</td>
<td>20.3 (North)</td>
<td>11</td>
</tr>
<tr>
<td>Stage Two</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P012464 (Cell 18)</td>
<td>1,437,333</td>
<td>298,884</td>
<td>20.3 (East)</td>
<td>12</td>
</tr>
<tr>
<td>Stage Three</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P012459 (Cell 13)</td>
<td>2,404,437</td>
<td>499,987</td>
<td>42.9 (East)</td>
<td>10</td>
</tr>
<tr>
<td>Stage Four</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P012460 (Cell 14)</td>
<td>3,367,925</td>
<td>700,338</td>
<td>42.9 (East)</td>
<td>10</td>
</tr>
<tr>
<td>Stage Five</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P012461 (Cell 15)</td>
<td>2,404,437</td>
<td>499,987</td>
<td>42.9 (North)</td>
<td>8</td>
</tr>
<tr>
<td>Total Volume</td>
<td>12,624,652</td>
<td>2,625,214</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Footnotes:

*1 The maximum waste limit above grade on the specified side.
B. CONSTRUCTION OF THE PHASE II DISPOSAL PITS P012456, P012457, 
P012458, P012453, P012454, P012455, P012450, P012451, P012452, P012447, 
P012448, P012449, P012465, P012466 AND P012467

1. Prior to the construction of Phase II, which includes the construction of 
Disposal Pit Permit Nos. P012456, P012457, P012458, P012453, 
P012454, P012455, P012450, P012451, P012452, P012447, P012448, 
P012449, P012465, P012466 and P012467 the permittee must submit 
a written narrative detailing the sequenced construction, capping and 
all required applicable schematic diagrams. Written approval must be 
granted from Technical Permitting before the additional disposal pits 
may be constructed.

2. Technical Permitting in Austin and the Midland District Office must 
be notified in accordance with Permit Condition I.J. upon the initiation 
and final completion of construction of each Phase II Disposal Pit. The 
permittee may not begin using the Disposal Pits until the District 
Office has completed an inspection of the specific pit and provided 
verification that the pit is constructed in accordance with the 
application and permit.

3. The capacity of each Phase II Disposal Pit shall not exceed the 
volumes or the waste limit heights listed below;

<table>
<thead>
<tr>
<th>Phase II Disposal Pit Permit Nos.</th>
<th>Total Volume (bbls)</th>
<th>Total Volume (cubic yards)</th>
<th>Height Above Grade feet *1</th>
<th>Depth Below Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>P012456(Cell 10)</td>
<td>2,626,046</td>
<td>546,069</td>
<td>46.9 (North)</td>
<td>7</td>
</tr>
<tr>
<td>P012457(Cell 11)</td>
<td>5,011,507</td>
<td>1,042,110</td>
<td>65.6 (East)</td>
<td>8</td>
</tr>
<tr>
<td>P012458(Cell 12)</td>
<td>2,626,046</td>
<td>546,069</td>
<td>46.9 (East)</td>
<td>10</td>
</tr>
<tr>
<td>P012454(Cell 7)</td>
<td>2,626,046</td>
<td>546,069</td>
<td>46.9 (South)</td>
<td>9</td>
</tr>
<tr>
<td>P012454(Cell 8)</td>
<td>5,011,507</td>
<td>1,042,110</td>
<td>65.6 (West)</td>
<td>6</td>
</tr>
<tr>
<td>P012455(Cell 9)</td>
<td>2,626,046</td>
<td>546,069</td>
<td>46.9 (West)</td>
<td>5</td>
</tr>
<tr>
<td>P012450(Cell 4)</td>
<td>2,404,437</td>
<td>499,987</td>
<td>46.9 (West)</td>
<td>4</td>
</tr>
<tr>
<td>P012451(Cell 5)</td>
<td>3,367,930</td>
<td>700,339</td>
<td>42.9 (West)</td>
<td>5</td>
</tr>
<tr>
<td>P012452(Cell 6)</td>
<td>2,404,437</td>
<td>499,987</td>
<td>42.9 (South)</td>
<td>8</td>
</tr>
<tr>
<td>P012447(Cell 1)</td>
<td>1,437,333</td>
<td>298,884</td>
<td>20.3 (South)</td>
<td>7</td>
</tr>
<tr>
<td>P012448 (Cell 2)</td>
<td>1,573,187</td>
<td>327,134</td>
<td>20.3 (South)</td>
<td>3</td>
</tr>
<tr>
<td>P012449 (Cell 3)</td>
<td>1,437,333</td>
<td>298,884</td>
<td>20.3 (South)</td>
<td>3</td>
</tr>
<tr>
<td>P012465(Cell 19)</td>
<td>1,157,849</td>
<td>240,767</td>
<td>9</td>
<td>13</td>
</tr>
<tr>
<td>P012466 (Cell 20)</td>
<td>1,157,849</td>
<td>240,767</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>P012467(Cell 21)</td>
<td>1,157,849</td>
<td>240,767</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>Total Volume</td>
<td>36,625,402</td>
<td>7,616,012</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Footnotes:

*1 The maximum waste limit above grade on the specified side.
C. CONSTRUCTION OF THE PHASE I AND PHASE II DISPOSAL PITS

1. A sign must be posted identifying each Disposal Pit by name and permit number in letters and numerals at least three inches in height.

2. Each Disposal Pit in Phase I and Phase II will be constructed to the exact same dimensions. The bottom floor dimensions must be no greater than 896 feet by 345 feet. The dimensions two feet below the top of the berm must be no greater than 958 feet by 423 feet. Each Disposal Pit is approximately 9.3 acres.

