NORM/TENORM Compliance Audit

Program Audit Checklist

Facility Name:	
Auditor:	
Date:	
Audit Period:	

Regulatory References

The following regulations and guidance documents are applicable to this program audit. Click any link to view the full text.

Regulation / Guidance Document
EPA — TENORM: Oil and Gas Production Wastes
OSHA 29 CFR 1910.1096 — Ionizing Radiation (Occupational Dose Limits)
Texas RRC — NORM (Naturally Occurring Radioactive Material)
CRCPD Part N — Suggested State Regulations for Control of TENORM
IOGCC TENORM Reference Guide (2022)
49 CFR 173 Subpart I — Radioactive Materials Transportation
North Dakota DEQ — TENORM Regulations

Instructions: Review each audit item and record findings in the Status and Notes columns. Use C (Compliant), NC (Non-Compliant), NA (Not Applicable), or NR (Needs Review) for the status. Document specific findings, evidence reviewed, and any corrective actions needed in the Notes column.

NORM Program Documentation

Audit Item	Expected Finding	Status	Notes / Evidence
Written NORM management plan	Written NORM/TENORM management plan or radiation protection plan exists covering: program scope, responsible personnel, survey protocols, worker protection measures, waste handling and disposal procedures, equipment labeling requirements, decontamination procedures, and training requirements. Plan is reviewed and updated periodically. » *Ref: State-specific; CRCPD Part N; 10 CFR 20.1101 (model)*		
State regulatory identification	All applicable state NORM/TENORM regulations have been identified for each state where the company operates. Licensing or registration requirements are understood and fulfilled. State-specific disposal limits, exemption levels, and reporting requirements are documented and communicated to field personnel. » *Ref: Varies by state (TX: 16 TAC §4.601; LA: LAC 33:XV; ND: NDAC 33-10-20)*		
Roles and responsibilities	Radiation Safety Officer (RSO) or designated NORM coordinator is assigned with defined responsibilities. RSO qualifications meet state		

Audit Item	Expected Finding	Status	Notes / Evidence
	requirements. Organizational chart shows NORM program reporting structure. Contact information for state radiation control agencies is readily available. » *Ref: State licensing regs; CRCPD Part N §N.5*		

Radiation Surveys and Monitoring

Audit Item	Expected Finding	Status	Notes / Evidence
Baseline and periodic surveys	Baseline NORM surveys have been conducted on production equipment, piping, vessels, and facilities. Periodic resurveys are scheduled at frequencies consistent with state requirements and operational changes. Survey results are documented with date, surveyor, instrument used, background readings, and contact readings for each item surveyed. » *Ref: State-specific; TX: 25 TAC §289.202; CRCPD Part N §N.7*		
Survey instrumentation	Radiation survey instruments are appropriate for detecting NORM (gamma detectors capable of measuring low-energy gamma from Ra-226/228). Instruments are calibrated per manufacturer specifications and at intervals required by state regulations (typically annually). Calibration certificates are current and on file. » *Ref: State calibration regs; ANSI N323A*		
Survey documentation and mapping	Survey results are mapped or tabulated showing radiation levels at specific locations on equipment and facilities. Results are compared to state-specific action levels and background readings. Equipment and areas exceeding action levels are identified for further characterization, labeling, or remediation. » *Ref: State-specific recordkeeping; CRCPD Part N §N.7*		
Worker exposure monitoring	Personnel who routinely handle NORM-contaminated materials or work in areas with elevated radiation levels are monitored for exposure. Dosimetry (TLD badges or equivalent) is provided where required by state regulations or where exposures may approach occupational limits. Exposure records are maintained per OSHA 29 CFR 1910.1096 and state requirements. » *Ref: 29 CFR 1910.1096(d)-(e); state dose limits*		

Waste Characterization and Disposal

Audit Item	Expected Finding	Status	Notes / Evidence
Waste characterization	NORM/TENORM waste streams are characterized by laboratory analysis for radium-226, radium-228, and other applicable radionuclides. Characterization includes concentration (pCi/g), volume/mass, and waste matrix (scale, sludge, soil, produced water, filter media). Characterization data supports proper disposal pathway determination.		

Audit Item	Expected Finding	Status	Notes / Evidence
	» Ref: State-specific; TX: 16 TAC §4.614; CRCPD Part N §N.10		
Disposal pathway compliance	NORM/TENORM waste is disposed of using methods approved by the applicable state: injection into permitted Class II wells, burial on-site in plugged and abandoned wells, disposal at licensed NORM disposal facilities, or landfill disposal where state-specific concentration limits allow. Disposal manifests and receipts are maintained. » Ref: State-specific (TX: 16 TAC §4.616-4.630; ND: NDAC 33-10-20)		
Produced water management	Produced water containing NORM is managed per state requirements. Radium concentrations in produced water are known. Disposal by injection, treatment, or other approved methods is documented. Surface discharge of NORM-containing produced water is prohibited or conducted only under specific permit conditions. » Ref: State UIC/disposal reqs; 40 CFR 144 (Class II wells)		
Prohibited disposal methods	Prohibited disposal methods are understood and communicated: road spreading of NORM waste is prohibited in most states, uncontrolled surface disposal is prohibited, and dilution for the purpose of meeting disposal limits is prohibited. No evidence of improper disposal practices exists. » Ref: State-specific prohibitions; TX: 16 TAC §4.618		

