

A large industrial refinery or chemical plant at night, illuminated by bright lights. The scene is dominated by tall distillation columns, complex piping, and multiple levels of walkways. A plume of white smoke or steam rises from a stack on the left. The overall atmosphere is industrial and dramatic, with a color palette of blues, greys, and bright white highlights from the lights.

# IPS ITCS

Industrial Performance Services      Industrial Tubular Catalyst Services

## NORM AWARENESS PROCEDURE

# NORM Awareness Procedure

January 2023

## 1.0 Purpose

The purpose of this workers protection plan is to provide guidelines for the safety and welfare of IPS★ITCS employees working in and around areas where Naturally Occurring Radioactive Material (NORM) contamination may be present. This plan will also provide guidance to aid in minimizing the spread of NORM contamination.

## 2.0 Scope

This procedure applies to all IPS★ITCS locations and work sites where there is a potential for employee exposure to NORM contaminated fluids or material.

## 3.0 Responsibilities

### 3.1 Facility Manager

The Operations Manager is responsible for ensuring these procedures are implemented and followed.

### 3.2 Supervisor

The supervisor is responsible for the proper execution of the procedures and plan and for the proper monitoring of employees and observing employees to insure proper adherence. The supervisor is responsible for reporting to management all incidents involving spills, leaks, employee exposure, etc.

### 3.3 All Other Personnel

All other personnel are responsible for following procedures and applying the plan to their work ethic. They are also responsible for notifying their supervisor of any questions or if a problem or potential problem occurs.

## 4.0 General Requirements

4.1 Standard Work Procedures are to be followed including communication to employees and contractors to be accomplished through the posting of signs and notices and safety meetings where the presence of NORM contamination is known.

4.2 The proper Personal Protective Equipment (PPE) shall be issued and worn when working around NORM.

4.3 The appropriate monitoring equipment (to include personal, environmental and site monitoring equipment) will be in place with monitoring being performed as scheduled.

4.4 Proper NORM training will be conducted prior to entrance to restricted areas. No untrained personnel shall be allowed to enter the restricted areas. Employees will be trained in the hazards, location, methods to identify the hazards and methods used to protect themselves. Training will be at least annually and before exposure occurs and will include normal and emergency situations.

- 4.5 Survey meter instrumentation will meet proper specifications
- 4.6 Contaminated areas shall be properly cordoned off and signs posted with warning messages.
- 4.7 Confined space conditions where NORM contaminated conditions are present are to be properly identified. The concepts of As Low As Reasonably Achievable (ALARA) and Time, Distance and Shielding shall be strictly adhered to.
- 4.8 Emergency Procedures and contacts shall be established and communicated prior to work start-up.
- 4.9 Transportation and shipment of NORM shall follow DOT requirements and regulations.

## **5.0 Procedures**

The supervisor will initiate the NORM Worker's Protection Plan procedures for any personnel who are required to perform work in NORM contaminated atmospheres or with NORM contaminated equipment.

- 5.1 For work operations that have the potential to produce NORM contaminated dust the following will occur:
  - 5.1.1 Keep the NORM contaminated material wet (if practical) to reduce airborne particulates. If there is a potential for airborne NORM particulates, air monitoring and/or air sampling should be considered.
  - 5.1.2 Wear approved respiratory protection with HEPA filters when handling dry NORM, and when cutting, grinding, chipping or sand blasting NORM contaminated material.
  - 5.1.3 No eating, drinking, smoking, or chewing or applying makeup while in restricted or Radiation areas.
  - 5.1.4 Avoid direct skin contact with NORM. Consult supervisor for information on Proper Personal Protection if not known.
  - 5.1.5 Thoroughly wash hands, forearms, and face as soon as practical after handling or contacting NORM-contaminated materials and prior to eating drinking, smoking, or chewing.
  - 5.1.6 NORM-contaminated equipment being taken out of service or being transported shall have all openings sealed to contain internal NORM contamination. Equipment with external NORM shall be enclosed (i.e., sealed in plastic or containerized) to contain the NORM-contaminated material.

