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# ***NORTHAMERICAN ENVIRONMENTAL SERVICES, INC.***

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Rules Coordinator  
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Oil & Gas Division  
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[rulescoordinator@rrc.texas.gov](mailto:rulescoordinator@rrc.texas.gov)

RE: Comments on the Proposed Rule Changes to 16 TAC §3.8 and §3.57 and TAC Chapter 4(A) and (B)

Dear Rules Coordinator,

I am a licensed Professional Geoscientist (P.G.), in the State of Texas, that has spent the past 40-plus years of my professional career focused on the treatment and disposal of oil and gas wastes in multiple states. During the mid-1980's, at the request of the State of Louisiana, I drafted rules governing the disposal of oil & gas waste at both the well site/lease and for commercial disposal facilities in Louisiana. I was part of an Adhoc Committee composed of Regulators, industry representatives, and a few select consultants that the Louisiana Dept. of Natural Resources, Office of Conservation selected to draft those rules. The Louisiana Rules not only had the endorsement of the O&G industry and Mid-Continent Oil and Gas Association but industry was actively involved in the development and implementation of those rules. I also served as a testifying technical expert for Mid-Continent Oil & Gas Association during the promulgation process of the Louisiana rules. At the request of the State of Oklahoma, I served on a committee that drafted the rules governing the disposal of oil & gas waste at both the well site/lease and for commercial disposal facilities in that state. I am also a co-author of the technical resource documents, for the U.S. EPA, entitled Hazardous Waste Land Treatment and Freeboard Determination for Hazardous Waste Surface Impoundments.

I was the scientist that developed and pioneered the land treatment technology for the treatment and disposal of oil and gas waste at commercial treatment and disposal facilities within the Gulf Coast. I have permitted, supervised construction, conducted all environmental monitoring (surface water, soils, vadose zone, and groundwater), and prepared closure plans and cost estimates for numerous commercial waste disposal and recycling facilities, in multiple states. In addition, I have represented applicants and also represented protestants before the RRC in complex contested cases pertaining to commercial waste treatment and disposal facilities and stationary treatment facilities pursuant to 16 TAC §3.8.

On August 15<sup>th</sup> of this year, the RRC published proposed rules to Proposed Changes to 16 TAC §3.8 and §3.57 and TAC Chapter 4(A) and (B) ("Proposed Rules") for the first time in over 40 years. Louisiana implemented rules governing the treatment and disposal of Oil and Gas wastes over 35 years and the New Mexico rules have been in effect for over 30 years. The rules governing Oil & Gas wastes in Louisiana and New Mexico are much more stringent rules than the proposed rules in Texas. As mentioned previously, the Louisiana Rules and the Oklahoma rules not only had the endorsement of the O&G industry but the industry was actively involved in the development and implementation of those rules. The Louisiana rules have stood the test of time for over three decades. The proposed rules for Texas should be at least be as stringent as the rules in Louisiana that were drafted and promulgated nearly four decades ago. This is especially relevant to Commercial Disposal Facilities which pose the greatest risk to the environment, adjacent landowners, the general public, and industry. The risk associated with commercial disposal facilities is also far greater than the risk posed by commercial recycling facilities.

While I have endorsed rules governing the treatment and disposal of Oil and Gas wastes concerning both reserve pits, commercial disposal facilities, and recycling/reuse in other Gulf Coast States over the past 40-years, I am not able to endorse the RRC proposed rules, as currently proposed, due to the technical deficiencies and the omission of critical environmental rules.

The Proposed Rules to Statewide Rule 8 are confusing, inconsistent, and appear to be little more than a cursory attempt at rulemaking. Moreover, it appears that many components of the technically outdated Surface Waste Management Manual were simply used as the basis for much of the proposed rules. Rather than the agency relying on those professionals that have actually written rules governing O&G wastes in other states it has proposed rules that will be extremely difficult for industry and the public to follow and implement due to the lack of coherent organization and numerous rules that are either technical incorrect, grossly inadequate, or omitted.

The agency outright failure to solicit technical input from those professionals having decades of experience with the treatment and disposal of O&G wastes and the rulemaking process is extremely troubling. On the other hand, the Commission has a history of developing guidelines and proposed rules that defy the findings of peer reviewed scientific studies and publications, sound technical judgement, and the professional opinions of qualified and experienced professionals.

Attached are some suggestions to the Proposed Rules for Chapter 4, Part A, and a separate document with definitions which are either missing from the proposed rules and should be added, or need modification. These comments are focused on what are the greatest liability to the Oil & Gas Industry and the public, which is the Commercial Solid Waste Disposal Facilities. I will however, also address the proposed rules for reserve pits, or the lack there of.

While, the suggestions in this document are not intended to serve as an exhaustive list of the inconsistencies, omissions, and technically incorrect issues contained in the Proposed Rules, they do highlight the types of issues that will cause these rules to be unworkable, if they are not corrected. I appreciate the opportunity to provide input into these proposed rules. I hope these comments and suggestions are helpful to the Commission, and are actually incorporated into the proposed rules. I would be happy to assist in the further development of these rules, if requested.

**Primary Concern:**

Rules for Non-Commercial applications should be separated from rules associated with Commercial Facilities since the environmental exposure to the public & liability to the oil & gas operators differ greatly between the two. Three critical factors are (1) the exponential difference in the quantity of waste handled, (2) the size of Non-Commercial applications versus Commercial Facilities, and (3) the difference in the duration of operation. Commercial facilities typically handle exponentially more E & P waste, are much larger in size, and operate for decades. Commercial waste disposal facilities not only operate for decades but the wastes exist in perpetuity (especially, related to disposal pits and landfills).

If we are serious about endangerment to human health & the environment, & preventing pollution of surface or subsurface water we need to focus on the commercial disposal facilities and the rules should reflect the same. The commercial disposal facilities pose the greatest threat to the public health & safety as well as being a greater liability to the oil & gas industry. The oil & gas industry should also not be burdened with the same level of regulation for non-commercial applications as those necessary for commercial disposal facilities.

**Critical Issues:**

**Affected Party Status:**

The status of a party and whether they are considered to be an affected party should only be related to the distance the property is located from the property boundary of a commercial waste disposal facility. To use the rational, for example, that a highway separates two pieces of property and thus they are not contiguous and therefore the other party is not an affected party is ludicrous. Such rational defies all rational common sense. The migration of pollutants doesn't stop at arbitrary property boundaries and "pollutants don't have any respect for property boundaries." Moreover, the status of any affected party should be based on a radius from the property boundary from the property boundary of a commercial waste disposal facility. Any other interpretation just needlessly complicates the issues and is grossly unfair to adjacent landowners.

### **Time Frame for Rendering a Decision:**

The Commission should be required to provide a decision on a Contested Case Hearing within 120 days of the issuance of the PFD or the Exceptions to the PFD. The Commissioner in Louisiana, for example, is “required to render a decision within 120 days ... “(LA 29-B Title 43, Part XIX, Subpart 1, Chapter 5, §527 – Permitting Procedures). If the Commissioner in Louisiana is responsible enough to render a decision within the required 120-day timeframe, then Texans should expect nothing less from the Commissioners of the RRC.

