



RAILROAD COMMISSION OF TEXAS

OIL AND GAS DIVISION

Stationary Treatment Facility
Transfer of Permit No. STF-028
Supersedes Permit Dated February 28, 2012

TERVITA, LLC
C/O LARRY E. CARLISLE
1108 PAGEDALE DRIVE
CEDAR PARK, TX 78613-5810

Based on information contained in your application dated April 30, 2010, transfer request received October 12, 2012, and subsequent information received to date, you are hereby authorized to receive, store, handle, treat and dispose of certain oil and gas wastes as specified below at the following facility:

Vortex Stationary Treatment Facility, Including Pit Permit Nos. 011595 & 011596
James Billingsley Survey, A-45; and James Lee Survey, A-509
Johnson County, Texas
RRC District 05

Liquid waste will be unloaded at one of four Receiving Bays prior to pumping into the facility's Receiving Pit covered under Pit Permit No. P011596. All liquid waste will be pumped to aboveground tanks and/or process equipment located in the Process Area where they will be processed using mechanical and chemical methods to separate liquids and solids. Liquids collected will be transported through piping to the adjacent Vortex #1 SWD Well. Solids will be placed on the Process Solids Slab.

Wet solids will be placed onto the Process Solids Slab. Any liquids will drain into the Receiving Pit. Solids collected from the Process Area will be returned to the Process Solids Slab. Stackable solids will be placed onto an adjacent Drying Pad.

Dry solids will be placed onto the Drying Pad. Solids on the drying pad will be stabilized through evaporation and/or the use of lime, fly ash, cement, or sawdust if necessary, prior to final disposal in Disposal Pit #1 covered under Pit Permit No. Permit P011565.

Authority is granted to receive, store, handle, treat and dispose of oil and gas wastes in accordance with Statewide Rule 8 and subject to the following minimum conditions:

I. GENERAL PERMIT CONDITIONS

- A. **This permit is effective July 9, 2013, and expires February 27, 2017.**
- B. This permit may be considered for administrative renewal upon request and subsequent review by the Commission.

- C. This permit is nontransferable without the consent of the Commission.
- D. No waste may be received at the referenced facility until financial security in the amount of \$803,000 for the Vortex Stationary Treatment Facility, including the associated Disposal Pit #1 covered under Pit Permit No. P011595 and the Receiving Pit covered under Pit Permit No. P011596, is provided to and approved by the Commission.
- E. No waste may be received at the referenced facility until the monitor wells required by Condition V have been completed and the documentation required by Condition V.A have been provided to and approved by Technical Permitting.
- F. The permittee shall make all records available for review and/or copying during normal business hours upon request of Commission personnel.
- G. All laboratory analyses required to be performed by Conditions II.B.2., II.B.3., V.B., V.I.D., and VII.B. shall be performed by an independent laboratory neither owned nor operated by the permittee.
- H. Failure to comply with any provision of this permit will be cause for modification, suspension, or termination of this permit.
- I. The permittee shall submit a Quarterly Report containing the applicable information required in Conditions III.B., V.B., and VI.D. of this permit. The first Quarterly Report shall cover the period beginning on the effective date of the permit and ending September 31, 2013.

The reporting periods must cover the periods from January 1 through March 31, April 1 through June 30, July 1 through September 30, and October 1 through December 31 of each year.

The Quarterly Reports shall be submitted to Technical Permitting in Austin and the Kilgore District Office no later than the 31st day of the month following each reporting period, or each May 1, July 31, October 31, and January 31, respectively.

II. INCOMING WASTES

A. AUTHORIZED WASTES

- 1. Only non-hazardous wastes subject to the jurisdiction of the Railroad Commission of Texas may be received or processed at this facility. This permit authorizes the receipt and disposal of only the following oil and gas wastes:
 - a. Water based drilling fluids and associated cuttings;
 - b. Cuttings generated from the use of oil based drilling fluid;
 - c. Iron sulfide, which has been fully oxidized;
 - d. Contaminated soils from crude oil spills, pipeline and saltwater spills;
 - e. Absorbent pads from crude oil spills;
 - f. Formation sands and other solids from saltwater storage tanks or vessels and saltwater pits;