3. Berms shall be constructed and maintained on all sides of the Disposal Pits with a crest width of 15 feet to provide an access road and with a slope no steeper than a one to three (vertical to horizontal) ratio on both sides.

4. All the Disposal Pits (Phase I and Phase II) must be constructed in accordance with the liner system installation methods included in the application and consist of (from bottom to top) a Geosynthetic Clay Liner (GCL), a 60-mil high-density polyethylene (HDPE) secondary liner, 60-mil HDPE primary liner and 12 inches of a protective soil layer that is not composed of waste.

5. All the Disposal Pits (Phase I and Phase II) must be equipped with a Leak Detection System (LDS), including an HDPE drainage layer with a thickness of at least 200-mil that extends over the entire pit between the primary and secondary liners, to collect any leakage from the primary liner.

6. All the Disposal Pits (Phase I and Phase II) must be equipped with a leachate collection system (LCS). Leachate collected in each leachate collection sump must be removed through the leachate removal pipe and disposed of in an authorized manner.

7. All the liners, LCS and the LDS must be installed in accordance with the manufacturer’s specifications and sound engineering practices.

8. The floor of all the Disposal Pits (Phase I and Phase II) must have at least a 2 % slope to allow fluids to drain to the sump located at the low end of each cell.

9. A liner anchor trench must be used to key the synthetic liners for each cell to their respective berms. The liners from each cell must be extended 4 feet past the anchor trench in each berm and welded together to create a continuous liner system when the next disposal pit is constructed.

10. A permanent liner boundary marker must be installed and maintained on all four sides of the pit that clearly identifies the subsurface liner system weld locations at the surface.
11. Unless otherwise required by conditions of this permit, construction, use, and maintenance of each pit must be in accordance with the information represented on the applications (Form H-11’s) and attachments thereto.

D. OPERATION OF THE PHASE I AND PHASE II DISPOSAL PITS

1. All waste must pass a Paint Filter Test (EPA Method 9095) prior to interment into a Disposal Pit, and the permittee must maintain records of the results from each Paint Filter Test for the life of the pit.

2. Only one Disposal Pit may be considered active and accept oil and gas waste at any time.

3. The first Disposal Pit to be constructed will be P012462 (Cell 16). Only one Disposal Pit shall accept waste while the next disposal pit in the sequence is under construction. As each active Disposal Pit reaches capacity, the waste will be graded to the maximum waste height (refer to heights and locations specified in Permit Condition X.A.4.) and will slope away from the perimeter berm at a rate of 5%.

4. As an active Disposal Pit reaches the final grade, a temporary cap will be constructed and placed over the waste. The temporary cap shall consist of 12 inches of clean on-site fill material that meets a hydraulic conductivity of $1 \times 10^{-7}$ cm/sec or less and is compacted to 95% Standard Proctor (ASTM D698) or 90-92% Modified Proctor (ASTM D1557) density and be a graded to a 3:1 (horizontal to vertical) slope.

5. The temporary cap must be inspected after each storm event and re-compacted as needed to meet the requirements specified in Permit Condition X.D.4.

6. Prior to the active Disposal Pit reaching the two-foot freeboard limit between the top of the waste and the top of berm, a temporary collecting pit will be constructed adjacent to the active pit. The temporary collecting pit must be lined with a 60-mil HDPE liner and be within the footprint of the permitted disposal pit acreage. A diversion channel will be constructed to direct the contact stormwater from the active pit to the temporary collecting pit once the waste goes above grade. The diversion channel and the temporary collecting pit must have sufficient volume to contain the 25-year, 24-hour rainfall event for Reeves County. Refer to Permit Appendix H for construction details.

7. The contact stormwater water that is contained in the temporary collection pond, must be collected and transported for off-site disposal in an authorized manner.

8. At least two feet of freeboard must be maintained between the fluid level in each consecutive temporary collection pond and the top of the containment berms.
9. Prior to the active Disposal Pit accepting waste above grade, the waste collected below grade in the Disposal Pit must be stabilized, compacted and maintained to prevent collapse of the structure, and must not have side slopes steeper than a one to four (vertical to horizontal) ratio.

10. Before the Permittee may begin excavation of the of the next Disposal Pit in the sequence, the previous Disposal Pit must be filled with waste to almost final grade height, and the exposed side abutting the next pit in the construction sequence must be properly graded and prepared to receive waste. The Permittee must contact the Midland District Office to proceed with construction of each disposal pit in the sequence, and may not begin accepting waste until:
   a. The Permittee has received approval from the Midland District Office to begin accepting waste in Disposal Pit in the sequence;
   b. Waste is no longer being accepted in the active Disposal Pit and the temporary cover has been constructed;
   c. Once approximately 8 acres of Disposal Pit has reached final capacity the final cover will be placed over the temporary cover. The pit must be capped according to the details specified in Permit Conditions XIV.

11. The construction of the Phase II Disposal Pits (P012456, P012457, P012458, P012453, P012454, P012455, P012450, P012451, P012452, P012447, P012448, P012449, P012465, P012466 and P012467) must progress in the same manner and will require the same approvals from the Midland District Office sequentially.

12. The permittee must not construct or use any Disposal Pits in a manner that could exceed the financial security required by Permit Condition I.B.

13. No free oil may be allowed to accumulate on top of the waste stored in any Disposal Pit. Any free oil on top of the waste must be collected and handled in accordance with RRC rules. A Skim Oil/Condensate Report (Form P-18) must be filed for every month in which skim oil is recovered and then subsequently sold during the operation of this facility.