The revised rule should also read:

“If the Commission fails to render a decision within 120 days of the issuance of the PFD, then the Permit Application should be considered denied.”

The revised rule should also read:

“If the Commission renders a final decision on a Permit Application for a Commercial Disposal Facility that is adverse to the Proposal for Decision (PFD), issued by the RRC examiners that actually heard the case and all the testimony, then the Commissioner’s should be required to provide the written rational for overturning the PFD.”

### **Supplemental Submittals to a Permit Application:**

The requirement that there be no more than two (2) supplemental submittals during the permit application process appears to have been removed from the proposed rule. This requirement should be put back into the rule.

### **Permit Application Denial by Technical Permitting:**

The Technical Permitting Staff should have the ability to deny a Permit Application that is technically deficient or for a site that is not suitable for citing a Commercial Disposal Facility. For these sites the applicant should not have the option to request a hearing before the Railroad Commission. By allowing the applicant to request a hearing on any permit application simply shifts the regulatory burden & cost onto the adjacent landowners to protested the Permit Application. Technical Permitting Staff of agencies in other states have the ability to deny technically deficient Permit Applications, and the Technical Permitting Staff of the RRC should also. This gross deficiency should be corrected.

### **Compliance Track Record:**

For companies that have Commercial Disposal Facilities in operation, their compliance track record and history of violations should be taken into consideration when applying for a new Permit Application, a Permit Modification, or a Permit Renewal of an existing facility, so that there is an incentive for all Commercial Disposal Facilities to operate properly and so that there is a level playing field. Poor operators should not have a competitive advantage over good operators by being allowed to repeatedly violate the rules and conditions of their permit. Commercial disposal facility the knowingly and intentionally pollute or fail to comply with the conditions of their permit should not be allowed to jeopardize the reputation of the entire industry and no agency should enable them to do so.

### **RRC Inspections:**

The RRC Inspectors should have a means to shut down a Commercial Disposal Facility on the spot for egregious violations or whenever any of the facility groundwater monitoring wells are not operational. Agencies in other States have the ability to do this, and the RRC should also. Commercial Disposal Facilities should not ever be allowed to operate without a fully functional groundwater monitoring system. Allowing such a facility to remain in operation is detrimental to the citizens of Texas, the environment, and the resources of state of Texas.

### **Duration of Closure and Post Closure Monitoring:**

The duration of Closure and Post Closure Monitoring of these Commercial Disposal Facilities should be greatly increased well beyond the five-year period. The existence and impact of feral hogs, armadillos, pine tree roots, and Chinese tallow tree roots, that all can penetrate landfill caps, should be taken into consideration when permitting these Commercial Disposal Facilities so that contaminants are not allowed to leak into surface and ground water during or after these facilities are closed. The duration of Post Closure Monitoring at Commercial Disposal Facilities

should be increased to a minimum of ten (10) years. Ten years would still be only one-third of the requirement used for hazardous waste facilities.

#### **Definitions:**

Definitions that are missing in the RRC Proposed Rules or need technical corrections include the item listed in the attached document entitled Definitions. (See Separate List of Definitions)

One definition that needs special attention is the definition of Freeboard. The definition for Freeboard in the Proposed Rules under **§4.110(39)** should include the following statement:

Minimum freeboard does not include the additional storage capacity necessary to contain any rainfall event such as the volume from a 25-Yr/24-hr precip event (meaning freeboard is not a source of additional storage capacity).

Definitions should also be tied to whom or what source they are determined by (i.e., COE, NWI, etc.)

#### **Landfarming vs. Land treatment:**

Landfarming & Land Treatment rules should be decoupled in the rules. **Landfarming & Land treatment are NOT the same and should not be combined!**

**Note:** It should be clearly noted that the RRC's continued use of the term Land Treating is incorrect. The waste management profession has used the term "Land Treatment" for more than the past four decades. Other states regulations, such as those in Louisiana also use the term Land Treatment and therefore reflect the correct terminology. The RRC should use the correct terminology which is Land Treatment.

While there are some similarities between Landfarming & Land treatment, there are some distinct differences which require very different regulations and setback/buffer zone requirements.

Landfarming should be applied specifically and only to disposal of oil and gas wastes at the well site, well location, or lease whereas land treatment is applicable to treatment & disposal at a commercial disposal facility. The complexity of the technical issues associated with landfarming at the well site, well location, or lease (where it is limited to only a few acres in size) are considerably different from those of a 50 to 300-acre land treatment facility.

Landfarming is best defined as the one-time application and incorporation of the waste into the native soil **at the well site or well location** (non-commercial application).

Land treatment is best defined as the multiple application of waste onto or into the land surface **at a commercial disposal facility** (commercial application). It is a dynamic process involving the controlled application of E and P Waste onto or into the aerobic surface soil horizon in open cells **by a commercial land treatment facility**, accompanied by continued monitoring and management, to alter the physical, chemical, and biological state of the E and P Waste. Biological activity, climate, and soil, interact as a system to degrade and immobilize the various waste constituents. These facilities can and do operate for decades.

Land Treatment cells should not exceed 5-Acres in size (Cells larger than 5-Acres result in non-uniform application of wastes and hotspots).

#### **Landfills:**

The rules for landfills should also be a separate section within the Proposed Rules. It is unrealistic to couple landfills along with pits. The operational issues associated with a small pit for temporary storage of waste is grossly different from those associated with a 300-acre landfill. There needs to be specific technical criteria and rules related to the location criteria, permitting requirements, operating criteria, and closure requirements for landfills since these wastes exist in perpetuity. Furthermore, after the typical five-year closure/post closure period these landfills are not maintained or monitored.

## Location Criteria:

There needs to be greater setbacks for these Commercial oilfield waste disposal facilities so that there is adequate protection of groundwater resources and water wells, both public water supply wells and private water wells. There also needs to be much more attention focused on tracking of waste within a Commercial Disposal Facility so that contaminated stormwater (contact stormwater) is all contained and properly disposed. There are numerous examples within the State of Texas where Commercial Disposal Facilities have documented groundwater contamination with chlorides that greatly exceed the Texas water quality drinking standards and alarming levels of highly carcinogenic volatile organics such as benzene & other BTEX components. If more stringent setback requirements are suitable for Louisiana why should Texas be any different. Certainly, the politicians and regulators in Texas care as much about their citizens as the politicians & regulators in Louisiana. It should also be noted that the setback requirements for Stationary Commercial Solid Oil & Gas Waste Recycling Facilities are more stringent than those for Commercial Waste Disposal Facilities (Non-Recycling). There is simply no technical justification for the reduced setbacks associated with Commercial Waste Disposal Facilities.

Location Criteria (Setbacks & Buffer Zones) should be more restrictive for commercial solid disposal facilities than for non-commercial applications or disposal at the well site, well location, or lease.