- g. Solid waste from gas dehydration and sweetening (spent filters and filter media, molecular sieves, precipitated amine sludge, iron sponge, and hydrogen sulfide scrubber sludge);
 - h. Production tank bottoms which do not exceed 7% in oil content as determined by a Standard API Shakeout;
 - i. Waste solids resulting from crude oil reclamation;
 - j. Liners from reserve and washout pits.
- 2. No produced water or free oil may be disposed of at the facility.
 - 3. No iron sulfide waste may be received or disposed of at the facility unless the waste has been fully oxidized.
 - 4. No oil and gas NORM (Naturally Occurring Radioactive Material) waste defined in 16 TAC §4.603 or waste from a facility that is licensed by the Texas State Health Services to process or treat oil and gas NORM waste may be received at this facility.
 - 5. No waste may be received or disposed of at the facility if it is not a waste under the jurisdiction of the Railroad Commission of Texas. No hazardous waste as defined by the U.S. Environmental Protection Agency in 40 CFR Part 261 or industrial waste may be received or disposed of at the facility.

B. TESTING REQUIREMENTS FOR INCOMING WASTES

- 1. For the purposes of this permit, a representative sample of incoming waste is defined as a composite sample composed of one grab sample from each 50 cubic yards of waste material from each job (e.g., from each well, pit, spill location.)
- 2. Prior to receipt at the site, representative samples of waste from commercial oil and gas facilities and reclamation plants must be analyzed and may not exceed the limit for the following parameter:

<u>PARAMETER</u>	<u>LIMITATION</u>
TOX (Total Organic Halides)	100 mg/kg

Special authorization for disposal of waste with a TOX > 100 mg/kg may be considered. Authority must be obtained from Technical Permitting in Austin.

- 3. Prior to receipt at the site, representative samples of incoming RCRA non-exempt waste must be analyzed for the following parameters and may not exceed the following levels:

<u>PARAMETER</u>	<u>LIMITATION</u>
Metals	TCLP
Arsenic	< 5.0 mg/l
Barium	< 100.0 mg/l
Cadmium	< 1.0 mg/l

Chromium	< 5.0 mg/l
Lead	< 5.0 mg/l
Mercury	< 0.2 mg/l
Selenium	< 1.0 mg/l
Silver	< 5.0 mg/l

<u>PARAMETER</u>	<u>LIMITATION</u>
Benzene	< 0.5 mg/l

4. Each load of incoming waste, other than water base drilling fluid and the associated cuttings, or oil base drilling fluid and the associated cuttings, must be scanned for the presence of naturally occurring radioactive material (NORM) using a scintillation meter with a sodium iodide detector. Any load with a maximum reading of 50 microroentgens per hour or more 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 Radium-226 combined with Radium-228 or 150 picocuries per gram of any other radionuclide.

III. RECORDKEEPING REQUIREMENTS

- A. The permittee shall 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:
 - a. Generator name;
 - b. Lease name and number or gas ID or API Well Number;
 - c. County;
 2. Name of transporter;
 3. Amount of waste material (specify units); and
 4. A description of the type of waste material, including:
 - a. Fluid-to-Solid ratio; and
 - b. Detailed description of the type of waste including any analysis required by II.B.2 and II.B.3 above.
- B. A report of all records required by Condition III.A. above, as well as a summary of waste receipts including the volume of each type of material received on a monthly basis shall be submitted to Technical Permitting in Austin and the Kilgore District Office as part of the Quarterly Report required in Condition I.I. of this permit.

IV. GENERAL SITE CONSTRUCTION AND MAINTENANCE REQUIREMENTS

- A. The general layout and arrangement of the facility shall be consistent with the site plan dated April 29, 2010, which is attached to and incorporated as part of this permit as **Permit Appendix A**.
- B. A sign shall be posted at each entrance to the facility, which shall show the permit number in letters and numerals at least one-inch in height.