14. No freestanding fluids may accumulate in a Disposal Pit. Any fluids must be removed within 72 hours of discovery and disposed of in an authorized manner.

15. This permit does not authorize the discharge of any oil and gas waste from any Disposal Pit.

16. The leak detection system must be monitored at least weekly. The permittee must maintain a record of when the liner and the leak detection system are inspected and the results of each inspection for the life of the pit. This record shall include:
a. Date of fluid level measuring;
b. Fluid level or volume;
c. Volume of fluid removed;
d. Electrical conductivity; and
e. Chloride concentration of the fluids removed.

17. The information must be submitted in table form within the Quarterly Report required in Permit Condition I.Y. of this permit. The physical record must be maintained by the permittee for the life of the pit. The physical record shall be filed with the RRC upon request.

18. If the leak detection system indicates a possible liner system failure, the liner system must be inspected for deterioration and leaks within five days of the initial detection of the failure to verify and identify the failed component. The Midland District Office must be notified by phone or email within 24 hours of detection and identification of the failure. No additional waste shall be added to the pit in the event of a failure. After inspection, the identified failed component must be replaced or repaired and re-inspected by RRC personnel before resuming use of the pit. Liner system failure is defined as any of the following:

a. A leak rate from the primary liner greater than the Action Leakage Rate (ALR) of 100 GPAD or 973 gallons per day for each Disposal Pit.
b. Any failure in the leak detection system or any component thereof.
c. Any detected damage to or leakage from the secondary liner.

XI. GROUNDWATER MONITORING

A. Twelve groundwater monitoring wells must be installed and numbered as represented on the “WST MONITORING WELLS” (Sheet R3-2) dated July 26, 2017, which is attached and incorporated into this permit as Permit Appendix J.

1. The groundwater monitoring wells must be completed in accordance with 16 TAC Part 4, Chapter 76 (Water Well Drillers and Water Well Pump Installers).

2. The groundwater monitoring wells must be completed in the shallowest groundwater zone and the completion must isolate that zone from any deeper groundwater zone.

3. The screened interval of the wells must be designed to intercept at least five feet of groundwater from the first groundwater-bearing unit.

4. Provision must be made to protect the well heads from damage by vehicles and heavy equipment.

5. The groundwater monitoring wells must be maintained in good condition with lockable water-tight expansion caps that prohibit unauthorized access.
6. The groundwater monitoring wells must be able to provide a representative sample of groundwater underlying the site for the duration of facility operations. If a groundwater monitoring well is not capable of providing a representative sample, the permittee must notify Technical Permitting in Austin and install a replacement monitor well that is acceptable to Technical Permitting.

7. The following information must be submitted after the wells are completed:
   a. A soil boring lithological log for each well, with the soils described using the Unified Soil Classification System (equivalent to ASTM D 2487 and ASTM D 2488). The log must also include the method of drilling, total depth, and the top of the first encountered water or saturated soils.
   b. A well installation diagram detailing construction specifications for each well, including riser and screen length, screen slot size, bentonite and cement intervals. The sand pack size should be compatible with the well screen slot size and the local lithology.
   c. A survey elevation for each well head reference point (top of casing) relative to a real or arbitrary bench mark and mean sea level.
   d. A potentiometric surface map showing static water levels, the estimated groundwater flow direction and the calculated groundwater flow gradient.

B. The groundwater monitoring wells must be sampled or monitored for the following parameters after installation and quarterly thereafter:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>UNITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static Water Level</td>
<td>Feet (ft)</td>
</tr>
<tr>
<td>Total Depth</td>
<td>ft</td>
</tr>
<tr>
<td>Benzene</td>
<td>mg/L</td>
</tr>
<tr>
<td>\textit{EPA Method 8260B/8021 or equivalent}</td>
<td></td>
</tr>
<tr>
<td>Total Petroleum Hydrocarbon (TPH)</td>
<td>mg/L</td>
</tr>
<tr>
<td>\textit{Method TX1005}</td>
<td></td>
</tr>
<tr>
<td>Total Dissolved Solids (TDS)</td>
<td>mg/L</td>
</tr>
<tr>
<td>\textit{Standard Method 160.1 or equivalent}</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>s.u.</td>
</tr>
<tr>
<td>\textit{EPA Method 150.1 or equivalent}</td>
<td></td>
</tr>
<tr>
<td>Calcium, Magnesium, Potassium, and Sodium</td>
<td>mg/L</td>
</tr>
<tr>
<td>\textit{EPA Method 6020 or equivalent}</td>
<td></td>
</tr>
<tr>
<td>Bromides, Carbonates, Chlorides, Nitrates, and Sulfates</td>
<td>mg/L</td>
</tr>
<tr>
<td>\textit{EPA Method 300 or equivalent}</td>
<td></td>
</tr>
</tbody>
</table>

C. A Quarterly Report as specified by Permit Condition I.Y. must be submitted to Technical Permitting consisting of all groundwater monitoring well data, results of the parameters tested in Permit Condition XI.B., corresponding Laboratory Analytical reports, Chain of Custody, an analytical results summary table, and an
XII. **STORMWATER MANAGEMENT**

A. A perimeter berm must be constructed encompassing the entire facility to a minimum height of at least four (4) feet above land surface with a minimum 3:1 slope (horizontal to vertical) ratio on both sides. Refer to Permit Appendix A.