Commercial solid waste disposal facilities (**based on its property boundary of the commercial facility**) should **not** be located in any area:

1. **within 1/4 mile (1,320 feet) of a public water supply water well** for facilities permitted, after the effective date of this rule;
2. **within 1,000 feet of a private water well** for facilities permitted, after the effective date of this rule;
3. **within 1,000 feet of a school, church, hospital, or public park**, after the effective date of this rule;
4. **within 1,000 feet of a residential, commercial, or other public building**, in existence at the time of the initial permitting, after the effective date of this rule;
5. If the owner of the residence or commercial building or the administrative body responsible for the public building, hospital, church or public park waives the distance requirements above, such waiver must be in writing, shall contain language acceptable to the Commission, and shall be included in the permit application, after the effective date of this rule;
6. **within 300 feet of any drainage feature or surface water**, after the effective date of this rule;
7. **where such area, or any portion of the property thereof has been designated as a wetland** (within the property boundary of the commercial facility), by the U.S Fish & Wildlife Service (National Wetland Inventory) or U.S. Corps of Engineers (USCOE) during, or prior to, initial facility application review, unless the applicable wetland permit is obtained, or an onsite wetlands determination by a qualified professional has determined the site does not meet the criterion of a wetland based on the criteria outlined by the COE, after the effective date of this rule;
8. where land treatment cells, landfill cells, pits, storage containers, vessels, etc. and storm water retention (sediment) ponds are **located in a "V" or "A" zone as determined by flood hazard boundary or rate maps** and other information published by the Federal Emergency Management Agency (FEMA) or a Floodplain analysis performed by a P.E. has been conducted for areas without any published or digital version of the Flood Insurance Rate Map (FIRM) by the Federal Emergency Management Agency (FEMA)
9. **within 150 ft of a Sensitive Area** as defined by §4.204 of this title (relating to Definitions)
10. where other surface or subsurface conditions exist which in the determination of the Commission would cause the location to pose a threat of substantial, adverse effects on public health or safety or the environment at or near the location, after the effective date of this rule.

## Public Notice Requirements:

Notice should be provided to all surface owners, within a **½ mile radius of the property boundary** of the proposed commercial waste disposal facility. Notice should also be provided the any Groundwater District associated with the proposed commercial waste disposal facility.

**General Information Requirements (§4.126):**

All public water supply wells and private water wells within a 1-mile radius of the proposed facility boundaries, should be included in the Proposed Rules for all permit applications.

The location & identification of all residential, commercial, or public buildings and hospitals within a 1/2-mile radius of the facility boundary, should be included in all permit applications.

A hydrologic balance (on a monthly basis), in addition to the average annual precipitation and evaporation and the source of this information, should be required. The average annual precipitation and evaporation provides very little useful technical information regarding the site and therefore, it is imperative that an actual hydrologic balance (on a monthly basis) be provided. Developing a hydrologic balance (on at least a monthly basis), has been the technical standard for the past four decades.

**Statement of Need (Previously included as §4.141):**

The statement of need for commercial disposal facilities should be put into the Proposed Rules and it should require a market analysis of all oil & gas wells to be drilled within a 12-month period after the date of permit application submission. This market analysis should be forward facing rather than backward facing since commercial facilities primarily receive wastes generated during the drilling phase of oil & gas wells. A backward facing analysis focuses on wells that have already been drilled, and wastes that have already been disposed, rather than wells permitted to be drilled in the future.

**Changes to Permit Applications:**

No changes should be made to the permit application submitted to the RRC for review, after the application has been determined to be administratively complete

No changes or amendments should be made to the permit application after the application has been submitted to the hearings division

No changes or amendments should be made to the permit application during the hearing process

**On-Site Finger-Print Testing of waste:**

Process knowledge does NOT provide constituent levels specific to a load of waste. Actual testing of waste is the only realistic method that provides accurate waste constituent levels. Laboratory analysis coupled with on-site verification of finger-print parameters is necessary for solid wastes disposed at commercial disposal facilities.

On-Site Finger-Print Testing of waste, for screening purposes and before offloading at a commercial facility, each load of E & P Waste should be sampled and analyzed (by facility personnel) for the following parameters: (pH, EC, Cl, TPH, & NORM), as a cross-check to the Manifest & waste analysis

An 8-ounce sample (min.) of each load should be collected and labeled with the date, operator and manifest number. Each sample shall be retained for a period of 30 days.

When a commercial facility refuses to accept a load of unauthorized waste the Commission should be notified immediately of the manifest or run ticket which accompanied the shipment of unauthorized waste or otherwise provide the names of the generator & transporter of the unauthorized waste.

Records of these tests performed pursuant to these requirements should be kept on file at each facility, for a period of three years, and be available for review by the Commission or its designated representative.

Type of truck (dump truck, end-dump, vacuum truck, roll-off box) & the associated volumes should be recorded for all incoming waste receipts

Records of these waste receipts, pursuant to these requirements, should be kept on file at each facility, for a period of three years, and be available for review by the Commission or its designated representative.

#### **As-Built Survey & Aerial Photos:**

As-Built Survey by a Registered Survey should be required for all commercial disposal facilities, prior to commencing operations & there should be a requirement that it be updated within 30-days of any significant change and submitted to the Commission. This would prevent the existing problem where the schematic provided to the Commission for many commercial disposal facilities is not consistent with what exists on the ground or is evident based on aerial photos.

A vertical color aerial photo (8.5' x 11.0") should be required for all commercial facilities every two years. Scale of aerial photos should be 1" = 1,000 ft to 1" = 200 ft, depending on the size of the facility. This would allow Technical Permitting to compare these aerial photos with the information in the permit to determine if other unpermitted waste management units have been constructed on a site or off-site contamination or disposal is readily visible.

#### **Calibration of scintillation survey instruments:**

Calibration should be required before first use, then at intervals not to exceed 6 months, and following any repair that affects the calibration. The use of the words "relevant calibration records" in §4.124 is nebulous and should be modified as stated previously.

Calibration procedures outlined in Nuclear Regulatory Commission (NRC) 34.25 Radiation survey instruments should be followed and incorporated into the Proposed Rules.

#### **Waste Treatment:**

The idea of adding wood chips to oilfield waste so that it can pass the Paint Filter Test does nothing more than act as a bulking agent (increasing the quantity of waste) and wasting valuable landfill space and the natural resources of the State of Texas. These bulking agents do not create any pozzolanic reaction that chemically fixates the waste constituents, it is simply a way to circumvent good technology & rulemaking. Upon rewetting of these wastes due to rainfall, etc. within the landfill cell these wastes would no longer pass the paint filter test and would be in violation of the permit conditions had they not already been placed in the landfill.

#### **Paint Filter Testing:**

Paint Filter Testing should be conducted on all wastes prior to transfer out of a processing pit or to a landfill cell, or to an offsite landfill. The Paint Filter Test should also be referenced in the definition of Dewater in §4.110(28).

Records of all Paint Filter Tests performed, pursuant to these requirements, should be kept on file at each facility, for a period of three years, and be available for review by the Commission or its designated representative.

#### **Stormwater Management:**

§4.110(1). The definitive source for the **25-year, 24-hour rainfall event** depths is the National Oceanic and Atmospheric Administration (NOAA). This document is periodically revised by NOAA and is the only source necessary for determining these rainfall values.

