



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 1 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

1. ABOUT THIS PROTOCOL

Purpose	This protocol was established to manage Naturally Occurring Radioactive Material (NORM) responsibly and within regulatory requirements.
Objective	This protocol establishes requirements to identify and manage facilities and equipment known or suspected to contain NORM.
Scope	This protocol defines the identification of NORM requirements; NORM exemption limits; general license requirements; warnings, signage, and labeling requirements; protection of employees, contractors, and the environment; and the transfer/release requirements.
Applicability	Devon employees who are responsible for, work with, operate, or survey equipment that has or has the potential to contain NORM material.
Variations	None.
Superseded Documents	NORM Implementation Plan 210-IP.



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 2 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

2. TABLE OF CONTENTS

1.	About this Protocol	1
2.	Table of Contents.....	2
3.	Roles.....	4
4.	Protocol Prerequisites	5
4.1	Protocol Overview	5
4.2	Applicable Standards.....	5
4.3	Required Materials, Equipment, Information, or Other Resources	5
5.	Protocol.....	6
5.1	Identification of NORM	6
5.2	NORM Exemption Limits	7
5.3	General License Requirements.....	9
5.4	Warnings, Signage, and Labeling Requirements	9
5.5	Protection of Employees, Contractors, and the Environment	10
5.6	Transfer/Release of NORM Property and Material.....	12
6.	Terms and Definitions.....	14
7.	Document Management.....	16
7.1	Revision Details	16
7.2	Approval	16
7.3	Seeking and Approving Variances	16
7.4	Related Documents	16
7.5	Cited Documents	17
8.	Additional Related Information	18
8.1	Training and Certification Requirements	18
8.2	Records/Logs/Reports	18
	Appendix A: State NORM Regulatory Requirements.....	20
	Appendix B: Procedures for NORM Surveying.....	21
	Appendix C: Procedures for NORM Sampling.....	22
	Appendix D: Instructions for Shipping NORM Samples	23



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 3 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

Appendix E: Instructions for Interpreting Laboratory Results 24

Appendix F: General License Requirements 25

Appendix G: Sample NORM Worker Protection Procedures 26

Appendix H: Notice to Employees Forms 27

Attachment A: Approval, Review, and Modification History 28

Attachment B: NORM Survey Form 29

Attachment C: Illustrative NORM Survey Forms 30

Hierarchy Level: Procedure	Document Type: Protocol	Page: 4 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

3. ROLES

Division/Business Unit Leadership	Reinforce adherence to this protocol and hold others accountable to provide resources for application of the protocol. Ensure employees receive required training.
Line Supervisor	Understand how this protocol applies to personnel in their area of responsibility. Ensure employees have training, skills, knowledge and understanding to comply with this protocol. Check periodically to ensure the requirements of this protocol are being met.
Environmental, Health, and Safety	Provide technical resources and tools for protocol application. Monitor compliance through the audit process.
Devon Employees	Adhere to the requirements of this protocol. Identify and report gaps in this protocol. Complete required training.
Contract Company Representative	Comply with regulatory requirements and follow the Devon EHS protocol.
Radiation Safety Officer	Provide technical resources and tools to maintain regulatory compliance. Ensure that the requirements of the general license (if applicable) as well as State/Federal regulations are properly met and implemented. Ensure that work can be accomplished in a radiologically sound manner. Complete required training.
NORM Surveyor I	Conduct surveys for NORM contamination.
NORM Surveyor II	Conduct surveys for NORM contamination, NORM sampling, and/or shipping of NORM samples for laboratory analysis.
Specifically Licensed Contractor	Conduct work in compliance with applicable agency NORM regulations.



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 5 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

4. PROTOCOL PREREQUISITES

4.1 PROTOCOL OVERVIEW

This protocol outlines requirements for the identification of NORM equipment, and establishes conditions for the protection of employees, contractors, and the environment.

Note: Where state NORM regulatory requirements exist, they will be followed. Where no state NORM regulatory requirements exist, this protocol outlines the minimum requirements. The local field office Devon Waste Management Plan will be followed to address NORM waste and disposal for each operating area.