B. Berms and other containment structures must be constructed around all waste management units and storage areas. These structures must be used to divert non-contact stormwater around the waste management areas, and isolate and contain contact stormwater within the waste management units. Spills and releases into the interior ditches must be contained and removed immediately to prevent contact with stormwater.

C. Contact stormwater must be contained within the waste management units. Contact stormwater must be removed and disposed of in an authorized manner.

D. The general layout and arrangement of the stormwater management structures, which includes noncontact stormwater drainage ditches, wire-wrapped rock filter dams or gabions, rip-rap, culverts, sluice gates, a stormwater retention pond, and a drainage diversion channel, shall be consistent with the schematic diagrams “STORMWATER MANAGEMENT” (Sheet R2-1) and “STORM RETENTION POND AND DRAINAGE CHANNEL DETAIL” (Sheet R2-6) dated April 28, 2017, which are attached and incorporated into this a Permit Appendix K.

E. A drainage diversion channel at least 150 feet wide and 3 feet deep as specified in the application shall be constructed and designed to divert and contain a 100-year, 24-hour rainfall event around the facility while maintaining one (1) foot of freeboard.

F. Non-contact stormwater within the facility must be conveyed away from the waste management units and directed to the Stormwater Retention Pond using a series of ditches, culverts and slide gates. The sluice gates must be located at the entrance of the culverts that are used to convey non-contact storm water to the Stormwater Retention Pond. The Stormwater Retention Pond must be constructed to contain stormwater generated from a 25-year, 24-hour storm event volume for Reeves County.

G. The contact and non-contact stormwater areas have been identified and must be managed as illustrated on the diagram “COLOR CODED SITE PLAN” (Sheet R2-3) dated April 28, 2017, which is attached and incorporated into this permit as Permit Appendix L.

H. In the event that contact stormwater enters a Stormwater Retention Pond, the permittee must submit a written report detailing the event to Technical Permitting in Austin before disposing of the contents of the pond. Contact stormwater must be removed and disposed of in an authorized manner.

executive summary detailing pertinent data or events during the corresponding quarter.
I. All above storage ground tanks must be surrounded by dikes. Dikes must be constructed and maintained at a minimum to contain the largest tank’s maximum capacity, plus freeboard to contain a 25-year, 24-hour storm event volume for Reeves County as specified in the Permit Condition VII.D.

J. A discharge permit from the EPA may be required for non-contact stormwater discharges. If required, the permit from the EPA must be in place prior to commencement of discharge operations.

XIII. FACILITY CLOSURE

A. Technical Permitting and the Midland District Office must be notified in writing at least 45 days prior to commencement of final closure activities. The permittee must submit a closure plan to Technical Permitting in Austin to be reviewed and approved prior to beginning closure activities.

B. At facility closure, all waste, chemicals, and waste related materials must be processed through the facility and/or removed from the facility for authorized reuse or disposal.

C. Processing equipment, aboveground storage tanks, and any other non-maintenance waste related equipment must be emptied, cleaned, and removed from the facility.

D. Provisions must be taken to prevent erosion both during and following site closure.

E. Excluding Disposal Pit and Stormwater Management Areas, the entire facility must be backfilled as necessary, contoured to original grade, and re-vegetated with ground cover appropriate for the geographic region.

F. Closure of the Unloading Bays, Collecting Pits (P021471, P012470A and P012470B), Liquids Settling Area, Centrifuge Oil Processing Area, Collecting Pit (P012469), and Drying Pad/Pit (P012473) Areas shall be as follows:

1. The contents of all tanks, vessels, or other containers must be disposed of in an authorized manner.

2. All equipment must be removed and salvaged, if possible, or disposed of in an authorized manner.

3. The Collecting Pits and the Drying Pads/Pits must be dewatered, emptied, backfilled, compacted, and properly closed. All wastes, including the liners, must be removed and disposed of in an authorized manner.

4. The concrete unloading bays, washout trench, collecting pits, concrete pads and access roads shall be cleaned and demolished, and the concrete rubble and wash-water must be disposed of in an authorized manner.

5. Twelve (12) inches of soil from beneath the concrete unloading bays, concrete liners, concrete aprons, and all visually contaminated soils from beneath the synthetic pit liners, shall be excavated and removed. The contaminated soil must be disposed of in an authorized manner.
6. Once waste removal is completed, a soil sampling plan must be submitted to Technical Permitting to characterize the scope of contamination (if any) at the facility. After the removal of wastes, composite soil samples must be taken comprised of a minimum of four representative soil samples per former pit location, and five representative soil samples per acre. Samples must be taken from around and underneath the Truck Washout Bays/Trench, Reclamation Area, Settling Basins, Receiving Pits, and Collecting Pit Areas.

7. Soil samples required by Permit Condition XIII.F.6. must be analyzed for the analytical Parameters listed in Permit Condition XIII.G., and the specified Parameter Limitations shall not be exceeded.