The 24Hr/25-Yr precip depth should only be used, to calculate storage requirements, at sites where all SW is removed from the site within 24 hrs. of the rainfall event. This has been the cornerstone of stormwater management for over the previous four decades. For those sites where SW is removed based on 24-hrs of access, the precip depth should be increased to account for multiple day rainfall events encompassing 7-days or the 100-Yr/24-hr storm event, whichever is greater, to maintain the design capacity of the stormwater management system. Failure to do so will result in an illegal release of contact stormwater at some point in the future.

An active or closed landfill cell should not be used for storage of contact SW, at any time.

§4.162. Operating Requirements for Landfarming Permits. This portion of the Proposed Rules is a clear example of the problem of combining the requirements of landfarming with those of land treatment. These issues highlight a lack of technical understanding of operational differences between land farming vs. land treatment. While the Proposed Rule as written does apply to a land farming operation, at the well site, well location, or lease, the rule clearly does NOT apply to a land treatment operation. In a land treatment operation, due to the heavy solids load resulting from multiple applications, waste should NOT be incorporated into the top six inches of soil. It should simply be mixed within itself on top of the soil surface. In addition, standing rainwater should not be removed within 72 hours if the land treatment cell is in the treatment phase or this will result in excessive treatment time to remove salts which are dependent on rainwater. Rainwater is used for removal of salts during the treatment phase in a land treatment operation. On the other hand, rainwater should not to be stored on land treatment cells if the cell is not in the treatment phase. In that case, the land treatment cells should remain free of excessive fluids. Consequently, fluids should be removed from land treatment cells in a timely manner (within 72 hours), stored in appropriate facilities (i.e., SW detention pond, not tanks), and disposed in an authorized manner.

For a land treatment operation, 36 inches high berms are not adequate and not practical. Once you figure in the capacity to contain a 25-year/24-hour precip event and two feet of freeboard an operator would only be able to apply a few inches of waste. Another issues that must be factored in is the slope of the cell or waste management unit. This is the reason why other states use a minimum of 48-inch-high berms.

All berms & levees at commercial facilities should be constructed and maintained using a means to prevent erosion & other degradation of those structures.

In 4.612 for landfarming, the Proposed Rule state that “Any spills of waste or any other material shall be promptly containerized and disposed of in an authorized manner.” This same language should apply to spills at any type of commercial waste disposal facility including landfills and pits.

In other portions for the Proposed Rules, it states that “Any spill of waste, chemical, or any other material shall be collected and containerized within 24 hours and processed through the treatment system or disposed in an authorized manner (§4.129(b)(4).” A period of 24 hours is excessive and will likely result in tracking of waste onsite/offsite and could result in runoff of contact stormwater.

§4.110(3). **100-year flood plain** – If an alternate method of determining the 100-year flood plain is necessary, the HEC-RAS software can and should be used for this determination. The HEC-RAS software was developed by the US Army Corps of Engineers (USACE) Hydrologic Engineering Center and it a free software program.

#### **Non-Compliance Notification:**

Operators of commercial facilities should be required to report any noncompliance including but not limited to those which may endanger public health, safety, welfare, or the environment, including but not limited to impacts to surface water, groundwater aquifers and underground sources of drinking water whether onsite or off-site orally within 24 hrs. of noncompliance followed by written notification to the Commission within five calendar days explaining details & proposed methods of corrective action

#### **Quarterly Monitoring:**

An independent professional consultant should perform all environmental monitoring to assure adherence to the requirements.

An independent laboratory should perform all analytical testing to assure adherence to the requirements.

Well head reference points (top of casing (TOC) & ground level (GS) should be determined by Registered Surveyor and referenced to mean sea level.

In §4.131(2)(D) it mentions that at least two wells are required on the estimated down-gradient side of the operational area but it fails to mention a requirement for an up-gradient monitoring well.



Groundwater levels in monitor wells should be measured monthly for a period of two years to determine seasonal fluctuations in the water table. Water levels should be measured quarterly each year thereafter.

Qtr. GW Monitoring should be required for all commercial facilities (with an updated/current Potentiometric Map, direction of GW flow, and calculated gradient required for all QTR Monitoring Reports)

All GWM wells must be protected from damage by vehicles & heavy equipment

All GWM wells must be maintained in good working condition, at all times, with a lockable water tight expansion cap

Commercial facilities should be required to voluntarily cease operations immediately if any of the groundwater monitoring wells are not functional or cannot be sampled during a Qtr. monitoring event.

All commercial facilities, required to conduct an Annual Pit Inspection should be required to voluntarily cease operations immediately if this information is not proved to the Commission by Dec 31 each year.

All Qtr. Monitoring report, submitted to the Commission, must be postmarked by the 30 days of the month following the end of the reporting period.

#### **Closure & Post-Closure Cost Estimates:**

Closure & Post-Closure Cost Estimates should be prepared by either a licensed P.E. or a P.G. (as other states allow).

Closure & Post-Closure Cost Estimates should be based on R.S, Means Cost Data, where ever possible. This would standardize the cost estimating process & provide Technical Permitting the ability to efficiently review those documents.

#### **Reserve Pits:**

The standards for reserve pits and mud circulation pits included in the October 2023 Draft Rules appear to have all been removed. There are no liner, construction, operation, groundwater monitoring, or closure standards in the Proposed Rule. What happened between the October 2023 Draft Rules and the Proposed Rules in August 2024 that convinced the RRC to remove all the proposed standards for reserve pits?

**Landowner Consent:** Landowners should be given advance notice of any construction of a reserve pit or intended disposal of oilfield waste on their property. The landowner should have the opportunity to grant or deny permission for such activities and disposal. This is the only way to protect the landowner rights and prevent unexpected environmental damage.

It is well known within the industry and the technical professionals that practice in the field that groundwater contamination has resulted from reserve pits. This fact has been well known, throughout the U.S., since the 1970s. While the U.S. EPA, drag its feet for years, it finally published the results of a detailed study analyzing the *"Management of Wastes from the Exploration, Development, and Production of Crude Oil, Natural Gas, and Geothermal Energy."* The three (3) volume study was finally published in December 1987, even though the original deadline was in 1982 (**EPA 530-SW-88-003**). The U.S. EPA determined through extensive analysis of case studies that unlined reserve pits were responsible for groundwater contamination at a large number of sites, throughout the U.S.

"The Texas Groundwater Protection Committee (TGPC) was created by the 71st Texas Legislature in 1989 to bridge gaps between existing state groundwater programs and to optimize water quality protection by improving coordination among agencies involved in groundwater activities. The TGPC was mandated each year to publish a *Joint Groundwater Monitoring and Contamination Report (Joint Report)* to cover the activities and findings of TGPC. As defined in this report, "groundwater contamination" is any detrimental alteration of the natural quality of groundwater thought to be associated with activities under the jurisdiction of the contributing agencies and that affect usable-quality groundwater." The list of all confirmed groundwater contamination cases for RRC for calendar

year 2022 is provided in the TCEQ Joint Report. This list of cases is provided as part of the Joint Report in accordance with Texas Water Code.

