

MSE CONTROLLED DOCUMENT



Radiological HSE Precautions for Well Re-Entry



Document No: MSE.24		Custodian: MSE 32		
Supersedes Revision no: 1 Date: 1/10/2004		Revision no: 1 Date: 1/10/2006		Filename: NORMMG.T. DOC
Administered by: MSE/32 Date: 20/10/2004	Verified: Date: RPA Date:	Verified: Date:	Approved: Date: UWD Date:	Approved: Date: Date:
Reason for revision:				

This document contains proprietary information and is intended for use by PDO and Contractor staff only. The contents of this controlled document shall not be changed without formal approval of the document custodian.



Radiological HSE Precautions for Well Re-Entry

Rev.1

Contents

1	Introduction.....	2
	1.1 Objective.....	2
	1.2 Scope.....	2
2.	Responsibilities	2
	2.1 Contractors	2
	2.2 Radiation Protection Technician.....	2
	2.3 Radiation Protection Supervisor	2
3.	Performance.....	3
	3.1 PPE and auxiliaries	3
	3.2 Safety measures and work instruction	3
	3.2.1 General.....	3
	3.2.2 Well re-entry operations.....	3
 APPENDICES		
	Appendix 1: NORM Identification and Control for Oil Wells.....	6
	Appendix 2: NORM Identification and Control for Gas Wells.....	7



1 Introduction

1.1 Objective

To provide safe systems of work when handling equipment and fluids potentially contaminated with NORM during well re-entry operations with work-over or drilling rigs.

1.2 Scope

This procedure shall apply to all well re-entry operations carried out by drilling or work-over rigs. All wells, which have been previously active (not new wells), shall be considered NORM contaminated unless demonstrated otherwise by measurements using the correct meters. A separate procedure exists for the wireline and coil tubing unit operations of production wells.

2. Responsibilities

2.1 Contractors

The Rig Manager shall supervise the re-entry work and is responsible for the activation and implementation of this procedure. Where a PDO Supervisor is located on the Rig/Hoist the PDO Supervisor is responsible for ensuring that the Rig Manager/Tool Pusher follows this procedure.

The contractors are responsible for adopting these procedures into their own standard operating procedures as the minimum standard. Contractors should develop their own procedures which must be verified by the PDO CRFP and the Senior Well Engineer to comply with this PDO procedure.

The Contractor is also responsible for:

- Providing the correct personal protective equipment for their staff, likely to be exposed to NORM.
- Providing their own calibrated NORM meters to measure equipment/material removed from the well.
- Training their staff to work to this procedure and understand the health risks associated with NORM during a well re-entry.

The Rig Manager/Tool Pusher shall supervise the re-entry work and is responsible for the activation and implementation of this procedure.

2.2 Radiation Protection Technician

The Radiation Protection technician (RPT) is responsible for radiation and contamination measurements under advice from the Radiation Protection Supervisor (RPS). The RPT is responsible for completing the NORM Radiological Survey Report found in Appendix A of SP 1170 Version 3.0.

2.3 Radiation Protection Supervisor

The RPS is responsible for advising on radiological controls in Supervised and Controlled Areas.



3. Performance

3.1 PPE and auxiliaries

Prior to commencing work, the Rig Manager shall ensure the hoist/rig has sufficient availability of PPE and auxiliaries such as calibrated NORM meters, plastic to encapsulate exterior contaminated tubulars or esp's, labels and end caps for each tubular.

3.2 Safety measures and work instruction

3.2.1 General

- All wells, which have been previously active (not new wells), shall be treated as NORM contaminated until measurements prove otherwise.
- All personnel who routinely or frequently work on the well-site shall attend a NORM awareness course and be familiar with the hazards and safeguards involved with NORM jobs.
- The DSV or Rig Manager/Tool Pusher shall have attended the NORM Supervisors Awareness course to understand SPI I70 and how to complete the relevant NORM documentation.

3.2.2 Well re-entry operations

Removal of flowline (prior well re-entry):

- Prior to well re-entry the flowline needs to be removed under a PTW issued by the Production Coordinator or his deputy. Ideally PDO will know which wells are NORM contaminated prior to any activities. However, the rig/hoist should assume the well is contaminated until proven otherwise through monitoring.
- Prior to disconnecting the flowline, NORM measurements must be carried out on the outside of the flowline/Xmas tree. If NORM is detected, workers must don the correct PPE before disconnecting any equipment. There is no need to wear PPE prior to removal of the flowline as the NORM is contained on the scale inside and is only an inhalation risk when opening equipment. All measurements (background readings inc.) need to be recorded on the NORM Report Form (Appendix A of SP I I70) and when completed in DIMS.