- C. All chemicals used in the treatment process shall be stored in vessels designed for the safe storage of the particular chemical. These vessels shall be maintained in a leak-free condition.
- D. The Process Area shall consist of the following equipment:
- One shaker;
 - One 120-bbl shaker transfer tank;
 - Two centrifuges;
 - Two nominal capacity centrifuge catch tanks;
 - Two 500-bbl mixing tanks;
 - Two 80-bbl polymer tanks;
 - One 100-bbl acid tank;
 - Four 500-bbl centrate holding tanks;
 - One containment sump for wash downs and spills.
- E. The Process Area equipment shall be supported on a concrete slab with a thickness of at least 12 inches. A 4-foot high cement masonry unit (CMU) wall shall entirely surround the Process Area equipment.
- F. Spills and/or incidental wash-down water contained in the Process Area sump shall be removed immediately. Waste contained in the sump shall be disposed of in an authorized manner.
- G. The Process Solids Slab must be constructed of concrete with a thickness of at least 12 inches, and encompass an area no larger than 6,000 square feet.
- H. The Process Solids Slab must be graded to drain to the adjacent Receiving Pit. Accumulation of free liquids on the Process Solids Slab is not authorized.
- I. The Process Solids Slab shall contain no more than 220 cubic yards of waste at any time.
- J. The Receiving Bay staging area shall be supported on a concrete slab with a thickness of at least 12 inches.
- K. All waste received in the Receiving Bays must be pumped through facility piping to the Receiving Pit (P011596). No waste may accumulate in the Receiving Bays.
- L. The Drying Pad must be constructed with 3 feet of compacted clay constructed in 6-inch lifts with a hydraulic conductivity of no more than 1×10^{-7} cm/sec, and encompass an area no larger than 2 acres.
- M. The Drying Pad must utilize a sacrificial soil layer of at least 12 inches thick on top of the constructed clay liner.
- N. The Drying Pad shall contain no more than 3,225 cubic yards of waste at any time.
- O. The Drying Pad must be graded to drain to an adjacent collecting sump where incidental fluids must be pumped to the treatment facility. Accumulation of free liquids on the surface of the Drying Pad is not authorized.
- P. The Drying Pad shall be constructed and maintained to ensure compliance with the Stormwater Control plan in Section IX of this permit.
- Q. All pits and/or buried tanks shall be permitted in accordance with Statewide Rule 8.

- R. All untreated waste shall be contained on the Process Solids Slab, the Drying Pad, in steel tanks, or in permitted pits. Tanks shall be maintained in a leak-free condition.
- S. All above ground tanks containing untreated waste shall be diked. Dikes shall be constructed and maintained to contain the tanks' maximum capacity, plus 12 inches of freeboard.
- T. The perimeter of the property shall be enclosed with a fence suitable to keep out livestock. The site is to be attended continuously or secured when unattended.
- U. Any spill of waste, treating chemical, or any other material shall be promptly cleaned up and processed through the treatment process or disposed of in an alternate manner approved by the Commission.

V. RECEIVING PIT (P011596) CONSTRUCTION AND OPERATION

- A. Use of the Receiving Pit (Permit No. 011596) is limited to waste as described in Condition II.A. of this permit and incidental fluid runoff from the Process Solids Slab and the Drying Pad at the referenced facility.
- B. The Receiving Pit must be constructed of concrete at least 12 inches thick at the base of the pit, and 10 inches thick on the walls of the pit.
- C. The liner must be installed in accordance with sound engineering practices.
- D. The capacity of the Receiving Pit may not exceed 3,715 barrels.
- E. At least 2 foot of freeboard must be maintained between the fluid level in the pit and the top of the pit.
- F. The pit must be emptied and the liner inspected annually for deterioration and/or leaks. The Kilgore District Office must be notified at least 48 hours before each inspection. The liner must also be inspected whenever evidence of liner leakage arises. If inspection of the liner reveals a leak or other loss of liner integrity, the liner must be replaced or repaired before resuming use of the pit.
- G. The permittee must maintain a record of when the liner is inspected and the results of each inspection. This record shall be submitted to Technical Permitting in Austin as part of the Quarterly Report required in Condition I.I. of this permit.
- H. Unless otherwise required by conditions of this permit, construction, use, and maintenance of the pit shall be in accordance with the information represented on the application (Form H-11) and attachments thereto.
- I. A sign shall be posted at the pit, which shall show the pit permit number in numerals at least one inch in height.
- J. The pit must be dewatered, emptied, backfilled, and compacted within 120 days of final cessation of use of the pit. Final closure of the pit must be accomplished in such a manner that rainfall will not collect at the pit location after pit closure. Upon final closure, Technical Permitting in Austin and the Kilgore District Office shall be notified in writing.