Equipment Management and Decontamination

Audit Item	Expected Finding	Status	Notes / Evidence
Equipment labeling and tagging	NORM-contaminated equipment is identified with clearly visible waterproof tags or markings reading “NORM” (plus translations where non-English-speaking workers are present). Tags include the date identified and contact radiation level. Labeling is maintained when equipment is moved, stored, or transferred. » Ref: TX: 16 TAC §4.609; state-specific labeling reqs		
Equipment release criteria	Decontaminated equipment meets state-specific release criteria for unrestricted use before being returned to service, sold, or scrapped. Release surveys are conducted and documented. Equipment that cannot be decontaminated to release levels is managed as NORM-contaminated material. » Ref: State-specific release levels; TX: 25 TAC §289.259		
Decontamination procedures	Decontamination of NORM-contaminated equipment is performed by or under the supervision of personnel licensed by the state radiation control agency (e.g., DSHS specific licensee in Texas). Decontamination waste (wash water, removed scale) is characterized and disposed of properly. Decontamination records are maintained.		

Audit Item	Expected Finding	Status	Notes / Evidence
	» Ref: State licensing regs; TX DSHS specific license		
Scrap metal and recycling controls	NORM-contaminated equipment is not released for scrap or recycling without proper decontamination and release survey. Scrap metal loads are surveyed for NORM before release to recycling facilities. Documentation of NORM-free status accompanies released equipment. » Ref: State-specific; NRC Reg Guide 1.86 (release criteria)		

Worker Protection and Training

Audit Item	Expected Finding	Status	Notes / Evidence
ALARA program implementation	An ALARA (As Low As Reasonably Achievable) approach is implemented to minimize worker radiation exposure through: minimizing time near NORM sources, maximizing distance from contamination, using shielding where practical, and using appropriate PPE (respiratory protection, gloves, coveralls) when handling NORM materials. » Ref: 29 CFR 1910.1096; 10 CFR 20.1101(b) (model); CRCPD Part N		
NORM awareness training	All workers who may encounter NORM in their duties receive initial NORM awareness training covering: what NORM is, where it is found in oil and gas operations, health hazards, how to recognize NORM-contaminated equipment (tags/labels), and reporting procedures. Training is documented and refreshed at intervals required by the NORM management plan. » Ref: State-specific; CRCPD Part N §N.6; 29 CFR 1910.1096(i)		
Specialized NORM handler training	Workers who handle, transport, characterize, or dispose of NORM waste receive additional specialized training covering: radiation survey techniques, proper PPE selection and use, waste packaging and labeling, transportation requirements, emergency procedures for NORM spills, and applicable state regulations. Training records include date, content, trainer qualifications, and attendee verification. » Ref: State licensing regs; DOT 49 CFR 172.704 (HazMat training)		
Emergency procedures for NORM releases	Procedures exist for responding to unplanned NORM releases (spills, equipment failures, transportation incidents). Procedures address: area isolation, notification of RSO and state agency, exposure assessment, cleanup methods, waste management, and incident documentation. Emergency contacts are posted. » Ref: State-specific; DOT ERG; 29 CFR 1910.120 (HAZWOPER)		

Recordkeeping and Reporting

Audit Item	Expected Finding	Status	Notes / Evidence
Survey and characterization records	All radiation survey records, waste characterization analyses, and equipment survey logs are retained for the period required by state regulations (typically 3-5 years or life of facility). Records are organized by facility, date, and equipment and are readily retrievable for regulatory inspection. » *Ref: State retention reqs; 29 CFR 1910.1096(d)(2)*		
Disposal and transfer records	Records of all NORM waste disposal events include: date, waste description, volume/mass, radionuclide concentrations, disposal facility name and permit number, manifest or tracking numbers, and transporter information. Transfer of NORM-contaminated equipment is documented with receiving party and NORM status. » *Ref: State-specific; TX: 16 TAC §4.622; manifest reqs*		
Worker exposure records	Individual radiation exposure records are maintained for the duration of employment plus 30 years (per OSHA and most state requirements). Records include worker identity, dosimetry results, bioassay results where applicable, and cumulative dose. Records are accessible to the worker upon request. » *Ref: 29 CFR 1910.1096(d)-(o); state retention reqs (30+ years)*		
Regulatory reporting compliance	All state-required NORM reports are submitted on time, including: initial notifications to the state radiation control agency, annual NORM reports where required, disposal reports, incident reports for NORM spills or overexposures, and license or registration renewals. » *Ref: State-specific notification/reporting requirements*		

Corrective Actions Summary

#	Finding	Corrective Action	Responsible	Due Date
1				
2				
3				
4				
5				

Audit Sign-Off

Auditor Name:

Auditor Signature:

Date Completed:

Reviewed By:

Review Date:

Status Key: C = Compliant | NC = Non-Compliant | NA = Not Applicable | NR = Needs Review