G. Soil samples required by Permit Conditions XIII.F.6. must be analyzed for the following Parameters and shall not exceed the specified Limitations:

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>LIMITATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>6 to 10 standard units</td>
</tr>
<tr>
<td>(EPA Method 9045C or equivalent)</td>
<td></td>
</tr>
<tr>
<td>Electrical Conductivity (EC)</td>
<td>≤ 4.0 mmhos/cm</td>
</tr>
<tr>
<td>Total Petroleum Hydrocarbon (TPH)</td>
<td>≤ 10,000 mg/kg or 1 % by weight</td>
</tr>
<tr>
<td>(EPA Method 5035A/TX1005)</td>
<td></td>
</tr>
<tr>
<td>Total Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)</td>
<td>≤ 30 mg/kg</td>
</tr>
<tr>
<td>(EPA Method 5035A/8021/8260B)</td>
<td></td>
</tr>
<tr>
<td>Metals (Total)</td>
<td></td>
</tr>
<tr>
<td>(EPA Method 6010/6020/7471A)</td>
<td></td>
</tr>
<tr>
<td>Arsenic</td>
<td>≤ 10 mg/kg</td>
</tr>
<tr>
<td>Barium</td>
<td>≤ 10,000 mg/kg</td>
</tr>
<tr>
<td>Cadmium</td>
<td>≤ 10 mg/kg</td>
</tr>
<tr>
<td>Chromium</td>
<td>≤ 100 mg/kg</td>
</tr>
<tr>
<td>Lead</td>
<td>≤ 200 mg/kg</td>
</tr>
<tr>
<td>Mercury</td>
<td>≤ 10 mg/kg</td>
</tr>
<tr>
<td>Selenium</td>
<td>≤ 10 mg/kg</td>
</tr>
<tr>
<td>Silver</td>
<td>≤ 200 mg/kg</td>
</tr>
</tbody>
</table>

1 Louisiana Department Natural Resources (LDNR) Lab Procedures for Extraction and Analysis of Exploration and Production (E&P) Waste or equivalent

H. A summary of the soil sampling required by Permit Condition XIII.F.6. must include:

1. A map drawn to scale with coordinates of the sampling locations;
2. A table indicating the results of the parameters sampled;
3. The date of sampling;
4. The approximate depth of the sample below land surface; and
5. Copies of the laboratory analytical reports and chain of custody.

I. Any soil sample that exceeds the Parameter Limitations specified in Permit Condition XIII.G. is considered waste and must be disposed of at an authorized disposal facility.

J. Once the results of the closure activities have been approved by the RRC, all non-disposal pits must be dewatered, emptied, demolished, backfilled, and compacted within 120 days of final cessation of use of each pit. Final surface grading of the pits and the storage tank battery areas must be accomplished in such a manner that rainfall will not collect at these former locations. Upon final closure, the appropriate District Office and Technical Permitting in Austin shall be notified in writing.

XIV. CLOSURE AND CAPPING OF THE DISPOSAL PITS

A. The sequence of the final capping of Phase I Disposal Pits P012462 (Cell 16), P012463 (Cell 17), P012464 (Cell 18), P012459 (Cell 13), P012460 (Cell 14), and P012461 (Cell 15) shall be consistent with the diagrams provided in Permit Appendix H.

B. Final closure and capping for all the Phase II Disposal Pits of the facility, which includes P012447, P012448, P012449, P012450, P012451, P012452, P012453, P012454, P012455, P012456, P012457, P012458, P012459, P012460, P012461, P012462, P012463, P012464, P012465, P012466, and P012467 shall be consistent with the schematic diagrams “LANDFILL CAP SECTION” (Sheet R4-1, Sheet R4-2, Sheet R4-3, and Sheet R4-4) dated April 28, 2017, which are attached and incorporated into this permit as Permit Appendix M.

C. Once each Disposal Pit has reached its permitted capacity:

1. Waste material in the Disposal Pit must be stabilized, so that the structure will not fail, slump or erode;

2. Waste material in the Disposal Pit must be graded and compacted so that waste will support the pit cover and rainwater will not collect on top of the pits;

3. The temporary cap must be covered with a final cap that consists of a 40-mil HDPE liner, overlain by layer of fill material that is 12 inches thick compacted to at least 95% Standard Proctor (ASTM D698) or 90-92% Modified Proctor (ASTM D1557) density, overlain by 12 inches of soil seeded with appropriate vegetation for the geologic region;

4. Unless otherwise required by conditions of this permit, final closure of the Disposal Pits must be consistent with the details as presented in the application. Any modification to the closure or final capping for the Disposal Pits must be submitted and approved by Technical Permitting prior to the modification occurring.
XV. POST-CLOSURE CARE AND MONITORING

A. The site will be monitored for a period of no less than five years after closure of the facility.

B. Post-closure care must include quarterly inspections of the entire facility by a Texas registered Professional Engineer for signs of deterioration.

C. Any areas showing signs of erosion must be contoured, backfilled, and reseeded as necessary.

D. Once the facility is no longer in operation, the stormwater must be handled in a manner that is consistent with the information submitted with the application.

E. All groundwater monitoring wells must remain operational, and monitoring requirements must continue as specified in Permit Condition XI.B. until written approval from Technical Permitting in Austin is granted for plugging and abandoning the wells.

F. The leak detection system and the leachate collection system for the Disposal Pits must be maintained and monitored quarterly. Any leachate detected must be pumped out and disposed of in an authorized manner.

G. A summary of the results of the post-closure monitoring activity must be submitted to Technical Permitting in Austin as part of a Quarterly Report required in Permit Condition I.Y.

H. The permittee must request in writing formal approval to cease post-closure monitoring. Post-closure monitoring requirements may be extended by Technical Permitting based on the monitoring results.

This authorization is granted subject to review and cancellation should investigation show that such authorization is being abused.