4.2 APPLICABLE STANDARDS

- 29 CFR 1910.1096 – Ionizing Radiation
- 10 CFR Part 20 – Standards for Protection Against Radiation
- 10 CFR Part 71 – Packaging and Transportation of Radioactive Material
- 49 CFR Part 171 – General Information, Regulations, and Definitions
- 49 CFR Part 172 – Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, Training Requirements, and Security Plans
- 49 CFR Part 173 – Shippers – General Requirements for Shipments and Packaging
- 49 CFR Part 174 – Carriage by Rail
- 49 CFR Part 175 – Carriage by Aircraft
- 49 CFR Part 176 – Carriage by Vessel
- 49 CFR Part 177 – Carriage by Public Highway
- 49 CFR Part 178 – Specifications for Packaging
- 49 CFR Part 179 – Specifications for Tank Cars
- 20.3.4 NMAC – Standards for Protection Against Radiation
- 20.3.14 NMAC – Naturally Occurring Radioactive Materials (NORM) in the Oil and Gas Industry
- 16 TAC Part 1 Chapter 4 Subchapter F – Oil and Gas NORM
- 25 TAC Part 1 Chapter 289 – Radiation Control
- WDEQ SHWD Guideline #24 – Naturally Occurring Radioactive Material (NORM) Management in Wyoming
- WDEQ SHWD Guideline #10 – Waste Screening
- Devon Waste Management Protocol

4.3 REQUIRED MATERIALS, EQUIPMENT, INFORMATION, OR OTHER RESOURCES

NORM Survey instruments to include scintillation and Geiger-Mueller detectors for the identification of NORM.



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 6 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

5. PROTOCOL

5.1 IDENTIFICATION OF NORM

Step	Required Action	Role
5.1.1	<p>NORM surveys will be conducted in accordance with state regulatory requirements if applicable (see Appendix A). In addition to state regulatory requirements, NORM surveys will be performed for all of the following events (where NORM is known to exist):</p> <ul style="list-style-type: none"> • Prior to any transfer of equipment/tubulars to another operator, the general public, or a salvage firm • Prior to the movement or removal of equipment/tubulars from any facility or facility reclamation • Prior to the cleaning or opening of equipment • At facilities where pipe has been cleaned • At facilities where NORM contaminated material is known to have been spread, spilled, or stockpiled 	Line Supervisor
<p>Note: Contact the Radiation Safety Officer (RSO) for guidance.</p>		
5.1.2	<p>NORM surveys will be conducted in a manner that provides a thorough assessment of where NORM hazards exist from material and property, including but not limited to:</p> <ul style="list-style-type: none"> • Equipment and/or soils at pipe/equipment storage areas • Vessels • Tubulars • Tanks • Any other equipment that has been in contact with produced gas or fluid 	Line Supervisor
5.1.3	NORM surveys will be conducted by employees who are trained/qualified.	NORM Surveyor I/II
5.1.4	NORM surveys will be conducted in accordance with procedures for NORM surveying located in Appendix B.	NORM Surveyor I/II
5.1.5	<p>NORM sampling may be conducted when necessary if survey results indicate the radiation exposure reading is:</p> <ul style="list-style-type: none"> • Greater than twice the background reading for soil/land • Greater than or equal to 50 µR/hr including background for equipment/tubulars 	NORM Surveyor II/Radiation Safety Officer/Specifically Licensed Contractor



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 7 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

5.1.6 NORM sampling will be conducted in accordance with procedures for NORM sampling located in Appendix C. NORM Surveyor II/Radiation Safety Officer

5.1.7 NORM samples will be shipped in accordance with the instructions for shipping NORM samples located in Appendix D. NORM Surveyor II/Radiation Safety Officer/HAMAT Shipper

5.1.8 Review NORM sample laboratory results to determine if the material is exempt from NORM regulations or if the Department of Transportation (DOT) will regulate the NORM shipment as radioactive. Instructions for interpreting laboratory results are located in Appendix E. Radiation Safety Officer/Specifically Licensed Contractor

5.2 NORM EXEMPTION LIMITS

Step	Required Action	Role
5.2.1	The following products/materials are exempt from NORM requirements: <ul style="list-style-type: none"> Natural gas and natural gas products Crude oil and crude oil products Produced water from oil and gas production if it is re-injected in a well approved by the agency having jurisdiction to regulate such discharge 	Line Supervisor

5.2.2 NORM exemption limits will be in accordance with the state regulatory requirements or as listed in the table below where no state regulatory requirements exist. Line Supervisor

State	Exemption Level
New Mexico	Equipment/Tubulars: <ul style="list-style-type: none"> Less than or equal to 50 μR/hr including background at any accessible point Waste: <ul style="list-style-type: none"> Less than or equal to 30 pCi/g Ra-226 <ul style="list-style-type: none"> Sludges and scales in production equipment are exempt if the maximum radiation exposure reading does not exceed 50 μR/hr Soil:



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 8 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

	<ul style="list-style-type: none"> • Less than or equal to 30 pCi/g Ra-226 above background, or less than or equal to 150 pCi/g above background of any other NORM radionuclide in 15 cm layers, averaged over 100 m² <ul style="list-style-type: none"> ○ Soil is exempt if the maximum radiation exposure reading does not exceed twice background
Texas	<p>Equipment/Tubulars:</p> <ul style="list-style-type: none"> • Less than or equal to 50 µR/hr including background at any accessible point <p>Waste:</p> <ul style="list-style-type: none"> • Less than or equal to 30 pCi/g Ra-226 or Ra-228, or less than or equal to 150 pCi/g of any other NORM radionuclide <ul style="list-style-type: none"> ○ Scale or residue in production equipment is exempt if the maximum radiation exposure reading does not exceed 50 µR/hr <p>Soil:</p> <ul style="list-style-type: none"> • Less than or equal to 30 pCi/g Ra-226 or Ra-228, or less than or equal to 150 pCi/g of any other NORM radionuclide in 15 cm layers, averaged over 100 m²
Wyoming (Guidelines)	<p>Equipment/Tubulars:</p> <ul style="list-style-type: none"> • Less than or equal to 50 µR/hr including background at any accessible point <p>Waste/Soil:</p> <ul style="list-style-type: none"> • Between background and 30 pCi/g Ra-226: up to 20 cubic yards in State-permitted solid waste disposal facility with landfill operator approval • 30-50 pCi/g Ra-226: up to 10 cubic yards in State-permitted solid waste disposal facility with landfill operator approval • <50 pCi/g Ra-226: cannot be disposed in conventional solid waste facilities in Wyoming
Oklahoma	<p>Equipment/Tubulars:</p> <ul style="list-style-type: none"> • Less than or equal to 50 µR/hr including background at any accessible point <p>Waste/Soil:</p> <ul style="list-style-type: none"> • Contact RSO for guidance

Note: Contact the RSO for guidance.



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 9 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

5.3 GENERAL LICENSE REQUIREMENTS

Step	Required Action	Role
5.3.1	A general license is required by some states to mine, extract, receive, possess, own, use, process, and transfer NORM not exempt in the exemption limits. Note: New Mexico and Texas have general license requirements (see Appendix F). Contact the RSO for guidance.	Radiation Safety Officer

5.4 WARNINGS, SIGNAGE, AND LABELING REQUIREMENTS

Step	Required Action	Role
5.4.1	Equipment/tubulars with NORM in excess of the levels specified in the exemption limits shall be identified with the letters "NORM" by: <ul style="list-style-type: none"> Attaching a clearly visible waterproof sign, or Marking with waterproof paint or ink 	NORM Surveyor I/II

5.4.2 Post caution signs for the following designated areas:

Caution Sign	Posting Requirements for Designated Areas
Restricted Area	Accessible areas with exposure rates: <ul style="list-style-type: none"> Greater than 2000 $\mu\text{R/hr}$ Areas where a member of the public could receive a total effective dose greater than 0.1 rem/year, exclusive of background and medically administered radiation or radioisotopes
Radiation Area	Areas with greater than 5000 $\mu\text{R/hr}$ 30 cm (1 foot) from the source of radiation
High Radiation Area	Areas with greater than 100,000 $\mu\text{R/hr}$ 30 cm (1 foot) from the source of radiation
Radioactive Material Area	Areas where greater than 1 μCi of Ra-226 is stored
Calculations for Radioactive Material Area	
A total of 1 μCi of Radium-226 can be exceeded by having 440 pounds of material contaminated at 5 pCi/g, or by having 73 pounds of material contaminated at 30 pCi/g.	

Radiation Safety Officer



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 10 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

The calculations used to estimate the volume values are given below. It is a responsibility of the RSO to decide whether an area meets a “radioactive material area” posting requirement.

$$\frac{1 \mu\text{Ci}}{\text{-----}} = 440 \text{ pounds}$$

$$5\text{pCi/g} * 454 \text{ g/lb} * 0.000001 \mu\text{Ci/pCi}$$

$$\frac{1 \mu\text{Ci}}{\text{-----}} = 73 \text{ pounds}$$

$$30\text{pCi/g} * 454 \text{ g/lb} * 0.000001 \mu\text{Ci/pCi}$$

Airborne Radioactivity Area	Areas where 1 Derived Air Concentration (DAC) value is exceeded
-----------------------------	---

Regulatory Derived Air Concentration (DAC) Values

The regulatory DAC value for:

- Radium-226 in air is $3 * 10^{-10}$ $\mu\text{Ci/ml}$, and
- Radium-228 in air is $5 * 10^{-10}$ $\mu\text{Ci/ml}$.