- 5.1.7 Plastic ground/floor covers should be utilized to the extent practical during maintenance work and vessel/equipment clean out and repair activities in order to contain NORM-contaminated materials and to facilitate clean-up.
- 5.1.8 Clothing, tools and materials that have contacted NORM during maintenance or other activities should be cleaned of surface contamination to the extent practical prior to leaving the work area. It is recommended that "wet wipes" or equivalent be used for this purpose. Personal clothing and boots/shoes that have contacted NORM should be wiped/cleaned prior to leaving the work area and then laundered or thoroughly cleaned as soon as practical.
- 5.1.9 Disposable clothing (boots, gloves, coveralls, etc.) and other disposable materials that have contacted NORM and the cleaning materials (i.e., wet wipes) used to decontaminate tools and other materials should be placed in plastic bags and sealed. **DO NOT REUSE ANY OF THESE MATERIALS AFTER THEY HAVE BEEN EXPOSED TO NORM CONTAMINATION.** When the maintenance or other activity is completed, the bags should be surveyed for contamination. If the readings are less than 50 microrentgens per hour ("uR/hr"), then the material may be disposed through normal waste handling practices. **DO NOT** put disposable clothing or cleaning materials in the same container with NORM-contaminated sludges, scales or soils. If the clothing and materials have readings above 50 uR/hr, they should be containerized, labeled, and stored in a NORM storage area. It is important to maintain these materials separate from the scales, sludges, and soils so they may be processed and disposed separately.
- 5.1.10 When entry is required, NORM-contaminated vessels should have continuous forced air ventilation prior to entry and during occupation and all applicable confined space entry procedures should be followed.
- 5.1.11 In vessels where the radiation readings are 1000 uR/hr or more at one foot from the internal surface, entry is not allowed without approval from the NORM Coordinator in your area or the Health, Safety & Environmental Department.

## **6.0 Transfer of Equipment To Other Operators**

- 6.1.1 NORM-contaminated equipment may be sold, traded or transferred to other operators for the intended use of the equipment provided there is a signed, written agreement indicating that the operator/buyer has been made aware of the presence of NORM.

## **7.0 Personnel Exposure Limits**

Occupational Exposure limits may vary from state-to-state. External exposure levels to oil and gas production NORM are typically well below any regulated occupational limit.

However, occupational exposures should not exceed 240 uR/hr above background for continuous exposure (40 hrs/week) or 9,600 uR of cumulative exposure (uR/hr reading x hours of exposure) for any week. Personnel dose monitoring may be required if exposure levels exceed these limits. Contact a NORM Coordinator or the Health, Safety & Environmental Department if any questions.

## **8.0 Personnel Training and General Health, Safety and Hygiene Precautions**

8.1 Typically, NORM precautions are not required for employees working around closed process equipment. However, when equipment is opened, precautions to prevent the inhalation or ingestion of NORM must be followed.

8.2 Personnel performing NORM surveys or conducting any work in areas or on equipment containing NORM shall receive appropriate training which will include:

8.2.1 Explanation of potential NORM hazards.

8.2.2 Explanation of the origin and location of NORM in facility equipment.

8.2.3 Overview of radiation units, measurement instruments and standards.

8.2.4 Appearance of typical NORM materials.

8.2.5 Examples of NORM impact on area preparation and waste minimization procedures.

8.2.6 Personal Protective Equipment (PPE).

8.2.7 Review of NORM SDS.

8.2.8 Properly record all performed data on Norm Survey Data Sheet

8.2.9 Overview of decontamination, clothing disposal and general hygiene.

8.3.0 Understanding the term Technology Enhanced Naturally Occurring Radioactive Material (TENORM) and what it means to the employee

## **9.0 Specific Considerations for Norm Handling Activities**

9.1 Cleaning of Equipment

9.1.1 Special consideration shall take place when cleaning a vessel or equipment that has radiation levels in excess of background readings.