APPROVED AND ISSUED ON April 25, 2018

Tiffany Humberson, Manager
Environmental Permits & Support
Technical Permitting

cc:
RRC - Midland/08
RRC - Reporting Log in Austin
RRC - Production Audit Austin
Attachments:

1. Permit Appendices A through M
Permit Appendix A

“Application For Permit To Operate A Reclamation Plant” (Form R-9)
**RAILROAD COMMISSION OF TEXAS**  
**Oil and Gas Division**

**APPLICATION FOR PERMIT TO OPERATE**  
**A RECLAMATION PLANT**

**READ INSTRUCTIONS ON BACK**

1. **OPERATOR NAME**, exactly as shown on P-5, Organization Report  
   West Sun Tex, LLC

5. **OPERATOR ADDRESS**, including city, state, and zip code  
   600 N. Carroll Avenue, Suite 100  
   Southlake, Texas 76092

7. **TYPE OF FACILITY**  
   - [ ] Permanent  
   - [x] Portable

8. Driving directions from the nearest town (identify town):  
   From Pecos, Texas, take Interstate Highway 20 Business/IH-20 Service Road East. Turn North on County Road (CR) 408 and drive approximately 3 miles. Facility is at intersection of CR 408 and CR 415.

9. **Brief description of treating process**:  
   Hydrocarbon wastes and tank bottoms will be received at the site. Water, solids and oil will be separated by gravity, chemicals and mechanically. Oil will be reclaimed or disposed in an authorized manner.

10. **Material transported to plant in (see list, No. 8)**  
    - [ ] vehicles owned by applicant  
    - [x] for-hire vehicles  
    - [ ] both applicant's and for-hire vehicles

11. **Identify all oil and/or gas-related facilities located within 100 yards of facility (example: well, pipeline, saltwater disposal facility, tank battery, etc.)**  
   - TYPE OF FACILITY  
   - OPERATOR  
   - TYPE OF FACILITY  
   - OPERATOR

   - [Signature]  
   - [Name (print or type)]  
   - Attorney for West Sun Tex, LLC

   - [Signature]  
   - [Name (print or type)]  
   - [Phone]

**CERTIFICATION**, I certify under penalties prescribed in Sec. 91.143, Texas Natural Resources Code, that I am authorized to make this report, that it was prepared by me or under my supervision and direction, and that the data and facts stated herein are true, correct, and complete to the best of my knowledge.

**TO BE COMPLETED BY RAILROAD COMMISSION PERSONNEL**

This permit is valid until cancellation under either of the following conditions:  
1. The above named operator requests cancellation in writing.  
2. The commission cancels the permit after notice and opportunity for hearing because:  
   - the permit facility has been inactive for 12 months, or  
   - there has been a violation or a violation is threatened of any provision of the permit, the conservation laws of the state, or rules or orders of the Commission.

This permit is non-transferable. The financial assurance filed in support of this application shall be renewed and continued in effect until its conditions have been met or release is authorized by the Commission. The facility schematic diagram is to be kept with this permit. Permit and diagram are to be kept at facility.

**R9 08-16**<br>Issued/renewed effective **April 25, 2018**

**ALL WASTES GENERATED BY RECLAIMING OPERATIONS SHALL BE DISPOSED OF IN ACCORDANCE WITH STATEWIDE RULES, 8, 9, AND 48 (RELATING TO WATER PROTECTION, DISPOSAL WELLS, AND FLUID INJECTION)**
Permit Appendix B

"SITE PLAN" (Sheet R2-3B),
"SITE PLAN DETAIL" (Sheet R2-12) and
"PERIMETER CONTAINMENT BERM"
(Sheet R2-2)
CONCRETE CONTAINMENT CURB AND 8" x 6" x 12" x 0" CATTLE GUARD DESIGNED FOR HIGH LOADING OR AS MANUFACTURED BY BOLZ INDUSTRIES OR EQUAL. SIDE RAILS AND POSTS TO BE Omitted. SEE DETAIL.

PERIMETER CONTAINMENT BERM

EXIT CATTLE GUARD AND CONTAINMENT CURB (SECTION)

EXIT CATTLE GUARD AND CONTAINMENT CURB (PLAN VIEW)

NOTE:
ALL SURFACE DRAINAGE FEATURES WILL BE CONSTRUCTED INITIALLY.

WEST SUN TEX
REEVES COUNTY, TEXAS
FOR PERMITTING ONLY.
NOT FOR BIDDING OR CONSTRUCTION
Permit Appendix C

"CELL 26 HEAVY LIQUID JETOUT"
(Sheet 23-1)
Permit Appendix D

“CELL 25 LIGHT LIQUID JETOUT”
(Sheet 18-1)
Permit Appendix E

"MATERIALS PROCESSING AREAS"
(Sheets 12-2 and 12-3)
Permit Appendix F

“CELL 24 DETAIL” (Sheet 28-2),
“CELL DETAIL 23” (Sheet 28-1) and
“LINER AND SUMP DETAILS FOR DISPOSAL PITS 012447-012467 (CELLS 1-21) AND COLLECTING PITS 012468 & 012469” (Sheet R2-17)
Permit Appendix G

"WEST DRYING PAD (CN-012473)"
(Sheet R2-14) and

"EAST DRYING PAD (CN-012472)"
(Sheet R2-13)
Permit Appendix J

"WST MONITORING WELLS"

(Sheet R3-2)
Permit Appendix K

"STORMWATER MANAGEMENT"
(Sheet R2-1) and

"STORM RETENTION POND AND DRAINAGE CHANNEL DETAIL"
(Sheet R2-6)
Permit Appendix M

“LANDFILL CAP SECTION” (Sheet R4-1, Sheet R4-2, Sheet R4-3, and Sheet R4-4)
The proposed disposal interval in the D. K. Boyd Oil and Gas Co., Inc – N. Aermotor C24-10 SWD #5 will be into the Bell Canyon and Cherry Canyon formations of the Delaware Mountain Group from 5,350’ to 7,020’.

