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

Dear Rules Coordinator,

The Commission recently published its Informal Draft Rules and Proposed Changes to 16 TAC §3.8 and §3.57 and TAC Chapter 4(A) and (B) ("Draft Rules"). The current Draft Rules are cumbersome, difficult to understand and the inconsistencies, omissions, and technically incorrect issues contained in the Draft Rules, will cause the Draft Rules to be unworkable, if they are not corrected.

I am a Professional Geoscientist (P.G.) that has spent the past 40-plus years of my professional career focused on the treatment and disposal of oil and gas wastes. During the mid-1980's, at the request of the State of Louisiana and Oklahoma, I drafted rules governing the disposal of oil & gas waste at both the well site/lease and for commercial disposal facilities in both LA and OK as well as serving as a technical expert for Mid-Continent Oil & Gas Association. I am a co-author of the technical resource manual entitled Hazardous Waste Land Treatment for the U.S. EPA (1983). I was also 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, and prepared closure plans and cost estimates for numerous commercial waste disposal and recycling facilities. 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.

Attached are some suggestions to the Draft Rules for Chapter 4, Part A, and a separate document with possible definitions for your review and consideration. These comments are focused on what are the greatest liability to the Oil & Gas Industry and that is the Commercial Solids Waste Disposal Facilities. 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 Draft Rules, they do highlight the types of issues that will cause the Draft Rules to be unworkable, if they are not corrected. I appreciate the opportunity to provide input into these draft rules. I hope these comments and suggestions are helpful to the Commission, and I would be happy to assist in the further development of these rules, if requested.

It should also be noted that numerous tables were not included in the Draft Rule for review at this time.

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.

Definitions:

There are no definitions of numerous terms, inadequate definitions, and improper, or inconsistent definitions throughout the Draft Regulations (See Definitions)

One example is the Definition of Freeboard which is not consistent between Chapter 4, Parts A & B. (The current Draft Rules for Freeboard in Parts A & B address entirely different issues). The definition in the Draft Rules under **§4.110(39)** is still technically incorrect.

Freeboard is the elevation difference between the top of the fluid level in a pit, land treatment cell, stormwater impoundment, or open top tank, etc. and the lowest level of the top of a berm (not the top of the berm), retaining wall, or tank wall. 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!**

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 Draft 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:

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 (within the property boundary of the commercial facility), has been designated as a wetland 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 criteria 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 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 of the permit application shall consist of a copy of the application together with a statement that any protest to the application must be filed with the Commission within **30 days** of the date the application is date stamped at the Commission or the date notice was last published, whichever is later. **(A 15-day notification period is unrealistic and negatively biased against adjacent surface owners).** If the applicant is given 30-days to respond to the RRC, the protestant should have the same timeline.

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 all permit applications and remain in the Draft Rules.

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.

Statement of Need (Previously included as §4.141):

The statement of need for commercial disposal facilities should be put back into the Draft Rules and it should the 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 and 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 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 what the schematic provided to the Commission for may 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 areas 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 word's "relevant calibration records" in §4.124(4)(1) 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 Draft 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(27).

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. There is no need for "other sources approved by Technical Permitting"; therefore, this verbiage should be removed from the Draft Rules.

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 Draft 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 Draft 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. 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(3) for landfarming, the Draft Rules 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 Draft 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 could result in runoff or tracking of waste offsite.

§4.110(3). **100-year flood plain** – The USDA soils maps were never developed to provide accurate information regarding the 100-year flood plain and should not be used for this purpose. Using the USDA soils maps for this purpose is technically incorrect. This wording should be removed from the Draft Rules. 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.

Thank you for the opportunity to comment on these Draft Rules. If you have any questions, please feel free to contact me.

Respectfully submitted,

NORTHAMERICAN ENVIRONMENTAL
SERVICES, INC (NESCO)

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11-03-23

Definitions

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

A major permit 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 and P Waste disposal activities.

Minor permit 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 shall be approved administratively.

(The following other definitions may or may not be of use to the Commission)

Affected Tract—any real property known or reasonably believed to have suffered 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.

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 telegraphic or 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 to be generated any E and P Waste.

Groundwater Aquifer—water in the saturated zone below the land surface that contains less than 10,000 mg/l TDS.

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 1×10^{-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.

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.

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.

Transporter—includes any common carrier by pipe line, barge, boat or other water conveyance or truck or other conveyance except railroads, and any other person transporting oil by pipe line, barge, boat or other water conveyance, or truck and other conveyance.

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.