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 Mailing Address 761 Veterans Avenue, Kevil, KY 42053
 Organization Paducah Remediation Services, LLC, SPCI
 Document Number _____ Number of Pages 5 ~~300~~ pages
 Accession Number (DMC only) _____
 Document Title/Date PRS-RAD-1111, WORKPLACE MONITORING, 02/04/2009

Author _____ Corporate Author _____

Media (Check all that apply)

Paper Photo Diskette Drawing Video CD Report/Letter Other _____

Project Subcontract/Task Order _____

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OPSEC MBreneman Date MAY 11 09

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SUBJECT MATTER AREA: RADCON		PREPARER: Dan Tockstein	Page 1 of 5
DOC TYPE: <input checked="" type="checkbox"/> PROCEDURE <input type="checkbox"/> POLICY		APPROVED BY/DATE: KELLY AUSBROOKS, CHP – Safety and Health Manager (Signature on File in DCC) – 1/8/2009	
PROC TYPE: <input checked="" type="checkbox"/> OPERATING PROCEDURE <input type="checkbox"/> FACILITY SPECIFIC PROCEDURE FACILITY: _____			
TITLE: WORKPLACE MONITORING			
USQD <input checked="" type="checkbox"/>	UCD <input checked="" type="checkbox"/>	CAT EX <input type="checkbox"/>	EFFECTIVE DATE: 2/4/2009
USQD/UCD No: PSW-PH-SITE-0130			REQUIRED REVIEW DATE: 1/8/2012
Mandatory Subcontractor Pro Forma Procedure? <input type="checkbox"/>			If an interim Procedure, Expiration Date: NA

REVISION LOG		
Revision Number	Description of Changes	Pages Affected
0	Initial Release. Intent Change. Changed numbers and headings to define the beginning point of Paducah Remediation Services documentation and to establish Document Control as the control point for tracking document numbers. This document replaces Blue-sheeted EH-4513, Workplace Monitoring procedure.	All
1	Revised text to match changes in 10 CFR 835. Editorial changes. Added Training Section.	2,3

CAUTION

This procedure describes specific safety basis requirements for safety significant items used by the Paducah Project. Any proposed changes must be processed in accordance with the procedure change control process defined in PRS-DOC-1107 and all changes shall be reviewed by the USQD process and approved by PRS Nuclear/Facility Safety. Specific safety basis requirements are noted in this document in the following format: <SB DOCUMENT REFERENCE>.

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1.0 PURPOSE

The purpose of this procedure is to provide the general requirements for monitoring and surveying of radiological conditions in the workplace and for the use of radiation detection instruments and air sampling equipment for personnel and area monitoring.

2.0 SCOPE

This procedure applies to all operations involving potential exposure to ionizing radiation at the Paducah, KY site where Paducah Remediation Services, LLC (PRS) conducts operations for the U.S. Department of Energy (DOE). Specific procedures for performing monitoring and surveys are found in PRS Procedures PRS-RAD-1107, *Workplace Air Monitoring for Radioactivity*, PRS-RAD-1110, *Radiation Surveys*, and PRS-RAD-1109, *Radioactive Contamination Control and Monitoring*.

This procedure is not applicable to monitoring of individual exposures by use of personnel dosimetry and bioassay.

3.0 TRAINING

The Radiation Protection Program Manager (RPPM), Radiological Protection Technical Program Manager (RPTPM), Radiological Engineer, and Radiological Control Technician (RCT) Supervisors and RCTs are required to read this procedure.

4.0 PROCEDURE

4.1 General Description

RPPM

4.1.1 Establish the types and frequencies of surveys that shall be used for area and individual monitoring.

4.1.2 Ensure monitoring and surveys of areas are performed to:

- Demonstrate compliance with *Title 10, Code of Federal Regulations, Part 835* (10 CFR 835) [§835.401(a)(1)];
- Document radiological conditions [§835.401(a)(2)];
- Detect changes in radiological conditions [§835.401(a)(3)];
- Detect the gradual buildup of radioactive material [§835.401(a)(4)];
- Verify the effectiveness of engineered and administrative controls in containing radioactive material and reducing radiation exposure [§835.401(a)(5)]; and
- Identify and control potential sources of individual exposure to radiation and or radioactive material [§835.401(a)(6)].

4.1.3 Ensure instruments and equipment used for monitoring are:

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- Periodically maintained and calibrated on an established frequency [§835.401(b)(1)];
- Appropriate for the type(s), levels, and energies of the radiation(s) encountered [§835.401(b)(2)];
- Appropriate for existing environmental conditions [§835.401(b)(3)];
- Routinely tested for operability [§835.401(b)(4)]; and
- Selected based on the work being performed and measurement sensitivity [e.g., Minimum Detectable Concentration/alarm capability] required.