Determine whether 1 DAC value is exceeded by:

- Taking an air sample in the area, and
- Performing a laboratory analysis of that air sample.

Note: RSO’s should take air samples at the boundaries of Restricted Areas when performing work which may cause radioactive material to become airborne.

5.5 PROTECTION OF EMPLOYEES, CONTRACTORS, AND THE ENVIRONMENT

Step	Required Action	Role
5.5.1	Reduce exposure to NORM by using a combination or all of the following methods: <ul style="list-style-type: none"> • The As Low As Reasonably Achievable (ALARA) concept • Personal Protective Equipment (PPE) • Written NORM worker protection procedures • Personnel training 	Employee
<p>Note: Additional requirements may be necessary for restricted areas. Contact the RSO for guidance.</p>		



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 11 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

5.5.2 Practice the ALARA concept when working around NORM contaminated equipment and facilities by: Employee

- Limiting the amount of time spent in an area of known NORM contamination
- Working at the maximum possible distance from NORM
- Using shielding to contain NORM material
- Wearing PPE when handling NORM contaminated equipment and/or NORM waste

5.5.3 In addition to mandatory PPE: Employee

- Wear gloves when performing NORM surveys, sampling, or routine maintenance work
- Wear disposable clothing coveralls and boot covers if needed

Note: When selecting gloves, be sure the style selected is suitable for the type of work being performed. If heavy, rough work is to be performed, protective gloves should be placed over nitrile gloves. Contact the RSO if questions about PPE arise.

5.5.4 Follow written NORM worker protection procedures whenever performing routine maintenance work on equipment and/or facilities contaminated with NORM above the exemption limits. See Appendix G for sample NORM worker protection procedures. Employee

5.5.5 Where applicable, state specific “Notice to Employees” forms must be posted in the local field office where NORM exists. See Appendix H for forms. EHS

5.5.6 Use specifically licensed contractors for non-routine (e.g., vessel or tank entry, sludge and scale handling/removal, equipment decontamination, any work activity where NORM inhalation is unavoidable) work on equipment or facilities contaminated with NORM above the exemption limits. Radiation Safety Officer

Note: Contact the RSO for guidance.

5.5.7 Contractors will be notified of potential NORM hazards by one of the following: Line Supervisor

- Signage
- Pre-job meeting
- Contractor orientation



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 12 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

- 5.5.8 Prevent contamination of the soil or other equipment by: Employee
- Sealing out-of-service and/or stored NORM contaminated equipment in plastic, or close all fittings to prevent NORM dust or scale from collecting on soil
 - Place plastic covers on the ground or use containers when opening NORM contaminated equipment to contain any material which may be deposited on the ground

5.6 TRANSFER/RELEASE OF NORM PROPERTY AND MATERIAL

Step	Required Action	Role
5.6.1	The transfer of non-exempt NORM from Devon to another oil and gas operator is allowed provided that the NORM equipment and/or facilities are to be used by the recipient for the same purpose or at the same site.	Line Supervisor
5.6.2	Land/soil can be released to the public if it contains NORM at activity levels that meet the exemption level.	Line Supervisor
5.6.3	Decontamination should be performed on NORM contaminated material/property to reduce radiation levels below the exemption limits for the release of unrestricted use.	Radiation Safety Officer
5.6.4	The decontamination of NORM contaminated material/property shall only be performed by persons specifically licensed by: <ul style="list-style-type: none"> • The U.S. Nuclear Regulatory Commission • The state where the decontamination work is being performed • An agreement state • Another licensing state • Otherwise authorized by the appropriate regulatory department/agency 	Radiation Safety Officer
Note: The RSO is responsible for providing a list of specifically licensed contractors.		
5.6.5	Non-exempt NORM waste will be managed and disposed in accordance with applicable state and federal regulatory requirements.	EHS/Radiation Safety Officer
Note: See the area Waste Management Plan.		



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 13 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

5.6.6 Maintain records of transfers for treatment/decontamination /disposal as required by the Waste Management Protocol. EHS



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 14 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

6. TERMS AND DEFINITIONS

Accessible Point An external location on a piece of equipment or place in a facility where NORM may be present.