The TCEQ Joint Groundwater Monitoring and Contamination Report (SFR-56/22, May 2023), Prepared by the Texas Groundwater Protection Committee, show 556 active RRC cases, in 116 Texas Counties, for calendar year 2022 alone. It is evident that many documented cases are linked directly to the contamination from reserve pits. It should be noted that historical cases of documented contamination are not included in this report unless enforcement action is still active, open, or ongoing.

Table 9 summarizes the number of active cases for each RRC program in the past calendar year:

<b>Table 9. Summary of RRC Active Cases – 2022</b>	<b>Number of Cases</b>	<b>Percent of RRC Total</b>	<b>Percent of Report Total</b>
<b>Division / Program</b>			
O&G/BRP	6	1.1%	0.2%
O&G/OCP	438	78.8%	14.9%
O&G/OCP/VCP and O&G/VCP/VCP	41	7.3%	1.4%
O&G/CU, O&G/OFCU, and O&G/OFCU/OCP	51	9.2%	1.8%
O&G/COMP	15	2.7%	0.5%
O&G/OTH	4	0.7%	0.1%
O&G/PIT	1	0.2%	0.03%
<b>Total Number of RRC Cases:</b>	<b>556</b>	<b>100%</b>	<b>18.9%</b>
<b>Number of New RRC Cases:</b>	<b>28</b>	<b>5.0%</b>	<b>1.0%</b>
<b>Number of Counties with RRC Cases:</b>	<b>116</b>		

**Source:** TCEQ Joint Groundwater Monitoring and Contamination Report (SFR-56/22, May 2023), Page 83

The TCEQ Joint Groundwater Monitoring and Contamination Report listed contaminants found at RRC regulated sites included: As – arsenic; Ba – barium; BTEX – benzene, toluene, ethylbenzene, and xylene(s); Hg – mercury; NORM – naturally occurring radioactive materials; Pb – lead; PSH – phase separated hydrocarbons; Se – selenium; and TDS – total dissolved solids.

The RRC Field inspection Reports has documented over 70,000 occurrences of unpermitted disposal of oil and gas wastes, over 3,200 unpermitted pits, and over 700 cases of surface or groundwater contamination over the seven (7) year period between 2015 and 2022 (See RRC Online Inspection Report Table Below).

## RRC Online Inspection Report

**As of 10/15/24**

**Violation Query:**

- **16 TAC §3.8(b) Surface and groundwater contamination**
- **16 TAC §3.8(d)(1) Unpermitted disposal of waste**
- **16 TAC § 3.8(d)(2) Unpermitted use of pit**

Cases are often identified by agency-specific investigations and or in response to complaints, prior to being added to the Joint Groundwater Monitoring and Contamination Report. The following data were compiled from the **RRC Online Inspection Lookup (RRC Oil)**. These data represent inspection, violations, and enforcement reports. Inspection, violation, and enforcement data prior to August 1, 2015, are not available via this online search engine.

The report, dated 10-15-2024, includes (data from 8-1-2015 to 10-15-2024) the following:

- 70,405 instances of unpermitted disposal of oil and gas waste,
- 3,260 unpermitted uses of pits, and

- 717 surface or groundwater pollution violations across all RRC oil and gas districts.

**Source:** <https://webapps2.rrc.state.tx.us/PDA/ice/pdalceHome.xhtml?action=reloadQueryAction>

If an O&G company chooses to use a reserve pit instead of a closed loop system, the RRC should require liners, construction, leak detection & monitoring, and closure standards. In addition, the landowner should be given the opportunity to give or deny permission for permanent burial or disposal of drilling wastes on their own property.

The Commission has previously stated publicly that, the cost of better standards for reserve pits would harm small businesses. On the other hand, the RRC has acknowledged the cost savings achieved by using a closed loop drilling fluid system, even for the smallest operators. The Commission has the case summary published on the RRC website showing the economic benefit of using a closed loop drilling fluid system even for those small operators. This summary is part of the Commissions effort to promote its Waste Minimization Program. The information published on the RRC website reads as follows:

### **Closed Loop Drilling Fluid System**

**“Problem:** A small independent operator was concerned about the volume of drilling waste in conventional reserve pits at his drilling locations. Waste management costs were a concern, as well as the costs associated with impact on adjacent land due to pit failures. The operator was concerned about the potential for surface water or ground water contamination and the associated potential liabilities.

**Solution:** The operator was drilling relatively shallow wells in normally pressured strata. Because the drilling plan was relatively simple, the operator investigated the feasibility of using a closed-loop drilling fluid system for these wells. The use of a closed-loop system eliminated the need for a conventional reserve pit. The operator negotiated with drilling contractors to obtain a turn-key contract that required the drilling company to use a closed-loop system and take responsibility for recycling the waste drilling fluid.

**Benefits:** The turn-key contract was incrementally more expensive. However, because of reduced drill site construction and closure costs, reduced waste management costs, and reduced surface damage payments, **the operator realized a savings of about \$10,000 per well.** Also, the operator reduced the potential for environmental impact and associated potential liability concerns.”

**Source:** <https://www.rrc.texas.gov/oil-and-gas/publications-and-notice/publications/waste-minimization-program/waste-minimization-case-histories/closed-loop-drilling-fluid-system/>

The RRC therefore, acknowledges the benefits for both small and large operators by using Closed Loop Drilling Fluids Systems. The RRC’s own documentation shows that utilization of Closed Loop Drilling Fluid Systems are not prohibitively expensive and will not put small operators out of business. Moreover, the RRC can and should update Statewide Rule 8 to address current drilling practices and the increased volumes of waste without imposing an undue cost or operational burden on smaller operators.

The RRC’s proposed rules for Reserve Pits and Mud Circulation Pits should; therefore, be moved out of “Schedule A - Authorized Pits” and into “Schedule B - Authorized Pits.” By including Reserve Pits and Mud Circulation Pits in Schedule B - Authorized Pits they would be subject to reasonable and responsible construction, operation, monitoring, and closure standards which are intended to be more protective of groundwater. This would be a good faith effort on the part of the Commission to fulfill its published Mission Statement.

RRC Mission Statement published on the RRC website reads as follows:

“Our mission is to serve Texas by our stewardship of natural resources and the environment, our concern for personal and community safety, and our support of enhanced development and economic vitality for the benefit of Texans.”

Source: <https://www.rrc.texas.gov/about-us/>

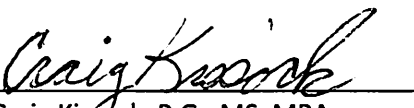
It should be extremely apparent to the Commissioners, based on the ever-growing media coverage, that public concern for these commercial disposal facilities and the handling of Oil & Gas wastes in Texas is growing exponentially and is an issue that the public wants addressed. The citizens and voters of Texas are demanding that the RRC empower the agency and fulfill its mission statement to stewardship our natural resources **and the environment**, and to prove its concern for personal and community safety. That clearly means that the RRC must protect the groundwater resources of the state of Texas. The public outrage that has historically taken place in adjacent Gulf Coast states should sent a clear message to the Commission regarding the direction that this problem is headed in Texas unless rules are enacted that protect the environment and the groundwater resources of all Texans.