General precautions for well re-entry:

- The RPT (usually the DSV or Rig Manager) shall verify that the appropriate meters are with the Rig/Hoist, that they are calibrated and in good operating condition. Note: the Mini 900 meters are not intrinsically safe. A PtW and gas detection should be conducted if working in potentially flammable atmospheres.
- The RPT shall conduct background measurements of the internals a clean item of pipe. Background is typically 2-3 cps in Oman.
- Appendix I provides a flow diagram of how to manage NORM contamination in oil wells. Gas wells are slightly more complex. Appendix II provides a flow diagram of the procedures for NORM contamination in gas wells.
- The RPT shall use the Mini 900 meter with 44A probe to monitor the exterior of flowline bends or areas where scale is likely to accumulate prior to nipping down.



Radiological HSE Precautions for Well Re-Entry

Rev.1

- If no contamination is found above background levels, work may progress without NORM precautions.
- Basically the nominated RPT (Meter user) then measures the internals of first five tubulars pulled at the pin end. If no NORM is found then every fifth tubular from then on is monitored. If no NORM is found, then the work continues with no NORM precautions. If NORM is found above the acceptable limits, the previous 5 joints must be monitored and every joint from there forward. The well and work shall be classified as a NORM Job and workers shall adopt and follow the NORM Procedures.
- Work can continue provided staff in the Supervised Area wear the specified PPE.
- The RPT must also check for external contamination using the Mini 900/EP15 probe. This meter is an alpha /beta meter and measurements of 5 cps above background indicate the presence of external contamination.
- Externally contaminated equipment must be plastic wrapped to prevent scale from becoming airborne during handling and transport.
- NORM contaminated scales are present if the readings exceed 5 cps above background.
- That is 8 cps or more on the Mini 900 meter with 44A probe. The well is then classified as NORM contaminated job and the NORM procedures should be implemented.
- Basic precautions are: Keep personnel involved to the minimum.
- Prepare a NORM contaminated equipment storage location (minimum 50m away downwind from location, roped off with tape and provided with warning notices (in English and Arabic)
- Workers on the deck or platform shall wear the designated PPE prior to removal of any well equipment.
- The RPT and Rig manager shall specify what extent of cordoned off area is required. This area shall be termed a Supervised Area and only workers in PPE can enter.
- All persons shall be checked for contamination on exit from the supervised area using the Mini 900/44A probe.
- If personnel contamination is found it should be removed by wiping with a damp cloth to prevent airborne dust. The rags shall be stored in sealed containers.
- Equipment used inside the Supervised Area shall be checked for contamination prior to removal with the NORM Meters. Cleaning of the contaminated equipment on the rig site should be limited to handling tools. Cleaning should be done by wiping the tools with clean rags that should be disposed of as contaminated waste. Any equipment that can not be cleaned shall be bagged, sealed and marked externally as NORM contaminated with activity levels and logged using the Forms in Appendix B & C. They shall be treated as NORM contaminated waster and be transported to the Bahja NORM storage yard.
- Any further waste generated should be checked for NORM contamination and if activity is found, placed in suitable containers and registered for storage.
- NORM contaminated equipment and waste shall be transported to the Bahja NORM storage yard



Radiological HSE Precautions for Well Re-Entry

Rev.1

Step by step review of well re-entry operations:

- Hold regular toolbox meeting with crew, drawing attention to the presence and hazards of NORM and referring to the relevant procedures (Record in Daily Drilling Report).
- During removal of Xmas-tree, adapter flange and hanger, RPT should continue to measure for NORM using the Mini 900/44A probe.
- Once Xmas-tree, adapter flange and hanger are removed, RPT to measure the internals of the Xmas-tree, adapter flange and tubing hanger. NORM contaminated equipment may be reused but each item must be recorded in DIMS/ EDM and the well should be labelled as NORM Contaminated.
- Contaminated Xmas-tree, adapter flange, tubing, hanger and accessories not to be reused shall be registered, packed, stored and transported to Bahja.
- During removal of tubing from the well, the RPT shall measure the first five tubulars at the pin end. If no NORM, detected, measure every 5 tubular or every 3rd string if pulling doubles. Continue measuring for NORM at regular intervals.
- During well clean up with bit and scraper, RPT to continue measuring radiation in return fluids (particularly in the viscous pill) and drill pipe and BHA equipment when pulling out of hole. The RPT shall monitor the filters again using the Mini 900/44A probe.
- Any material or scales collected that test greater than 5 cps above background shall be collected and placed into sealed drums, labelled and transported to the Bahja NORM Yard.
- If in doubt contact the Company NORM Focal Point or RPS for assistance.