Activity Level A level in picocuries/gram determined by collecting a sample and sending it to a radiological laboratory for analysis.

Agreement State A state that has entered into an agreement with the U.S. Nuclear Regulatory Commission under subsection 274b of the Atomic Energy Act of 1954, as amended (68 Stat. 919), to assume responsibility for regulating within its borders byproduct, source, or special nuclear material in quantities not sufficient to form a critical mass.

Confirmatory Survey A survey of potentially contaminated land, equipment, or sites in order to establish, with reasonable certainty, the absence or magnitude of NORM contamination.

Contamination Survey A use of swipes or direct instrument surveys to identify and quantify radioactive material on equipment or on personnel.

Counts per minute (Cpm) A number of radioactive decays per minute detected by an instrument.

Date of Generation A date of the first addition of waste into the container.

Decontamination A cleaning process of removing NORM contaminants from equipment/tubulars or facilities to reduce levels of radiation.

Disintegration per minute (Dpm) A number of radioactive decays per minute taking place within the material.

General License A license issued to mine, extract, receive, possess, own, use, process, and transfer NORM not exempt in the NORM Exemption Limits topic without regard to quantity.

Hierarchy Level: Procedure	Document Type: Protocol	Page: 15 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

Microroentgen / hour ($\mu\text{R/hr}$) A unit of gamma exposure rate used when measuring gamma radiation exposure rate associated with NORM contaminated equipment with a scintillation instrument.

Millirem (mrem) A unit of radiation dose.

Non-Routine Work A task where the risk of significant NORM exposure is high and/or the creation of airborne NORM is unavoidable.

Naturally Occurring Radioactive Material (NORM) A nuclide that is radioactive in its natural physical state (i.e., not man-made), but not including source, byproduct, or special nuclear material.

Picocuries/ gram ($\mu\text{Ci/g}$) A unit of activity level of material determined by taking a material sample and sending it for analysis to a radiological laboratory.

Radiation Exposure Rate A measurement in $\mu\text{R/hr}$ determined by using a scintillation instrument such as the Ludlum Model 2241 digital survey meter with a Ludlum 44-2 scintillation probe.

Radiation Survey A measurement with a scintillation instrument to evaluate and assess the presence of radioactive materials or other sources of radiation.

Release Criterion A level of activity, exposure rate, or surface count rate, below which equipment/tubular, materials, or land areas can be released for unrestricted use.

Routine Maintenance Work A task where the risk of significant NORM exposure is low and/or the creation of airborne NORM is avoidable.

Total Effective Dose Equivalent (TEDE) A sum of the deep dose equivalent for external exposures plus the committed effective dose equivalent for internal exposures, generally expressed in units of millirem.

Unrestricted Use A use that does not have controls in place to protect an individual member of the public from exposure to radiation or radioactive material.

Hierarchy Level: Procedure	Document Type: Protocol	Page: 16 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

7. DOCUMENT MANAGEMENT

7.1 REVISION DETAILS

The following changes were made to this Protocol during the latest revision:

Section	Changes Made	Reasons for Change
All	N/A	Initial Approval

7.2 APPROVAL

This procedure has been approved by:

Name	Title
Garrett Jackson	VP, Operations & EHS

7.3 SEEKING AND APPROVING VARIANCES

Variations to this document will be submitted in accordance with the EHS Document Control and Records Management Protocol.

7.4 RELATED DOCUMENTS

Document Name
API Bulletin E2 – Access through IHS Engineering Workbench
Procedures for NORM Surveying
Procedures for NORM Sampling
Instructions for Shipping NORM Samples
Instructions for Interpreting Laboratory Results
NORM Sample Worker Protection Procedures
Radiation Safety – New Mexico Notice to Employees
Radiation Safety – Oklahoma Notice to Employees
Radiation Safety – Texas Notice to Employees
NORM Survey Form
Illustrative NORM Survey Forms



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 17 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

7.5 CITED DOCUMENTS

Reference #	Citation or Source
None.	