VI. DISPOSAL PIT #1 (Permit No. 011595) CONSTRUCTION AND OPERATING CONDITIONS

- A. Technical Permitting in Austin and the Kilgore District Office must be notified in writing upon final completion of construction of the pit. The permittee may not begin using the pit until the District Office has completed an inspection of the pit and provided written verification that the pit is constructed in accordance with the application and permit.
- B. The capacity of the pit may not exceed 790,000 barrels.
- C. This permit does not authorize the discharge of any oil and gas waste from the pit.
- D. Unless otherwise required by the conditions of this permit, construction, use, maintenance, and closure of the pit shall be in accordance with the information represented on the application (Form H-11) and the attachments thereto.
- E. Pit dikes must be constructed to completely surround the pit at a minimum height of two feet and minimum width at the base of six feet.
- F. The pit must be constructed with a 60-mil high-density polyethylene secondary (bottom) liner and a 60-mil high-density polyethylene primary (top) liner.
- G. The pit must be equipped with a leak detection system, including a high-density polyethylene drainage net with a thickness of at least 200 mils that covers the entire pit between the primary and secondary liners, to collect any leakage from the primary liner.
- H. The liners and the leak detection system must be installed in accordance with the liner manufacturer's specifications and sound engineering practices.
- I. All waste received into Disposal Pit #1 must be analyzed in accordance with Condition II.B. of this permit and/or processed through the on-site Treatment Facility Area prior to its disposal in the referenced disposal pit. Any liquid resulting from the dewatering process must be disposed of in an authorized manner.
- J. A sign shall be posted at the pit that shows the pit permit number in numerals at least one inch in height.
- K. At least four (4) feet of freeboard must be maintained at all times between the level of waste in the pit and the top of the pit dikes (2 feet between the level of the waste in the pit and ground level).
- L. Leachate collected in the leachate collection sump must be removed through the pump system and disposed of in an authorized manner.
- M. The Kilgore District Office must be notified within 24 hours if the leak detection system indicates liner failure.
- N. If the leak detection system indicates liner failure, disposal into the pit must cease immediately and the liner must be inspected for deterioration and leaks within five (5) days. The liner must be repaired before use of the pit may resume. If the liner cannot be repaired, the pit must be closed in accordance with Condition X of this permit.
- O. The leak detection system shall be checked 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 must be maintained by the permittee for the life of the pit, and upon request of the Commission, the record shall be filed with the Commission.

- P. No free oil may be allowed to accumulate on top of the waste stored in the pit. Any free oil on top of the waste must be skimmed off.
- Q. Any spill of waste, treating chemicals, or any other material shall be promptly cleaned up and the resulting waste disposed of in an authorized manner.
- R. All waste shall pass the Paint Filter Test (EPA Method 9095) and shall not exceed any EPA Hazardous Waste Criteria as defined in 40 CFR Part 261 prior to disposal in the referenced pit. Test results from each Paint Filter Test must be submitted to Technical Permitting in Austin as part of the Quarterly Report required in Condition I.I.
- S. No freestanding fluids may accumulate in the pit. Any fluids must be removed within 72 hours of discovery and disposed of in an authorized manner.
- T. Upon final cessation of the use of the pit, the pit must be closed in accordance with Condition X of this permit. Any request to modify the closure plan must be filed with Technical Permitting. Upon final closure, Technical Permitting in Austin and the District Office shall be notified in writing.
- U. Technical Permitting in Austin and the Kilgore District Office must be notified in writing at least 45 days prior to commencement of closure activities.

VII. MONITOR WELLS

- A. Nine (9) monitor wells must be installed in the locations shown on the plat received April 30, 2010, which is attached to and incorporated as part of this permit as **Permit Appendix A**.
 - 1. The wells must be completed in accordance with 16 TAC Part 4, Chapter 76 (Water Well Drillers and water Well Pump Installers).
 - 2. The 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 the top of the groundwater.
 - 4. Provision must be made to protect the well heads from damage by vehicles and heavy equipment.
 - 5. The following information must be submitted after the wells are completed:
 - a. A soil boring log for each well, with the soils described using the Unified Soil Classification System (equivalent to ASTM D 2487 and 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 for each well.
 - c. A survey elevation for each well head reference point.
 - d. A potentiometric map showing static water levels and the calculated direction of groundwater flow.

- B. The monitor wells must be monitored for the following parameters after installation and quarterly thereafter:

- | | |
|-----------------------|---------------|
| 1. Static water level | 8. Nitrates |
| 2. Benzene | 9. Carbonates |
| 3. TPH | 10. Calcium |
| 4. TDS | 11. Magnesium |
| 5. Chlorides | 12. Sodium |
| 6. Bromides | 13. Potassium |
| 7. Sulfates | |

Copies of the results must be filed with Technical Permitting as part of the Quarterly Report required in Condition I.I. of this permit.