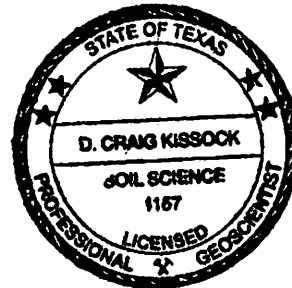
While the RRC is certainly a proponent of the oil and gas industry; it should not be at the expense of the state's natural resources, the environment, and the public. Since Texas is the # 1 Oil & Gas producer in the county, it should have the best regulations for its customers and its citizens. The RRC needs to lead, not continue to follow like we have for the past four decades with respect to environmental protection.

Thank you for the opportunity to comment on these Proposed Rules. I appreciate the RRC 15-day extension to the public comment period. A 45-day comment period however, is still inadequate time to thoroughly review and prepare technical comments on proposed rules that are 275 pages in length; especially considering the scope of the changes that were made from the October 2023 Draft Rules. If you have any questions, please feel free to contact me.

Respectfully submitted,

NORTHAMERICAN ENVIRONMENTAL  
SERVICES, INC (NESCO)

By:   
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Founder & President



10-15-24

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# Definitions

The most critical definition's that are missing from the RRC Proposed Rules are as follows:

**Major permit modification** – Modification to an existing commercial facility or transfer station permit is one in which the facility requests approval to make significant technological changes to an existing E and P Waste treatment and/or disposal system, including the construction and operation of additional equipment or systems to treat and/or dispose of E and P Waste streams other than those previously accepted by the facility. A major modification request may include a request to expand an existing commercial facility or transfer station onto adjacent property not previously permitted for E & P Waste disposal activities. Major modification should go through the permit application review process.

**Minor permit modification** – Modification to an existing commercial facility or transfer station permit is one in which the facility requests approval to include, but are not limited to, add treatment equipment to supplement existing equipment i.e. (adding an additional tank to an existing tank battery), or adding an additional land treatment cell within previously permitted facility boundaries. Minor permit modifications should be approved administratively.

Other definition's that are still missing from the RRC Proposed Rules or need technical corrections are as follows:

**25-year, 24-hour rainfall event** – the POINT PRECIPITATION FREQUENCY ESTIMATE can be determined for the actual location within the county using the NOAA website.

Note: This is easily accomplished using the interactive map on the NWS, NOAA, Precipitation Frequency Data Server (PFDS) (<https://hdsc.nws.noaa.gov/pfds/>). This will provide the NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES for anywhere in the state of Texas.

Therefore, the proposed definition should be corrected to read as follows:

25-year, 24-hour rainfall event – “The maximum 24-hour precipitation event, in inches, with a probable recurrence interval of once in 25 years, as defined by the National Weather Service and published by the National Oceanic and Atmospheric Administration for **the specific location within** the county in which the waste management activity is occurring.” Note: the wording in red text should be added to the definition.

**Affected Tract**—any real property known or reasonably believed to have suffered or could suffer environmental damage.

**Application Phase**—an identifiable period of time during which E and P Waste receipts are applied to a land treatment cell.

**Barrel or Barrel of Oil**—forty-two United States gallons of oil at a test of 60° F with deductions for the full percent of basic sediment, water and other impurities present, ascertained by centrifugal or other recognized and customary tests.

**Base of Usable-Quality Water (BUQW)** – water with 3,000 mg/L TDS or less and other waters known to be used or identified as sources of desalinization water.

**Cell**—an earthen area constructed with an underdrain system within a land treatment facility used for the placement, land treatment and degradation of E and P Waste at a commercial facility. (A cell as defined in this Section is not considered a pit.)

**Closed System**—a system in which E and P Waste is stored and treated in an enclosed sump, tank, barge, or other vessel/container or equipment prior to treatment and/or disposal. A closed system does not include an open top sump or earthen pit.

**Coastal Area**—that area comprising inland tidal waters, lakes bounded by the Gulf of Mexico, and salt water marshes and more particularly identified as the intermediate marshes, brackish marshes, and saline marshes

**Commercial Facility**—a legally permitted E and P Waste storage, treatment and/or disposal facility which receives, treats, reclaims, stores, and/or disposes of E and P Waste for a fee or other consideration. For purposes of this definition, (TCEQ) permitted facilities, as defined by \_\_\_\_\_, which are authorized to receive E and P Waste, are not covered by this definition. However, such facilities must comply with the reporting requirements of § \_\_\_\_ herein if E and P Waste is accepted.

**Community Saltwater Disposal Well or System**—a saltwater disposal well within an oil or gas field which is operated by one operator of record for disposal of E and P Waste fluids and used by other operators of record in the same field or adjacent fields for noncommercial disposal of their produced water. Such operators share in the costs of operating the well/system. For purposes of this definition, adjacent fields mean oil or gas fields or portions thereof which are located within or partially encroach upon the same township as a community saltwater disposal well or one or more townships all of which are directly contiguous to the township in which the community saltwater disposal well is located.

**Container**—a sump, **storage tank**, process vessel, truck, or other receptacle used to store or transport E and P Waste, **excluding barges and marine supply vessel permanent cargo tanks**. Note: the wording in red text should be added to the definition.

**Contamination**—the introduction of substances or contaminants into a groundwater aquifer, a USDW, or soil in such quantities as to render them unusable for their intended purposes.

**Date**—the postmarked date of a letter or the transmittal date of a wireless communication.

**Drilling Waste**—oil-base and water-base drilling mud or other drilling fluids and cuttings generated during the drilling of wells. These wastes are a subset of E and P Waste.

**Elevated Wetland Area**—a wetland area which is not normally inundated with water and where land mass and levee material are available for mixing with waste fluids during closure of a pit.

**Environmental Damage**—any actual or potential impact, damage, or injury to environmental media caused by contamination resulting from activities associated with oilfield sites or exploration and production sites.

**Environmental Media**—includes, but is not limited to, soil, surface water, ground water, or sediment

**Evaluation or Remediation**—includes, but is not limited to, investigation, testing, monitoring, containment, prevention, or abatement.

**Exempt Pits**—compressor station pits, natural gas processing plant pits, emergency pits, and salt dome cavern pits located in the coastal area.

**Exploration and Production Waste (E and P Waste)** —drilling wastes, salt water, and other wastes associated with the exploration, development, or production of crude oil or natural gas wells and which is not regulated by the provisions of, and, therefore, exempt from the Texas Hazardous Waste Regulations and the Federal Resource Conservation and Recovery Act, as amended.

**Feasible Plan**—the most reasonable plan which addresses environmental damage in conformity with the requirement of the Commission to protect the environment, public health, safety and welfare, and is in compliance with the specific relevant and applicable standards and regulations promulgated by a state agency in effect at the time of clean-up to remediate contamination resulting from oilfield or exploration and production operations or waste.

**Final Submission**—the last day on which any litigation party may submit a plan, comment, or response to a plan as provided by the orders of the court.

**Fracture Stimulation Reclamation Fluid (FSR fluid)**—a material that would otherwise be classified as E and P Waste, but which has been reclaimed for the sole use as media for permitted hydraulic fracture stimulation operations

**Generator**—any person or entity who generates **or causes any E and P Waste to be generated**. Note: the wording in red text should be added to the definition.