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 18 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

8. ADDITIONAL RELATED INFORMATION

8.1 TRAINING AND CERTIFICATION REQUIREMENTS

Step	Required Action	Role
8.1.1	Provide NORM Awareness training for any employee that works at a site and/or facility where NORM is present.	Line Supervisor
8.1.2	Provide NORM Worker Protection Procedure training for any employee who will be performing routine maintenance work on equipment with NORM above the exemption limits.	Line Supervisor
8.1.3	Provide NORM Surveyor I training for any employee who will conduct equipment/tubular surveys for NORM contamination at a site and/or facility.	Line Supervisor
8.1.4	Provide NORM Surveyor II training for any employee who will survey for NORM contamination, perform NORM sampling, and/or conduct shipment of NORM sample for laboratory analysis.	Line Supervisor
8.1.5	Provide Radiation Safety Officer (RSO) training for any employee who will be performing the duties of NORM RSO.	Line Supervisor

8.2 RECORDS/LOGS/REPORTS

Step	Required Action	Role
8.2.1	File the records as noted below:	Employee

Record	File Location & Number	Retention Time	Enterprise Classification Structure Code
NORM surveys		EVT + 30 years (EVT = superseded or discontinued)	EH47
Survey instrument calibration		EVT + 30 years (EVT = superseded or discontinued)	EH47
Personal monitoring records		EVT + 30 years	EH49



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 19 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

		(EVT = termination of employment)	
Training records		EVT + 5 years (EVT (for training programs) = training program is superseded or is no longer in effect) (EVT (for training attendance and certification) = termination of employment)	EH90 & HR80
Records of transfers for treatment/decontamination /disposal		EVT + 30 years (EVT = substance no longer present at site)	EH40

Note: The Records Management Enterprise Classification Structure Code is listed as a reference, which should be utilized when records are sent to stored records.



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 20 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

APPENDIX A: STATE NORM REGULATORY REQUIREMENTS

New Mexico

- [20.3.4 NMAC – Standards for Protection Against Radiation](#)
- [20.3.14 NMAC – Naturally Occurring Radioactive Materials \(NORM\) in the Oil and Gas Industry](#)

Texas

- [16 TAC Part 1 Chapter 4 Subchapter F – Oil and Gas NORM](#)
- [25 TAC Part 1 Chapter 289 – Radiation Control](#)

Wyoming

- [WDEQ SHWD Guideline #24 – Naturally Occurring Radioactive Material \(NORM\) Management in Wyoming](#)
- [WDEQ SHWD Guideline #10 – Waste Screening](#)



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 21 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

APPENDIX B: PROCEDURES FOR NORM SURVEYING

[Procedures for NORM Surveying Link](#)



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 22 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

APPENDIX C: PROCEDURES FOR NORM SAMPLING

[Procedures for NORM Sampling Link](#)



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 23 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

APPENDIX D: INSTRUCTIONS FOR SHIPPING NORM SAMPLES

[Instruction for Shipping NORM Samples Link](#)



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 24 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

APPENDIX E: INSTRUCTIONS FOR INTERPRETING LABORATORY RESULTS

[Instructions for Interpreting Laboratory Results Link](#)

Hierarchy Level: Procedure	Document Type: Protocol	Page: 25 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

APPENDIX F: GENERAL LICENSE REQUIREMENTS

In New Mexico and Texas, a general license is issued by rule, and coverage under a general license is automatic once the operator has identified the presence of NORM in excess of the levels specified in the exemption limits.

New Mexico

- [20.3.14.1410 NMAC General License](#)

Texas

- [25 TAC Part 1 Chapter 289.251 Exemptions, General Licenses, and General Licenses Acknowledgments](#)



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 26 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

APPENDIX G: SAMPLE NORM WORKER PROTECTION PROCEDURES

[Sample NORM Worker Protection Procedures Link](#)



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 27 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

APPENDIX H: NOTICE TO EMPLOYEES FORMS

New Mexico

- [Notice to Employees](#)

Oklahoma

- [Notice to Employees](#)

Texas

- [Notice to Employees](#)



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 28 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

ATTACHMENT A: APPROVAL, REVIEW, AND MODIFICATION HISTORY

Revision Number	Approved/Revised/ Reviewed By	Approval/Revision/ Review Date	Description (Initial Approval, Revision, or Review along with further details of revision if needed)
00	Garrett Jackson	12/22/2020	<ul style="list-style-type: none">Initial Approval



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 29 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

ATTACHMENT B: NORM SURVEY FORM

[NORM Survey Form Link](#)



NORM Protocol

Hierarchy Level: Procedure	Document Type: Protocol	Page: 30 of 30
Owner: VP, EHS	Applies to: Devon US	Doc. ID: 112973714
Last Revised: 12/22/2020	Review Cycle: Every 3 Years	Implemented: 12/22/2020

ATTACHMENT C: ILLUSTRATIVE NORM SURVEY FORMS

[Illustrative NORM Survey Forms Link](#)