NOTE: Instrumentation design requirements for operation in the anticipated environmental conditions are determined from vendor specifications, applicable workplace application experience, or tests conducted in accordance with American National Standards Institute, (ANSI) N42.17.

RCT

- 4.1.4** Perform and document radiological monitoring surveys and report changes in radiological conditions, or changes in the effectiveness of engineering controls to radiation control (RADCON) Supervision.
- 4.1.5** Perform real-time air monitoring whenever airborne radioactivity concentrations become high enough to warrant immediate action to terminate inhalation of airborne radioactive material [§835.403(b)]

NOTE: Real time air monitors should have alarm capability and sufficient sensitivity to alert potentially exposed individuals that immediate action is necessary in order to avoid or minimize or terminate inhalation exposures.

RPPM

- 4.1.6** Conduct a review of surveys and other documentation for area and personnel monitoring to assure the effectiveness of the RADCON Program.

RPTPM

- 4.1.7** Perform appropriate calibrations and performance testing on radiological detection instruments at least annually in accordance with PRS-CDL-0060 and ANSI N323A-1997 §4.9 [§835.401(b)(1)] <PRS-NFS-1394, Revision 0, August 2007 – Section 7.8>

RCT

- 4.1.8** Obtain reference readings for each instrument upon initial use or when the instrument is received in the field following calibration.
- 4.1.9** Test instruments routinely for operability, including source response checks, daily, or prior to each intermittent use, whichever is less frequent, in accordance with ANSI N323A-1997 §4.8 [§835.401(b)(4)].

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NOTE: A reference and/or response check on all scales or decades for high range instruments or neutron exposure rate instruments may not be feasible.

4.2 Radiation and Contamination Survey/Monitoring Frequency

- RPPM **4.2.1** Assure that radiation and contamination surveys are performed on a frequency necessary to document radiological conditions in the workplace, detect changes in radiological conditions, and verify the effectiveness of physical design features in reducing exposures.
- RCT **4.2.2** Perform routine and task-specific radiation and contamination surveys on a frequency:
- As specified by the routine radiological survey schedule, Radiological Work Permits (RWP), RADCON procedures, or as directed by supervision;
 - Daily for contamination at active Boundary Control Stations;
 - Routinely in offices and break/lunch rooms that have the potential for contamination; and
 - Before, during and after work (if applicable) that has the potential for causing changes in radiation exposure or contamination conditions.
- Radiological Engineer **4.2.3** Document an annual evaluation of routine radiological surveys and monitoring frequencies and make appropriate changes based on the observed trends, likelihood for changing radiological and/or work site conditions and probability of spreading contamination. The evaluation shall include a documented review, summation and analysis of all routine radiological surveys.
- RPPM **4.2.4** Review and approve annual survey report evaluation and any revisions, as applicable.

4.3 Air Sampling/Monitoring Frequency

- RPPM **4.3.1** Assure that air sampling/monitoring is performed in the workplace on a frequency necessary to identify, quantify, and control potential sources of personnel exposure to airborne radioactive material.
- RCT **4.3.2** Perform air sampling on a frequency as specified by PRS-RAD-0202, *Technical Basis for the Air Monitoring Program*, the RWP, and as directed by supervision.

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5.0 RECORDS

Applicable records generated or received as a result of performing this procedure must be controlled. The following records are generated by this procedure and **SHALL** be maintained in accordance with PRS-RAD-1401, *Radiation Protection Program Records*.

- Annual review of routine radiological survey and monitoring frequencies.
- Documentation of instrument calibration and operability checks.

6.0 SOURCE DOCUMENTS

- 10 CFR 835, *Occupational Radiation Protection*
- ANSI N42.17, *Performance Specifications for Health Physics Instrumentation*
- ANSI N323A-1997, *American National Standard Radiation Protection Instrumentation Test and Calibration, Portable Survey Instruments*
- PRS-CDL-0060, *Radiation Protection Plan for the Environmental Remediation Project; Paducah, KY*
- PRS-RAD-1107, *Workplace Air Monitoring for Radioactivity*
- PRS-RAD-1110, *Radiation Surveys*
- PRS-RAD-1109, *Radioactive Contamination Control and Monitoring*
- PRS-RAD-0104, *Radiation Protection Glossary*
- PRS-RAD-0202, *Technical Basis for Air Monitoring Program*