The Delaware Mountain Group consists of moderate to well sorted, fine to very fine grained, poorly consolidated light gray to buff sands with thin interbedded siltstone, shale and limestone layers. The Delaware is split up into three predominant formations being the Bell Canyon, Cherry Canyon and Brushy Canyon. The marker for the top of the Bell Canyon is the Lamar Limestone member.

The lowest limestone member in the Bell Canyon is the Hegler Limestone which ranges in thickness throughout the area. The Manzanita limestone member is the marker typically used to define the top of the Cherry Canyon sand package. Porosities range from 14 to 24% and permeabilities range from 10 to 60 md in Lower Cherry Canyon sandstone reservoirs. Siltstones are prevalent throughout the Delaware Mountain Group and typically have porosities of less than 5%. These siltstones act as stratigraphic traps to fluid migration and are regionally extensive throughout the Delaware Mountain Group. Carbonate beds within the Delaware also serve as lateral and top seals that separate the massive sandstone members. Structural control of fluid migration is influenced by the regional eastward downward dip towards the Central Basin Platform. The Delaware Mountain Group is overlain by the Lamar Lime member and underlain by tight Bone Spring shales (Avalon) and Bone Spring carbonates.

Diagrammatic representation of Guadalupian shelf margin to basin stratigraphic nomenclature in the Delaware basin region. After King (1948).

The production quality porosity in the Bell Canyon and Cherry Canyon formations in this deep portion of the Delaware Basin area are accompanied with low resistivity yielding high water saturations typically greater than 75%. No current or historic Bell Canyon or Cherry Canyon production is found within two (2) miles of the proposed well.

A type log (copy attached) was created from the offsetting EOG Resources (Tenneco Oil Co) – Cheyenne Draw #1 well (API No 42-310-30314) located approximately 3,960’ East from the D.K. Boyd – N. Aermotor C24-10 SWD #5 proposed location. The type log displays the gamma ray, compensated neutron density, and high resolution lateral log array side-by-side. A digital LAS log containing gamma-ray and compensated neutron porosity curves was utilized to calculate net and gross pay based on gamma-ray and porosity cut-offs.
The gross proposed injection interval of 1,670' (5,350' minus 7,020') has a calculated "net injection" interval of 1,075' utilizing a GR cutoff of 50 API units and a porosity cutoff of 18%. The total thickness of the Delaware Mountain Group (Top of Lamar to of the Bone Springs) in this area is ± 2,800'.

The top of Bell Canyon is projected at 5,157 (-2,127' ss) at the proposed wellsite.

Below is the projected Geological Prognosis for the proposed well:

<table>
<thead>
<tr>
<th>Well Name: N. Aermotor C24-10 SWD #5</th>
<th>Comparison Well: Cheyenne Draw #1</th>
</tr>
</thead>
<tbody>
<tr>
<td>API: 42-301-</td>
<td>API: 42-301-30314</td>
</tr>
<tr>
<td>Prospect / Field:</td>
<td>Prospect / Field: Wildcat</td>
</tr>
<tr>
<td>County: Loving</td>
<td>County: Loving</td>
</tr>
<tr>
<td>State: Texas</td>
<td>State: Texas</td>
</tr>
<tr>
<td>Surface Location: 660' FN &amp; 2640' FWL</td>
<td>Surface Location: 650' FN &amp; 1319' FE</td>
</tr>
<tr>
<td>Section: 10</td>
<td>Section: 19</td>
</tr>
<tr>
<td>Survey: PSL</td>
<td>Survey: PSL</td>
</tr>
<tr>
<td>Township:</td>
<td>Township:</td>
</tr>
<tr>
<td>Block: C24</td>
<td>Block: C24</td>
</tr>
<tr>
<td>Elevation:</td>
<td>Elevation:</td>
</tr>
<tr>
<td>KB: 3,030'</td>
<td>KB: 3,080'</td>
</tr>
<tr>
<td>GL: 3,017'</td>
<td></td>
</tr>
<tr>
<td>Formation</td>
<td>Depth</td>
</tr>
<tr>
<td>Rustler</td>
<td>980'</td>
</tr>
<tr>
<td>USDW</td>
<td>3,030'</td>
</tr>
<tr>
<td>Salado Salt</td>
<td>1,384'</td>
</tr>
<tr>
<td>Base Salt</td>
<td>3,613'</td>
</tr>
<tr>
<td>Castille</td>
<td>4,622'</td>
</tr>
<tr>
<td>Lamar</td>
<td>5,157'</td>
</tr>
<tr>
<td>Ramsey</td>
<td>5,189'</td>
</tr>
<tr>
<td>Olds</td>
<td>5,218'</td>
</tr>
<tr>
<td>Cherry Canyon</td>
<td>6,197'</td>
</tr>
<tr>
<td>Manzanita</td>
<td>6,432'</td>
</tr>
</tbody>
</table>

**LATERAL LENGTH:** Vertical

**TESTS / AZIMUTH:** As required

**MUDLOGGING:** Possible 2 - Man Crew from 5,150' to TD.

**WIRELINE LOGS:**
- **Open Hole:** Triple Combo - GR / SDL / DSN / DIL / MFL TD to 9-5/8" shoe. GR/DSN to Surface.
- **Cased Hole:** CBL - GR / CNL / CCL (TD to Surface)

