RECON Procedure: REC-WP-5-01

Check Source Accountability

Thorium Remediation Project
Tulsa, Oklahoma

REVISION: **02**

EFFECTIVE DATE: **JUNE 2004**

Bill Vinzant
Approved by: J. W. (Bill) Vinzant – Project Manager

6-15-04
Date

Kaiser Aluminum & Chemical Corporation

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Danny P. Brown – Project Manager / Date Richard Lewis – Quality Control Supervisor / Date

Remedial Construction Services, L.P.

1.0 PURPOSE

The purpose of this procedure is to ensure that the check sources that are used for daily instrument checks are kept under positive control and to ensure the integrity of the source.

2.0 DEFINITIONS

Positive control: The ensurement that access to sources is restricted.

Check source: Sources of radiation that are used to periodically assure the operation of calibrated instruments.

3.0 PREREQUISITES/PRECAUTIONS/LIMITATIONS

3.1 This procedure is only to be implemented on sealed sources that do not fall under the exempt quantities limits set by 10 Code of Federal Regulations (CFR) 39.35.

3.2 Sealed sources that only emit alpha particles require leak testing every 3 months.

3.3 Sealed sources that are neutron, beta, gamma, or a combined alpha emitter require leak testing every 6 months.

3.4 It is recommended that the surveying individuals handling the sealed source wear surgeons' gloves or forceps. The natural oils that are released by the human body can, over time, degrade the finish of the electroplated isotopes. Also, a build up of oil may cause inaccuracy when using the sealed sources as check sources.

4.0 EQUIPMENT

- Smears or Swipes
- Dionized (DI) water
- Sample containers
- Appropriate instrumentation (i.e., gas proportional)
- Surgical gloves
- Forceps

5.0 PROCEDURE

5.1 Accountability

5.1.1 All check sources that are to be used for instrument calibration shall be kept under positive control by the on-site employee(s) of Remedial Construction Services, L.P. (Recon). Positive control on location includes locking up sources in storage locker when not in use. Recon will maintain documentation when check sources are used for calibration checks, and supervision of the check source when it is being used.

5.1.2 Physical inventories shall be conducted at least once every six months and the inventory findings documented.

5.2 Leak Testing

5.2.1 Establish Background

5.2.1.1 Background will be established by following the guidance provided by the manufacturer. Recon will use a blank swipe for determining background. This will ensure that the counting of the surveys contains the same geometry as the background counting.

5.2.2 Surveying Sealed Sources

5.2.2.1 Record all information on form REC-WP-3-05-1 that accompanies each particular sealed source (i.e., serial number, isotope, origin date, responsible person, decay method, date, time, and survey interval).

5.2.2.2 The survey is done by swiping all edges, seams, and openings where it may be possible for the sealed source to "leak" or breakdown.

5.2.2.3 Only one swipe is usually required per source. However, this may vary due to the physical dimensions of some particular sources.

5.2.2.4 After swiping is complete, each swipe is placed in a labeled sample container until it is counted on model 2929 with a 43-10-1 detector to ensure that the source has retained its physical integrity.

5.2.2.5 Record all information obtained from counting the swipes REC-WP-3-05-1.

5.2.2.6 If elevated readings (.005 μCi) are obtained from performing a survey on a sealed source the survey may be performed again. If the surveyor is confident that the initial results are accurate than the source must be disposed of in accordance with Nuclear Regulatory Commission guidelines for the disposal of that particular isotope.

6.0 REFERENCES

6.1 10 CFR 39.35, "Leak Testing of Sealed Screens"

7.0 ATTACHMENTS

Form REC-WP-3-05-1 Sample Log for Ludlum 2929 with a 43-10-1 Detector

Form REC-WP-3-05-1

Form REC-WP-3-05-1
Removable Alpha/Beta Survey Sample Log Detector

Instrument Model:	2929
Instrument S/N:	
Detector Model:	43-10-1
Detector S/N:	
Calibration Due:	

Source S/N:	N/A	N/A
Source Amount	N/A	N/A
Radiation Detected:	Alpha	Beta
Acceptable Range:		
(Refer to REC-WP-2-01-1)		

Date	Background Count Rate Alpha (cpm)	Background Count Rate Beta (cpm)	Gross a Sample Count Rate (cpm)	Gross b Sample Count Rate (cpm)	Net a Sample Count Rate (cpm)	Net b Sample Count Rate (cpm)	a Contamination (dpm/100 cm^2)	b Contamination (dpm/100 cm^2)	Technician	Comments

Prepared By:	Date:
Reviewed By:	Date: