

TENORM REGULATION IN NORTH DAKOTA

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TENORM REGULATION

- Regulated by two state agencies under three divisions
 - ND Industrial Commission
 - Oil and Gas Division
 - ND Department of Environmental Quality (DEQ) Division of Waste Management
 - Solid Waste Program-Landfills
 - Radiation Control Program-Well Sites and Facilities

TENORM GENERATORS

- Treating Plants

- Use mechanical means to concentrate NORM
- Facility permitted by Oil and Gas Division
 - Routine Inspections (quarterly)
 - Bond based upon storage capacity
 - Monthly reporting of water and solids disposal
- Radioactive Material License issued by DEQ Radiation Control Program
 - Semi-annual inspections; staff interviews; training and PPE; radiation surveys of multiple areas; manifests; volume records; waste transporters utilized
 - Radiation Safety Officer required; 40 hours of approved classroom training
 - Procedures for assessing tank integrity; annual inspection of interior to detect corrosion
 - Bond generally \$1.125 MM; bond payable to standby trust account for cleanup

TENORM GENERATORS

- Tank Batteries

- Facility permitted by Oil and Gas Division
 - Routine Inspections (quarterly at a minimum)
 - Bonded with associated well(s)
 - Reporting of tank bottom waste removed
- DEQ Radiation Control Program
 - General license required, i.e., permitted by rule
 - Tank bottoms become regulated due to solids settling out over time; anything above tank bottoms (i.e., above clean-out valve) considered natural and not regulated
 - No Bond
 - No routine inspections but authorized

TENORM GENERATORS

- Oilfield Equipment

- Equipment permitted as an appurtenance by Oil and Gas Division
 - Routine Inspections (quarterly at a minimum)
 - Bonded with associated well(s)
- DEQ Radiation Control Program
 - General license required, i.e., permitted by rule
 - No Bond
 - No routine inspections but authorized
 - Scale or sludge becomes regulated due to accumulation

TENORM GENERATORS

- Filter Socks

- Oil and Gas Division

- A leakproof, covered, and labeled container (filters only) is required for each well site beginning when the well is spud through clean-out, completion, and flowback whenever filtration operations are conducted, to store filters until properly disposed
 - Waiver available

- DEQ Radiation Control Program

- General license required, i.e., permitted by rule
 - Solids become regulated due to accumulation
 - Regulate transporters

DECOMMISSIONING OF TENORM FACILITIES OR EQUIPMENT

- Treating Plants

- Oil and Gas Division

- Removal of equipment and reclamation plan; operator provides plan to surface owner
 - Site assessment may be required before and after reclamation

- DEQ Radiation Control Program

- Notify no less than 30 days prior
 - After radiation surveys and sampling submitted, DEQ performs confirmation survey
 - Operator provides survey to landlord or subsequent tenant
 - Must receive DEQ verification and acceptance of survey before vacating, selling, or transferring
 - Have also required above on saltwater disposal sites (destroyed by fire, tank bottoms)
 - Not required on routine tank batteries
 - Equipment must be decontaminated and surveyed; survey must be verified and accepted by DEQ before transferred or sold
 - Twice the background radiation level as upper limit for unrestricted release

TENORM WASTE HAULERS

- Regulated by DEQ
 - Permitted by Solid Waste Program
 - Licensed by Radiation Control Program
 - Radiation Safety Officer required; 8 hours of approved classroom training
 - Quarterly summary report
 - Date
 - Type
 - Quantity
 - Generator
 - Final Disposal Facility

TENORM DISPOSAL-SLURRY FRACTURE INJECTION

- Regulated by two state agencies under two divisions
 - ND Industrial Commission-Oil and Gas Division
 - UIC permit for disposal well
 - Treating Plant permit for surface facility
 - Very little elevated TENORM waste so far
 - ND Department of Environmental Quality (DEQ) Division of Waste Management
 - Radiation Control Program-Well Sites and Facilities

TENORM LANDFILLS

- Regulated by DEQ
 - Permitted by Solid Waste Program
 - Special waste landfills
 - Survey all incoming loads
 - All currently permitted at acceptance of waste up to 5 picocuries per gram of Radium-226 plus Radium-228
 - Regulations allow acceptance of TENORM waste up to 50 picocuries per gram of Radium-226 plus Radium-228; not to exceed 25,000 tons per year or 3,000 tons per month
 - One landfill currently near end of process to accept TENORM waste and increase upper limit to 50 picocuries per gram of Radium-226 plus Radium-228; another has applied
 - Disposal of TENORM contaminated equipment at up to a maximum exposure limit of one hundred microrentgen per hour including background radiation
 - Leachate monitoring for radionuclides
 - Monthly visual inspections; have conducted surveys as deemed necessary
 - Monthly waste acceptance report
 - County moratorium

TENORM LANDFILLS

- Regulated by DEQ
 - Licensed by Radiation Control Program if permitted to accept TENORM waste
 - Draft permit
 - Continuous air monitoring on all four sides of landfill for twelve months; can apply for modification to some other frequency based upon data
 - Quarterly radiation monitoring at landfill boundary

NORM-Non regulated

- Drill Cuttings
- Produced Water
 - Both natural

TENORM AND ORPHAN WELLS

- Plugging of wells follows typical well plugging procedures
- Disposal of TENORM contaminated equipment and soil at authorized locations

STANDARDS FOR UNRESTRICTED RELEASE

- Alpha Emitters

- Removable 15 pCi over 100 cm² avg 45 pCi over 100 cm² max
- Total (fixed) 150 pCi over 100 cm² avg 2,250 pCi over 100 cm² max

- Beta-Gamma Emitters

- Removable 100 pCi over 100 cm² avg 500 pCi over 100 cm² max
- Total (fixed) 0.25 mrem/hour max

- Soil

- Concentration of radionuclides above background
- 5 picocuries per gram of soil averaged over 15 cm thickness more than 15 cm below surface

TENORM VOLUMES

- Hauled out of State to approved facilities
 - 2015 86,880 tons
 - 2016 60,465 tons
 - 2017 109,935 tons
 - 2018 102,434 tons
 - 2019 121,212 tons
 - 2020 35,977 tons
 - 2021 50,705 tons
 - 2022 16,570 tons through Q2