VIII. OPERATION AND PROCESS CONTROL

- A. Incoming waste that does not pass the Paint Filter Test must be unloaded directly from the transport truck or trailer into the Receiving Pit (P011596) through the pump system or the Process Solids Slab. The waste may not be unloaded onto the ground or directly into Pit P011595 (Disposal Pit #1).
- B. The Process Solids Slab and the Drying Pad shall be cleared and inspected annually for deterioration. If inspection reveals deterioration, the pads must be repaired before resuming use of the pads.
- C. The permittee must maintain a record of when the pads are inspected and the results of each inspection. This record shall be submitted to Technical Permitting in Austin as part of the Quarterly Report required in Condition I.I. of this permit.
- D. Any treated solid waste shall pass the Paint Filter Test (EPA Method 9095) and shall not exceed any EPA Hazardous Waste Criteria as defined in 40 CFR Part 261 prior to disposal in a disposal pit.
- E. A representative sample of the treated solid waste shall be taken from each 1,613 cubic yards of treated material from the process area and the following parameters analyzed:
- | | |
|------------------------|-------------|
| 1. Oil and Grease | 7. Lead |
| 2. Leachable Chlorides | 8. Mercury |
| 3. Arsenic | 9. Selenium |
| 4. Barium | 10. Silver |
| 5. Cadmium | 11. Benzene |
| 6. Chromium | |
- F. Copies of the analytical results required by Condition VI.C. above shall be submitted to Technical Permitting in Austin and the Kilgore District Office as part of the Quarterly Report required in Condition I.I. of this permit.
- G. Successfully treated waste material shall be removed from the treatment facility for disposal in a disposal pit.

IX. STORMWATER CONTROL

- A. Dikes must be constructed to a height of at least two (2) feet and width at base of at least six (6) feet to completely surround the Treatment Facility Area. The dikes must be maintained such that no stormwater runoff may enter or exit the treatment facility area. Any road(s) traversing the dikes may not compromise the integrity of the dikes' ability to control stormwater.
- B. Stormwater collected in the treatment facility area must be collected and disposed of in an authorized manner.
- C. Stormwater at the treatment facility shall not contain a visible oil film (rainbow) at any time.

X. CLOSURE OF THE SITE

- A. Closure of the Vortex Stationary Treatment Facility shall proceed as follows:
 - 1. All waste must be processed through the facility or disposed of in an authorized manner.
 - 2. The contents of all containment areas, tanks, vessels, or other containers shall be disposed of in an authorized manner.
 - 3. All treatment equipment shall be removed and salvaged, if possible, or disposed of in an authorized manner.
 - 4. After waste removal and site excavation are completed, representative soil samples shall be obtained from around the location of the Drying Pad, Receiving Pit, Process Solids Slab, and Process Area. These composite samples shall be analyzed and the following constituent levels shall not be exceeded:

Constituent (units)	Closure Limit
pH (s.u.)	6.0 to 10.0
Electrical Conductivity (EC)	4.0
TPH (mass %)	<1
BTEX (mg/kg)	30.0
Metals (mg/kg):	
Arsenic	10.0
Barium	10000.0
Cadmium	10.0
Chromium	100.0
Lead	200.0
Mercury	10.0
Selenium	10.0
Silver	200.0

5. A map showing the sampling locations and copies of the analysis required by Condition X.A.4 shall be submitted to Technical Permitting in Austin. When Technical Permitting has verified acceptable constituent levels in writing, the earthen berms shall be leveled to grade. Topsoil shall then be contoured and seeded with appropriate vegetation.
 6. The Disposal Pit #1 covered under Permit P011595 shall be dewatered, stabilized, and covered with the pit cap as shown in Figure 23-1 of your application dated April 30, 2010.
 7. Provision shall be taken to prevent erosion both during and following closure activities.
- B. Technical Permitting and the Kilgore District Office shall be notified in writing at least 45 days prior to commencement of closure activity so that the Commission may monitor closure to assure compliance with the closure plan.

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

Sincerely,



Michael Sims, P.E., Manager
Environmental Permits and Support
Technical Permitting

Notes:

1. Transferred permit from CCS Midstream Services, LLC to Tervita, LLC.
2. Changed the effective date of the permit to July 9, 2013.
3. Amended the permit to replace all semiannual reports with quarterly reports.