**Hydrocarbon Storage Brine**—well water, potable water, rainwater, or brine (partially saturated to completely saturated) used as a displacing fluid in hydrocarbon storage well operations.

**Liners**--

i. **Natural Liner**—natural clay having a hydraulic conductivity meeting the requirements of §.

ii. **Soil Mixture Liner**—soil mixed with cement, clay-type, and/or other additives to produce a barrier which meets the hydraulic conductivity requirements of §\_\_\_\_

iii. **Recompacted Clay Liner**—in situ or imported clay soils which are compacted or restructured to meet the hydraulic conductivity requirements of §\_\_\_\_

iv. **Manufactured Liner**—synthetic material that is equivalent or exceeds the hydraulic conductivity requirements of no greater than  $1 \times 10^{-7}$ cm/sec after installation and which is sufficiently reinforced to withstand normal wear and tear associated with the installation and pit use without damage to the liner or adverse effect on the quality thereof. Pits constructed with a manufactured liner must have side slopes of 3:1 or less and the liner at the top of the pit must be buried in a 1' wide and 1' deep trench. A sufficient excess of liner material shall be placed in the pit to prevent tearing when filled with E and P Waste.

v. **Combination Liner**—a combination of two or more types of liners described in this Section which meets the hydraulic conductivity requirements of §\_\_\_\_

**Inactive Cell**—a land treatment cell which is not used for E and P Waste receipts or has been taken out of service by a land treatment facility. Such cell may be considered inactive only if it is a new cell which has not yet received E and P Waste or an existing cell which is in compliance with the applicable testing criteria of this Chapter.

**Land Treatment**—a dynamic process involving the controlled application of E and P Waste onto or into the aerobic surface soil horizon in open cells by a commercial land treatment facility, accompanied by continued monitoring and management, to alter the physical, chemical, and biological state of the E and P Waste. Biological activity, climate, and soil interact as a system to degrade and immobilize E and P Waste constituents.

**Note:** It should be clearly noted that the RRC's continued use of the term Land Treating is **incorrect**. The waste management profession has used the term "Land Treatment" for the past four decades. Other states regulations, such as those in Louisiana reflect the correct terminology. The RRC should use the correct term.

**Litigation Party**—any party to a judicial proceeding who is not a responsible party as defined herein.

**Mg/l**—milligrams per liter.

**Mining Water**—well water, potable water, rainwater, or unsaturated brine which is injected into a brine solution mining well for recovery as saturated brine.

**MPC**—maximum permissible concentration.

**Offsite**— outside the confines of a drilling unit for a specific well or group of wells, or in the absence of such a unit, outside the boundaries of a lease or contiguous property owned by the lessor upon which a well is drilled.

**Oilfield Site or Exploration and Production (E and P) Site**—any tract of land or any portion thereof on which oil or gas exploration, development, or production activities have occurred, including wells, equipment, tanks, flow lines or impoundments used for the purposes of the drilling, workover, production, primary separation, disposal, transportation or storage of E and P wastes, crude oil and natural gas processing, transportation or storage of a common production stream of crude oil, natural gas, coal seam natural gas, or geothermal energy prior to a custody transfer or a sales point. In general, this definition would apply to all exploration and production operations located on the same lease, unit or field.

**Oil-Based Drilling Muds**—any oil-based drilling fluid composed of a water in oil (hydrocarbon or synthetic) emulsion, organophilic clays, drilled solids and additives for down-hole rheology and stability such as fluid loss control materials, thinners, weighting agents, etc.

**Onsite**—for purposes of this Section, on the same lease or contiguous property owned by the lessor, or within the confines of a drilling unit established for a specific well or group of wells.

**Operation of Oil and Gas Facilities**—as used in this Section, all oil and gas wells, disposal wells, enhanced recovery injection wells and facilities, flowlines, field storage and separation facilities, natural gas processing and/or gas sweetening plants, and compressor stations.

**Party**—responsible parties and litigation parties as defined herein.

**Phase Separation** -- The process of treating or pretreating oil and gas E and P Waste by physical and/or chemical methods which separate the fluid (water), solid, and oily fractions. Such process can be accomplished by any number of methods, including, but not limited to the use of a centrifuge, belt-press, flocculation, or other methods. The fractions are then further treated or disposed by other acceptable methods. Fluids generally are required to be disposed of into a Class II disposal well. Solids may be further treated or disposed of by one of the options listed herewith. Oil may be sent to a salvage oil reclaimer or sold to a refiner.

**Pit**—a natural topographic depression or man-made excavation used to hold produced water or other exploration and production waste, hydrocarbon storage brine, or mining water. The term does not include lined sumps less than 660 gallons or containment dikes, ring levees or firewalls constructed around oil and gas facilities.

**Produced Water**—liquids and suspended particulate matter that is obtained by processing fluids brought to the surface in conjunction with the recovery of oil and gas from underground geologic formations, with underground storage of hydrocarbons, or with solution mining for brine.

**Production Pits**—either earthen or lined storage pits for collecting E and P Waste sediment periodically cleaned from tanks and other producing facilities, for storage of produced water or other exploration and production wastes produced from the operation of oil and gas facilities, or used in conjunction with hydrocarbon storage and solution mining operations as follows.

1. **Burn Pits**—earthen pits intended for use as a place to temporarily store and periodically burn exploration and production waste (excluding produced water) collected from tanks and facilities.

2. **Compressor Station Pits**—lined or earthen pits intended for temporary storage or disposal of fresh water condensed from natural gas at a gas pipeline drip or gas compressor station.

3. **Natural Gas Processing Plant Pits**—lined or earthen pits used for the storage of process waters or stormwater runoff. No produced water may be stored in a natural gas processing plant pit.



**4. Produced Water Pits**—lined or earthen pit used for storing produced water and other exploration and production wastes, hydrocarbon storage brine, or mining water.

**5. Washout Pits**—lined earthen pits used to collect wash water generated by the cleaning of vacuum truck tanks and other vessels and equipment only used to transport exploration and production waste. Any materials other than E and P Waste are prohibited from being placed in such pits.

**6. Well Test Pits**—small earthen pits intended for use to periodically test or clean up a well.

**7. Emergency Pits**—lined or earthen pits used to periodically collect produced water and other E and P Waste fluids only during emergency incidents, rupture or failure of other facilities.

**8. Onshore Terminal Pits**—lined or earthen pits located in the coastal area used for storing produced water at terminals that receive crude oil and entrained water by pipeline from offshore oil and gas production facilities.

**9. Salt Dome Cavern Pits**—lined or earthen pits located in the coastal area associated with the storage of petroleum products and petroleum in salt dome caverns.

**Reserve Pits**—**temporary** earthen pits used to store only those materials used or generated in drilling and workover operations. Note: the wording in red text should be added to the definition.

**Residual** (for containers)—the de-minimis quantity of E and P Waste (solids or liquids) remaining in a container after offloading, using the practices commonly employed to remove materials from that type of container (e.g., pouring, pumping, and aspirating) and amounting to no more than one inch of residue remaining on the bottom, or no more than three percent by weight of the total capacity of the container if the container is less than or equal to 110 gallons in size, or no more than 0.3 percent by weight of the total capacity of the container if the container is greater than 110 gallons in size.