9.1.2 Some states require a specific license for cleaning/decontamination of equipment and materials.

- 9.1.3 When vessels are opened, steps should be taken to clean out NORM contaminated materials by water washing prior to entry. Where practical, vessels/tanks should be cleaned without personnel entry. Wash water generated in this operation should be disposed of in an appropriate manner.
- 9.1.4 Personnel Protective Equipment (PPE) recommendations must be followed.
- 9.1.5 All NORM-contaminated materials that are accumulated by cleaning operations should be collected and placed in suitable containers (e.g., 55-gallon drums, bulk containers, super sacks, etc.) The containers should be suitable for transportation if it is likely that the NORM-contaminated material will be moved off location. NORM-contaminated material that falls on the ground during cleaning operations must be cleaned up as appropriate.
- 9.1.6 Containers of NORM-contaminated material must be securely sealed such that no leakage will occur during normal handling or transportation.
- 9.1.7 Containers of NORM-contaminated material should be labeled appropriately.
- 9.1.8 Equipment and materials containing NORM may be released to third parties for cleaning. A copy of the NORM SDS shall be sent to the third party prior to receiving such equipment. All NORM removed by the third party shall be collected in a suitable container, labeled, and transported on accordance with DOT regulations.
- 9.2 Repair of Equipment
- 9.2.1 Some repair activities may require removal of NORM-contaminated materials. Removal may involve scraping, chipping, washing, sanding, etc. Precautions shall be taken to prevent any hazard or injury to worker.
- 9.2.2 Personal Protective Equipment (PPE) recommendations listed in Appendix C.
- 9.2.3 NORM-contaminated material accumulated as a result of the repair work must be handled as specified in section 5.1 - 5.1.9.
- 9.2.4 NORM-contaminated equipment must be decontaminated prior to repair unless the equipment is sent to a specific licensed contractor. If neither of these options are feasible, a NORM Coordinator of the Health, Safety & Environmental Department must be contacted for assistance.

### 9.3 Other Activities Involving NORM-contaminated Materials

- 9.3.1. Protection of personnel engaged other activities where limited exposure to NORM-contaminated materials may occur can be achieved through the use of PPE recommended.
- 9.3.2 NORM Surveys - Surveying equipment components, materials and land for the purpose of identifying NORM-contaminated materials.
- 9.3.3 Well Workers - Equipment such as tubing strings, wellheads, etc. which might be handled during workover operations may contain NORM contaminated materials.
- 9.3.4 NORM-contaminated Waste Containerization - The package or repackaging of NORM-contaminated waste generated during equipment decontamination or vessel/tank clean-out activities prior to shipment and storage.
- 9.3.5 NORM-contaminated Waste Container Handling - The handling of closed containers of NORM-contaminated waste for loading or unloading of transport vehicles, movement with storage, etc.
- 9.3.6 Preparation of NORM-contaminated Wastes for Disposal Preparation of NORM-contaminated waste, and other NORM-contaminated material handling in preparation for disposal.

## 10.0 Transportation

- 10.1 Prior to transportation of NORM-contaminated materials, the following actions shall be taken:
  - 10.1.1 Evaluate whether the radioactive content of the NORM contaminated material exceeds 2000 pCi/g (picocuries per gram). This determination will require a laboratory analysis. The analysis should be representative of the material being shipped. If NORM-contaminated material from various area/sources has been consolidated for shipment, separate analysis should be performed. Note (1) Typically, materials with radiation readings in excess of 500 uR/hr should be evaluated. Note (2), In Louisiana if the container being transported contains NORM materials with a specific activity greater than 30 pCi/g or surface radiation levels are greater than 25 microrentgens per hour (uR/hr) above background levels, it must be packaged, marked and/or labeled in accordance with Louisiana Radiation Regulations.



- 10.1.2 If the concentrations are less than 2000 pCi/g, then the material is not regulated by DOT. Shipping of non-regulated material will require a bill-of-lading that states, "OIL AND GAS WASTES, CONTAINS NATURALLY OCCURRING RADIOACTIVE MATERIALS (NORM). DOT EXEMPT." The equipment, materials or containers must be labeled. Equipment, materials and/or containers that are shipped must be sealed or covered to prevent the leakage or spillage of NORM-contaminated materials during normal transportation.
- 10.1.3 If the concentrations are 2000 pCi/g or more, but less than 100,100 pCi/g, then the material is DOT-regulated as Low Specific Activity (LSA) material and the following actions must be taken:
- a) Markings - Packages or containers less than 100 gallons must be marked with proper shipping name and identification number. Packaging greater than 110 gallons must be marked with the proper shipping name, identification number, gross weight, and type of package. (Reference 49 CFR 173.403,411,425).
  - b) Labels - In addition to the markings required in 10.1.3a above, if the exterior surface of the package measures less than 500 uR/hr, then the label required is White - I. If the exterior surface of the package measures 500 - 50,000 uR/hr, then the label required is a Yellow - II. A Yellow - III label is required when surface readings exceed 50,000 uR/hr or when the Transportation Index exceeds 1. (See example below). In most cases of shipping regulated NORM materials, the Yellow - II label will be required. Labels must be placed on opposite sides (excluding the bottom) of the drum. In addition, the name of the radionuclides, the activity level (unit of measurement must be in Curies, millicuries) and the transportation index must be entered, as applicable, on each label.