**COMMENTS:**
The proposed average daily injection rate and maximum daily injection rate is **30,000 BFPD**.

Calculations were made to confirm that the maximum injection rate of 30,000 BFPD were obtainable based on the following:

- Top of injection interval @ 5,350’
- Bottom of injection interval @ 7,020’
- Injection will be down 4-1/2”, 11.6 ppf, J-55, LTC IPC injection tbg /casing. ID = 3.765”
- Packer setting depth @ 5,300’
- Average injection fluid density = 9.20 ppg
- Est. Frac Gradient = 0.60 psi/ft (as based on published step rate test for equivalent Bell Canyon & Cherry Canyon intervals) plus a 20% safety factor.
- Maximum permitted WH injection pressure = 2,675 psi (0.50 psi/ft to top perf)

Detailed calculations are presented below:

### HeLMS

#### DK Boyd - N. Aermotor C24-10 SWD #5

**Calculated WH Injection Pressures**

<table>
<thead>
<tr>
<th>Proposed Permitted Inj Interval</th>
<th>Top 5,350 ft</th>
<th>Bottom 7,020 ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Injection Interval</td>
<td>5,350 ft</td>
<td>7,020 ft</td>
</tr>
<tr>
<td>RRC Standard Permitted Max Inj Gradient (psi/ft)</td>
<td>0.5 psi/ft</td>
<td></td>
</tr>
<tr>
<td>RRC Standard Max WH Inj Pressure (psi)</td>
<td>2,675 psi</td>
<td></td>
</tr>
<tr>
<td>Estimated Frac Gradient (psi/ft)</td>
<td>0.6 psi/ft</td>
<td>Based on published reports from</td>
</tr>
<tr>
<td>Calc BH Frac Pressure @ MP Perfs based of Est Frac Gradient (psi)</td>
<td>3,711 psi</td>
<td></td>
</tr>
<tr>
<td>Safety Factor (SF) to stay below Calc BH Frac Pressure</td>
<td>80.0% percent of calculated BH frac pressure @ MP Perfs</td>
<td></td>
</tr>
<tr>
<td>Calc BH Inj Pressure w/ SF to stay below Calc BH Frac Pressure</td>
<td>2,969 psi</td>
<td></td>
</tr>
</tbody>
</table>

### Projected Surface Inj Pressures based on Assumed BH Inj Pressure at various Rates

<table>
<thead>
<tr>
<th>Injection Fluid Density</th>
<th>9.20 ppg</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Injection Via</strong></td>
<td><strong>Type</strong></td>
</tr>
<tr>
<td>4-1/2”, 11.6 ppf, J-55, LTC, IPC 700</td>
<td>5,300</td>
</tr>
<tr>
<td>Assumed Injection Rate BPD</td>
<td>7,500</td>
</tr>
<tr>
<td>ΔP Hydrostatic to MP Perfs psi</td>
<td>2,959</td>
</tr>
<tr>
<td>ΔP due to calculated friction down ID of injection string (Hazen Williams Equation) psi</td>
<td>7</td>
</tr>
<tr>
<td>Assumed BH Inj Pressure (80% of calculated frac gradient @ 0.60 psi/ft to MP/Perfs)</td>
<td>2,969</td>
</tr>
<tr>
<td>Calc WH Inj Pressure psi</td>
<td>86</td>
</tr>
<tr>
<td>Δ WH Inj Press vs Permit Pmax psi</td>
<td>-2,589</td>
</tr>
</tbody>
</table>
Friction pressures calculates were made at the various Assumed Injection Rates down the 4-1/2” IPC casing utilizing the Hazen-Williams equation:
Friction Pressure Loss (psi) = (0.015*Injection Rate Q BFPD \( \times \) Length ft)/ (ID of pipe in \(^2\) x Cf \(^{1.85}\))

The Calculated WH Injection Pressure over the various Assume Injection Rates = BH Injection Pressure (based on 80% of the published 0.60 psi/ft frac gradient for the Bell Canyon and Cherry Canyon Sands) minus the hydrostatic pressure of the injection fluid plus the friction pressure down the injection string.

Based on the above, the calculated WH Injection pressure at the proposed permitted maximum daily rate of 30,000 BFPD = 998 psi. This is 1,677 psi less that the RRC acceptable maximum WH injection pressure of 2,675 psi or 0.50 psi x 5,350’.

Irrespective of the above calculations, which indicate that a rate of 30,000 BFPD is obtainable into the proposed injection interval utilizing the proposed wellbore mechanical design, the maximum daily injection rate will be dictated by the maximum permitted WH injection pressure of 2,675 psi pursuant to the Texas RRC allowed WH injection pressure of 0.50 psi/ft to the top perforation.

In the future, the operator may opt to conduct a Step-Rate injection test, conducted in accordance with RRC regulations, to determine if the maximum injection pressure could be increased without evidence of fracturing the proposed injection interval.

The proposed Bell Canyon and Cherry Canyon injection intervals will be perforated as based on open hole log analysis for acceptable porosity and associated permeabilities. The perforated intervals will be segregated into 200’ to 250’ gross height stage intervals and each stage will be acid stimulated utilizing approximately 35 – 40 gals of 15% NEFE per net feet of perforated interval utilizing RNCB’s and rock salt blocks to divert the acid and ensure that all perforations are “broken down” and open to the injection casing.

The stage acid stimulations will be down a 2-7/8” tubing work string utilizing a retrievable bridge plug and stimulation packer to isolate each stage. Acid stimulation pressures / rates will be below the published frac gradient of 0.60 psi/ft.