Naturally Occurring Radioactive Material (NORM)

Purpose/Scope

This section provides guidance on the identification of naturally occurring radioactive material (NORM) found in the oil and gas industry, and on the procedures to be used by Fieldwood Energy and contract personnel when these materials are present at or above 50 $\mu$R/hr.

Definition

NORM occurs naturally in the earth’s crust, soil, plants, and many living organisms. NORM scale can be produced where naturally occurring radium and thorium in formation shale are dissolved into the water. NORM can be deposited as solids inside downhole equipment such as tubing, landing nipples, and subsurface safety valves. During production of gas and water, these materials can be transported to the surface where they may be found as scale inside heater treaters, separators, tubing, flow lines, meters, chokes, drains, storage tanks, pumps, filters, and (on rare occasions) inside short sections of process pipe downstream from elbows or transitions. NORM is most commonly found where there is a pressure drop, a change in velocity, or a change in the direction of flow.

Responsibilities

The Fieldwood Energy Area Foreman, Fieldwood Energy Production Foreman, Person in Charge (PIC), Lead Operator, or Consultant is responsible for adhering to the below general guidelines for handling NORM contaminated equipment or waste:

General Requirements

1. Before equipment is dismantled or moved off location, you must conduct NORM monitoring/sampling. (e.g., tubulars, valves, vessels, etc.). NORM sampling and monitoring must be conducted by trained/qualified personnel.

2. All personnel who work or may work with NORM, must be properly trained and experienced to properly/safely handle NORM contaminated equipment.

3. Monitor any vessel or confined space contaminated or potentially contaminated with NORM before personnel enter. A vessel entry permit must be issued in all cases. Maintain documentation of the monitoring results in the facility EH&S files. Notify all personnel involved in the operation of the results of the monitoring.

4. Include monitoring plans, procedures, and designation of responsibility for completing the monitoring in all NORM related written plans and activities (e.g., vessel entries, recompilations, vessel cleanouts, etc.).
5. Test all well solids transported to shore for possible NORM contamination.

6. Wear personal protective equipment (PPE) including respiratory protection equipment when handling NORM material. Special consideration should be considered for Confined Space Entry when vessel has NORM contamination. Additional PPE should be used including SCBA or supplied air respirator.

7. Avoid direct skin contact with radioactive scale and solids.

8. Do not eat, drink, smoke, or chew in a NORM work area.

9. Thoroughly wash your hands and face immediately following any skin contact with NORM, especially before eating, drinking, or smoking.

10. Minimize the number of personnel in the NORM work area.

11. Personnel that must gain access to the NORM work area shall be properly trained prior to entry.

12. Follow the Fieldwood Energy Waste Management and Hazmat Shipping procedures for safe handling and disposal of NORM contaminated materials.

NOTE: Please contact your Fieldwood Energy EH&S Specialist for additional information regarding proper procedures for safely handling and disposing NORM contaminated materials.