Example:

You are shipping 2 containers of Norm-contaminated scale with a concentration of 10,000 pCi/g of Radium 226. The surface readings of each container are 5,000 uR/hr. The reading at 3 feet from each container is 750 uR/hr. The labeling requirements are:

<b>Label:</b>	<b>Yellow - II</b>
<b>Radionuclides:</b>	<b>Radium 226</b>
<b>Activity Level:</b>	<b>0.010 microcuries/g</b>

(1 0,000 pCi = 1 0 nano Curies = 0.01 microcuries)

Transportation Index: 0.8 (the measurement in millirems/hr, 3.3 feet (1 meter) from the container, 750 uR/hr = 0.8 mrem/hr) Note: The Transportation Index is rounded up to the first decimal place.

Important: If the Transportation Index for any one container exceeds 1, (exceeds 1 mrem/hr or 1000 uR/hr at 3.3 feet) then the container must be labeled with a Yellow - III and shipped accordingly. The total Transport Index (sum of the Transportation Index of all containers) may not exceed 50 for all containers per load. (Reference 49 CFR 177.842).

- c) Packaging - Materials must be packaged in a strong tight package so that there will be no leakage of radioactive material under normal conditions of transportation. (Reference 49CFR 173.425)
- d) Placarding - No placarding is required for White - I or Yellow – II shipments. Placarding is required for Yellow - III shipments. (Reference 49 CFR 172.504.)
- e) Emergency Response Information - The SDS and a 24-hour emergency response telephone number must accompany the shipment. The number for CHEMTREC is 1-800-424-9300.
- f) Shipping Papers - Can also be called Bill of Lading or Manifest and must include:
  - Date of shipment
  - Proper shipping name
  - Hazard class
  - Identification number
  - Total quantity by weight or volume
  - Reportable Quantity (RQ) designation, if applicable
  - Name of each radionuclide
  - Chemical and physical form
  - Activity level in each package
  - Category of label applied
  - Transport Index
  - Emergency Telephone number
  - Shipper certification

Example: Using the example from 10.1.3b, the Bill of Lading may read as follows:

Radioactive material, Low Specific Activity, n.o.s., 7, UN 2912 (radium 226 or Radium 228)

Number of drums: 2

Weight: 800 lbs.

Normal form, Barium Sulfate containing Radium nuclides (< 0.01 O) microcuries/g, Radioactive Yellow - II, Transportation Index = 0.8  
Emergency number, Chemtrec 1-800-424-9300

Note: The RQ for Radium 226 and Radium 228 is 0.1 curies. For NORM contaminated materials, it is unlikely that the RQ for Radium will be exceeded. Contact the Norm Coordinator or the Safety, Health & Environmental Department.

- g) Shipping Requirements (Reference 49 CFR 173.425)
- Packages must not have any significant removable contamination.
  - Shipments must be loaded by the shipper and unloaded by the recipient.
  - Shipment must be braced to prevent shifting during transport.
  - The transporting vehicle will be exclusive use only. This means that the vehicle must pick up NORM and deliver directly to given destination. The vehicle can make no other pick-ups, nor can the cargo be transferred to another vehicle or container. Instructions to this affect must include.

10.1.4 Casing tubing or pipe should be bound together and only have one label per bound group. Regardless of the shipping classification, all ends/openings should be sealed to prevent spillage/leakage of NORM-contaminated material.

10.1.5 Personnel performing the loading shall be familiar with the appropriate handling procedures for NORM-contaminated materials.

10.1.6 NORM-contaminated material or equipment may not be shipped with other material or equipment.

10.1.7 NORM-contaminated material may be transferred within a given field area without a manifest. This may be done if no public roads are used or crossed.

10.1.8 Shipping requirements for Yellow - III material is similar to the requirements detailed in 10.1.3 c-g. Specific requirements for the shipper/driver may apply if the concentration of NORM materials exceed Highway Route Controlled Quantities as defined in 49 CFR 173.404 and 49 CFR 397, subpart D.

10.1.9 State specific requirements may specify that hazardous waste or hazardous material manifests be used.

## 11.0 Storage

- 11.1 Access to NORM storage areas must be restricted, trained personnel only. NORM storage areas must have a sign posted that contains the radiation symbol and the words 'CAUTION RADIOACTIVE MATERIAL - RESTRICTED AREA.' (See Saf-12-01-05)
- 11.2 Measurement of radiation levels within designated NORM storage areas and around the fence line should be taken and recorded when significant material is added. If a reading within the storage area exceeds 5 mR/hr (500 uR/hr) at one foot from the surface of the stored equipment or material.
- 11.3 If radiation levels within a NORM storage area exceed 240 uR/hr, the Safety, Health & Environmental Department should be contacted to determine if personnel radiation dose monitoring is required, or worker access time should be restricted. In addition, if radiation levels at the property line exceed background levels, Health, Safety & Environmental Department should be contacted to determine if there is a potential for excessive public exposure.
- 11.4 Racks where NORM-contaminated casing, tubing or pipe are stored shall be properly identified.
- 11.5 NORM- contaminated equipment, containers or racks of tubing casing or pipe in storage should also be identified.
- 11.6 It is suggested that material be segregated at NORM storage areas based on relative radiation levels and, where practicable, material with higher levels stored near the center of the area. The storage area should be sufficiently sized such that radiation levels will not exceed 50 uR/hr above background at the perimeter of storage area and background levels at the property line.

## 12.0 Disposal

NORM disposal is being handled on a state-by-state basis. Contact Health, Safety & Environmental Department for specific requirements/options.

## 13.0 Records

- 13.1 Records of information and data pertaining to personnel radiation exposures will be retained for thirty years (post-termination) by the Health, Safety & Environmental Department.
- 13.2 The following documentation, forms, information, and data should be retained indefinitely in the IPS★ITCS Health, Safety & Environmental Department files:
  - a) Records of all NORM training
  - b) Air Sampling/Analysis information and data (see Appendix A)

- c) All NORM surveys (equipment, materials, land, etc.)
- d) Soil and water sample results and associated information and data
- e) NORM transportation records and manifest
- f) NORM waste disposal records

13.3 The following documentation, information and data should be maintained for a minimum of 5 years in Health, Safety & Environmental files:

- a) NORM guidelines
- b) Survey instrument calibrations
- c) Survey instrument operations check records

#### 14.0 Definitions

14.1 NORM: Naturally Occurring Radioactive Materials

14.2 DOT: U.S. Department of Transportation

14.3 SDS: Material Safety Data Sheet

14.4 Units of Radiation:

14.5 Exposure:

- a) Roentgen (R) – A basic measurement of quantity/concentration of NORM present; a measurement of the radiation level existing at any particular point in air where a radiation detector is positioned.
- b) Microroentgen per hour (\*uR/hr) – The basic radiation level per unit of time measurement used to provide an indication of the amount/concentration of NORM present.
- c) Roentgen Equivalent Man (rem) – The basic measurement of the radiation dose received by personnel. Personnel radiation exposures are measured by dosimeters worn by personnel and are analyzed in a laboratory. Except in very few situations, it is not necessary for personnel to be provided with personal dosimeters. For the purpose of this plan, 1 Roentgen = 1 rem.

14.6 Activity

- a) Curie (Ci) – The basic unit of radioactivity [ $3.7 \times 10^{10}$  nuclear transformations second; or  $2/22 \times 10^{12}$  disintegrations per minute (dpm)]

- b) picoCurie per gram (pCi/g) – The concentration of NORM in solids. This measurement can be estimated in the field by using proven techniques, but in most cases must be measured by laboratory analysis.
- c) picoCurie per liter (pCi/l) – The concentration of NORM in water or air. This measurement can only be made by laboratory analysis.
- d) Disintegrations per minute (dpm) - 2.22 dpm per pCi.
- e) dpm per 100 square centimeters (dpm/100 cm<sup>2</sup>) - the basic activity per unit area used to express surface contamination levels.
- f) Counts per minute (cpm) - actual readout of count rate meter with a beta - sensitive 'pancake" probe.  $\text{cpm} = \text{dpm} \times \text{efficiency}$  of survey meter (typical efficiency is approximately 25%).
- g) Net cpm: total cpm minus background cpm.

14.7 Unit prefixes - for any units (i.e., grams, Roentgens, Curies, etc.)

- |                           |         |
|---------------------------|---------|
| a) Milli (m): 1 000 milli | 1       |
| b) Micro (u): 1000 micro  | 1 milli |
| c) Nano (n): 1 000 nano   | 1 micro |
| d) Pico (p): 1000 Pico    | 1 nano  |

14.8 Restricted Area - Any area to which access is controlled due to NORM handling, cleaning, or storage.

14.9 Radiation Area - Any area where personnel may receive a radiation dose of > 5 mRem/hr (5000uR/hr), or a cumulative dose of > 100 mRem in any five consecutive days.