**Responsible Party**—the party or parties admitting responsibility for environmental damage or determined by the court to be legally responsible for environmental damage.

**Represented Party**—any responsible party or litigation party who is represented by an attorney in the court matter that has been referred or before the Commission.

**Reusable Material**—a material that would otherwise be classified as E and P Waste, but which is capable of resource conservation and recovery and has been processed in whole or in part for reuse. To meet this definition, the material must have been treated physically, chemically, or biologically or otherwise processed so that the material is significantly changed (i.e., the new material is physically, chemically, or biologically distinct from the original material), and meets the criteria § \_\_\_\_\_. This term does not include FSR Fluid.

**Salt Cavern Waste Disposal Facility**—any public, private, or commercial property, including surface and subsurface lands and appurtenances thereto, used for receiving, storing, and/or processing oil and gas exploration and production waste for disposal into a solution-mined salt cavern.

**Salt Water**—water with a chloride content greater than 500 ppm generated from a producing oil or gas well.

**Solidification** (Chemical Fixation) -- The addition of agents to convert liquid or semi-liquid E and P Waste to a solid before burial to reduce leaching of E and P Waste material and the possible migration of the E and P Waste or its constituents from the facility.

**Stabilization (Chemical Fixation)** -- An E and P Waste treatment process that decreases the mobility or solubility of E and P Waste constituents by means other than solidification. Examples of stabilization techniques include chemical precipitation or pH alteration to limit solubility and mixing of E and P Waste with sorbents such as fly ash to remove free liquids.

**Storer**—every person as herein defined who stores, terminals, retains in custody under warehouse or storage agreements or contracts, oil which comes to rest in his tank or other receptacle under control of said storer, but excluding the ordinary lease stocks of producers.

**Submerged Wetland Area**—a wetland area which is normally inundated with water and where only levee material is available for mixing with waste fluids during closure of a pit.

**Sump**—a container constructed of steel, fiberglass, sealed concrete, or some other impermeable material utilized for temporary storage of E and P Waste, including, but not limited to, wash water and solids (sludge) generated by the removal/cleaning of residual amounts of E and P Waste from storage containers, barges and/or marine supply vessel permanent cargo tanks.

**Technical Data**—all basic factual information available that may be used to determine the levels of contamination and the vertical and horizontal extent of the contamination.

**TDS**—total dissolved solids.

**Thermal Desorption** -- The process of heating E and P Waste in an enclosed chamber under either oxidizing or non-oxidizing atmospheres at sufficient temperature and residence time to vaporize organic contaminants from contaminated surfaces and surface pores and to remove the contaminants from the heating chamber in a gaseous exhaust system.

**Transfer Pipeline System** -- an offsite pipeline system by which only E and P waste is transferred to a permitted in-state or out-of-state transfer station or disposal facility.

**Transfer Station**—an E and P Waste receiving and storage facility, located offsite, but operated at an approved location in conjunction with a permitted commercial facility, which is used for temporary storage of manifested E and P Waste for a period of 30 days or less.

**Transporter**—a legally permitted carrier of E and P Waste contained in trucks, barges, boats, or other transportation vessels.

**Treatment**— excluding Transfer Stations, treatment shall be defined as any method, technique, or process capable of changing the physical and/or chemical characterization or composition of E and P Waste so as to reclaim salvageable hydrocarbons, process reusable material, reduce waste volume (volume reduction), neutralize waste, reduce criteria concentration(s) or otherwise render the waste more suitable for handling, storage, transportation, and/or disposal.

**Treatment Phase**—the period of time during which E and P Waste in a land treatment cell is physically manipulated and/or chemically altered (through the addition of chemical amendments, etc.) to bring the cell into compliance with the testing criteria or reuse criteria.

**Treatment Zone**—the soil profile in a land treatment cell that is located wholly above the saturated zone and within which degradation, transformation, or immobilization of E and P Waste constituents occurs. The treatment zone is subdivided as follows.

**1. Waste Treatment Zone (WTZ)**—the active E and P Waste treatment area consisting solely of the E and P Waste solids applied to a land treatment cell during the application phase, exists entirely above grade (original cell bottom), and whose actual depth depends on the solids content of the E and P Waste applied. For monitoring purposes, the WTZ represents the 0-24" depth increment.

2. **Upper Treatment Zone (UTZ)**—the E and P Waste/native soil (original cell bottom) interface in a land treatment cell where some disturbance occurs as a result of E and P Waste treatment/manipulation. For monitoring purposes, the UTZ represents the 24-36" depth increment.

3. **Lower Treatment Zone (LTZ)**—the zone beneath the UTZ in a land treatment cell from approximately 36-54" (or to the top of the subsurface drainage system) which remains undisturbed throughout the life of a land treatment cell.

**Underground Source(s) of Drinking Water (USDW or USDW's)** —water which contains a sufficient quantity of ground water to supply a public water system, currently supplies drinking water for human consumption or contains fewer than 10,000 mg/l total dissolved solids.

**Upland Area**—an area which is not identified as a wetland and includes farm land, pasture land, recreational land, and residential land.

**Water-Based Drilling Muds**—any water-based fluid composed of fresh water, naturally occurring clays, drilled solids and additives for fluid loss control, viscosity, thinning pH control, weight control, etc., for down-hole rheology and stability.

**Water Well**—any well drilled or constructed for the principal purpose of producing groundwater.

**Water Well Contractor**—a licensed contractor who drills all ground water wells, test and pilot holes, monitoring well, observation wells, heat pump wells and holes, and geotechnical boreholes, and/or plugging and abandoning wells or holes, excluding oil and gas wells.

**Other definitions from the RRC Proposed Rules that need technical corrections are as follows:**

**(25) Contact stormwater** -- Stormwater that has come into contact with any amount of oil and gas wastes **or areas that are permitted to contain oil and gas wastes**, regardless of whether oil and gas waste is currently being contained in the area. See also "Non-contact stormwater" and "Stormwater." The previous wording in red text is incorrect or unnecessary and should be deleted.

The definition for **Contact stormwater** should read as follows:

**Contact stormwater** -- Stormwater that has come into contact with any amount of oil and gas wastes, regardless of whether the oil and gas waste is currently being contained in an area that is permitted to contain oil and gas wastes.

**(64) Non-contact stormwater** -- Stormwater that, **by design or direction**, has not come into contact with **any areas containing** oil or gas wastes **or any areas permitted to contain oil and gas wastes**. See also "Contact stormwater" and "Stormwater." The previous wording in red text is incorrect or unnecessary and should be deleted.

The definition for **Non-contact stormwater** should read as follows:

Non-contact stormwater -- Stormwater that has not come into contact with any amount of oil and gas wastes.

**(97) Wetland** —The definition should add the following wording: Areas designated as wetlands by the National Wetland Inventory (NWI) are considered wetlands unless an actual on-site wetland determination has been done by a qualified wetland specialist that determines that the area does not meet all three criteria for a wetland (hydric soils, wetland vegetation, and wetland hydrology as designated by the U.S. COE).