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Subject: Blue Alert- Radioactive Contamination on Metal Parts and Soil

**TITLE: Blue Alert- Radioactive Contamination on Metal Parts and Soil in the Interim Drum Yard**

IDENTIFIER L-1999-OR-BJCY12-1201 DATE December 2, 1999

**LESSON LEARNED STATEMENT-** Legacy contamination can be encountered in unexpected areas. When suspect materials are found, immediate action should be taken in order to determine if contamination is present, and, if so, at what levels. Mitigating/corrective measures should be implemented as soon as possible in order to prevent possible spread of contamination.

**DISCUSSION OF ACTIVITIES-** During normal surveillance and maintenance inspections, while preparing for site weed-eating and mowing in the Interim Drum Yard (IDY), a few pieces of miscellaneous metal were found in the area. The metal was comprised of small valve parts, small diameter tubing, and a stainless steel cylinder. A radiological control technician (RCT) was called to the area. Preliminary survey of the suspect area showed elevated radiation readings on the metal parts and certain scattered areas of soil. Some of these soil areas contained a yellow colored material. Based on this preliminary survey, the area was posted as a contamination area. The Plant Shift Superintendent (PSS) was notified of the changed condition and the changed postings. Prior to the site being posted as a contamination area, there was a physical barrier consisting of yellow rope with signage attached, notifying personnel that no unauthorized entry was allowed. An RCT was assigned to complete a more thorough survey of the area.

**ANALYSIS-** The direct cause of this event was Radiological/Hazardous Material Problem - Legacy Contamination. Past DOE radiological practice requirements were less stringent than current standards. Plant structures, sites, and equipment became contaminated when items with removable contamination were improperly transferred to and from radiological areas without being surveyed and/or decontaminated (when required). The complete site has not been previously characterized nor the degree and extent of radiological contamination documented. As this effort progresses, areas determined to be contaminated are posted, cataloged, and placed under radiological control. No records could be found that explain the presence of the contaminated metal parts and yellow colored soil areas in the IDY. The root cause was determined to be Radiological/Hazardous Material Problem - Source Unknown. The items identified in this report are the result of the identification of unknown legacy contamination. An occurrence was filed due to the unexpected high radiological survey readings discovered in the IDY. The metal parts had apparently been at this location for some period of time as evidenced by their rusting condition and the yellow colored areas of soil were randomly scattered throughout the IDY. To prevent this type of "dumping" from occurring today, all subcontractors and employees are required to take General Employee Training (GET). This training includes information that educates the workers on the proper disposition of waste and/or radiological materials. There is no evidence that the area was used for any activity after the removal of all drums in November 1992. There are no structures or facilities in the immediate area or up slope

of the area that could be determined as the source of the contamination; therefore, the past cause of the contamination cannot be confirmed. Subsequent to discovery of the unauthorized material on the ground within the area by the RA Surveillance and Maintenance personnel, it has been posted as a Contamination Area with radiological roping and RWP entry signs posted as stated above. No further corrective actions for the site are required because it has previously been identified as an area requiring remediation.

**RECOMMENDED ACTIONS-** Other DOE sites that have the potential for unidentified contamination areas should evaluate their operations for this lessons learned. When planning or performing work activities in areas that 1) do not have any current radiological survey information, 2) management responsibility has recently been changed, or 3) require initial entry for planned surveillance and maintenance work, plan to include radiological surveys and have contingency plans in place should contamination be discovered.

**PRIORITY DESCRIPTOR** Blue/Information

**FUNCTIONAL CATEGORY(S)** (DOE) Environmental Restoration and Waste Management; Radiological Protection

**BJC TREND CODE(S)** (USER-DEFINED) WM - Waste Management; RP - Radiological Protection

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**KEYWORDS** contamination, legacy contamination, metal

**REFERENCES** Occurrence Report Number ORO--BJC-Y12WASTE-1999-0005

**HAZARDS** Radiological

**WORK ACTIVITY** Facility Maintenance

**FOLLOW-UP ACTION-** Information in this report is accurate to the best of our knowledge. As means of measuring the effectiveness of this report please notify Joanne E. Schutt at (423) 574-1248, e-mail at [s6u@ornl.gov](mailto:s6u@ornl.gov) of any action taken as a result of this report or of any technical inaccuracies you find. Your feedback is important and appreciated.