14.10 Airborne Radioactivity Area - Any area in which airborne radioactive materials exist more than the derived air concentrations (DACs) specified in 10 CFR 20, Appendix B.

14.11 Release or Unrestricted Use - The sale, trade or transfer of any material, equipment or land without limitation or restriction use.

14.12 Any Accessible Point - All external and internal surfaces that are accessible.

14.13 A Micro, R Meter - A meter with a sodium iodide (NaI) probe (Example: Ludlum Model 44-2) that detects gamma radiation and measures the level in units of uR/hr.

- 14.14 A count Rate Meter - A meter with a pancake probe (Example: Ludlum Model 44-9) that detects alpha, beta, and gamma radiation and measures these levels in units of counts per minute (CPM).
- 14.15 NORM-contaminated - Materials, equipment, or waste are NORM contaminated if they have radiation concentrations of levels in excess of the limits prescribed.
- 14.16 ALARA - The concepts of As Low As Reasonably Achievable and Time, Distance and Shielding shall be strictly adhered to in terms of personnel exposure to NORM.

## 15.0 Surveying

### 15.1 Equipment

When surveying equipment, all accessible parts should be surveyed. This includes representative surveys of the full length of the equipment along with surveying all openings, inlets and outlets. The detector should be held within one centimeter (approximately 1/2") of the surface and should be monitored continuously throughout the survey. The survey levels should be documented on a NORM Survey Data Sheet even if the levels were at or below background.

### 15.2 Land

When surveying land, a scaled plat of the area should be used to record the radiation levels detected. A grid of 10 meter by 10 meter squares (33' x 33') should be used with several survey points taken within each square (See Saf-12-01-03).

### 15.3 Tools

Gas processing plants can also be surveyed with the Model 3 meter and Model 44-2 detector using the same procedures as described for surveying the production equipment. These surveys will provide information on whether or not the fluids flowing through the plant contain NORM as well as where potential accumulations are likely to be found. However, prior to allowing the work to be done on gas handling equipment, internal

surveys should be performed using a Model 3 meter with Model 44-9 pancake detector. These survey results will be recorded in cpm. The radon gas that is sometimes produced with natural gas production decays into beta and alpha emitting radionuclides, which cannot be detected by external surveys.

When using the Model 44-9 pancake detector, verify that the survey instrument has been calibrated within the past twelve months. There should be a label on the side of the meter documenting the current calibration date. Verify the survey instrument is functioning properly by performing operational checks, as described previously in this section.

Prior to surveying the internal surfaces of gas handling equipment, set the fast/slow switch to fast and set the meter scale to x1. Measure the background radiation level away from the equipment and record the level on the NORM Survey Date Sheet.

#### 15.4 Internals and Externals of Equipment

Survey all accessible internal surfaces from the external opening of the equipment and record the measurements on the NORM Survey Data Sheet. If the maximum levels surveyed are less than 180 Net cpm, the equipment can be handled as non-NORM contaminated. If NORM levels exceed 180 Net cpm, and internal repair work, maintenance or clean out is to be done, appropriate precautions should be taken.

If practical, internal components of the ethane/propane line should be surveyed first; if no NORM is detected in the propane line, there probably will not be any NORM anywhere in the gas processing part of the plant.

#### 15.5 Sludge, Scale or Soil Surveys

Sludges and scales removed from equipment and piping that have readings of 10 uR/hr above background must be analyzed for Radium 226 and Radium 228 prior to release. Approximately two ounces of material is required for analysis. Samples should be representative of the sludge or scale in the equipment or piping.

Scales in gas plant and gas processing equipment that exhibit readings greater than 180 Net cpm with a pancake probe should be analyzed for Lead-210 (Pb210). Contact the Safety, Health & Environmental Affairs Department for details on regulatory limits.



# Revision History

Rev	Rev Date	Rev By	Approved By	Description
1.0	1.3.2022	Shayne Torrans	Shayne Torrans	Initial Procedure Document
1.1	12.20.2022	Shayne Torrans	Shayne Torrans	Format Revision

**Approvals:**

Procedure Owner

\_\_\_\_\_

Print Name

\_\_\_\_\_

Date

\_\_\_\_\_

Signature

# Competency Assessment

No.	Questionnaire	C/NYC
Q1		
A1		
Q2		
A2		
Q3		
A3		
Q4		
A4		
Q5		
A5		

Enclosed Attachments	
Risk Assessment	<input checked="" type="checkbox"/>
Environmental Aspect and Impact	<input checked="" type="checkbox"/>
Training and Competency	<input checked="" type="checkbox"/>
Measure and Evaluation Tools	<input checked="" type="checkbox"/>

# Competency Checklist

To be filled out by Trainer and signed by Employee, Assessor and Supervisor before being returned to the HSEQT Manager for recording purposes.

Procedure	Competency	Date	Competent YES / NO	Employee Signature

(Please tick appropriate box)

This employee is competent in performing the job.


This employee has not attained the competency level.

\*

\* *If the employee has not attained all competency levels, the General Manager must assess the action to be taken, provide an extension of training or alternative action as listed below.*

Alternate action to be taken: \_\_\_\_\_

Signed By	Employee:	_____	Date:	_____
	Trainer:	_____	Date:	_____
	Assessor:	_____	Date:	_____
	Regional Manager:	_____	Date:	_____

# Environmental Aspects and Impacts

## Identified Environmental Aspects and Impacts

The following table is a summary of the likely environmental aspects and impacts that may be identified during site inspections. The significance of each impact needs to be assessed using the Risk Assessment Model.

Activity	Aspect	Impact
<b>Purchasing &amp; Administrative Work</b>	Consumption of goods	Conservation of natural resources
	Consumption of energy (eg. Electrical equipment and facilities)	Release of greenhouse gases and atmospheric pollution; Consumption of natural resources; Habitat loss
	Generation of waste (eg. Paper)	Consumption of space for waste disposal; Habitat loss
<b>Climate Control</b>	Consumption of energy	Release of greenhouse gases and atmospheric pollution; Consumption of natural resources; Habitat loss
	Generation of noise	Disturbance to community; Habitat loss
<b>Cleaning of – offices / vehicles</b>	Storage, use and release of chemicals	Contamination of air, water or soil; Risk to human health
<b>Transport (Fleet vehicles / staff travel)</b>	Consumption of energy	Release of greenhouse gases and atmospheric pollution; Consumption of natural resources; Loss of habitat at all stages of generation; Light pollution
	Consumption of goods (eg. Oil)	Consumption of natural resources; Generation of waste; Habitat loss; Biodiversity impacts
	Generation of waste (eg. Oil)	Consumption of space for waste disposal; Potential contamination of water or soil; Habitat loss
	Exhaust emission	Release of greenhouse gases and atmospheric pollution
	Use of dangerous goods (eg. Batteries)	Potential contamination of air, water or soil; Risk to human health
	Generation of noise	Disturbance to community; Habitat degradation
<b>Operations</b>		

Sample only.  
To be filled in

# Risk Assessment

Risk Assessment // insert name here					
Step No: Logical sequence	Sequence of Basic Job Steps documented in the Procedure, Work Instruction and project plans. Break down Job into steps.  Each step should be logical and accomplish a major task.	Potential Safety & Environmental Hazards/Impacts at the site of the Job  Identify the actual and potential health and safety hazards and the environmental impacts associated with each step of the job.	Risk Rating  Refer to the risk matrix or HSEQT.PRO. Risk Mgt	Recommended Corrective Action or Procedure  <i>Determine the corrective actions necessary to reduce the risk to as low as reasonably practical (ALARP) refer to HSEQ.PRO.Risk Mgt. The risk must be reduced or controlled to ALARP before work commences.</i>  Document who is responsible for implementing the controls to manage each hazard identified.	Risk Rating refer to the risk matrix or HSEQT.PRO.Risk Mgt
1.					
2.					
3.					
4.					
5.					

# Audit



<b>Process:</b> insert// <b>Procedure:</b> Insert //		Date:		Audited by:	
		Location of Audit:		Area Mgr/Supervisor:	
Item	Question	Evidence Sited	Comments		Conformance Score 0,3,5
1.					
2.					
3.					
4.					
5.					
6.					
7.					
AUDITOR'S SIGNATURE:		CONFORMANCE SCORE: / 25		0 – Non-Conformance	
SAFETY REP'S SIGNATURE:		CONFORMANCE %:		3 – Continuous Improvement Opportunity	
				5 – Total Conformance	