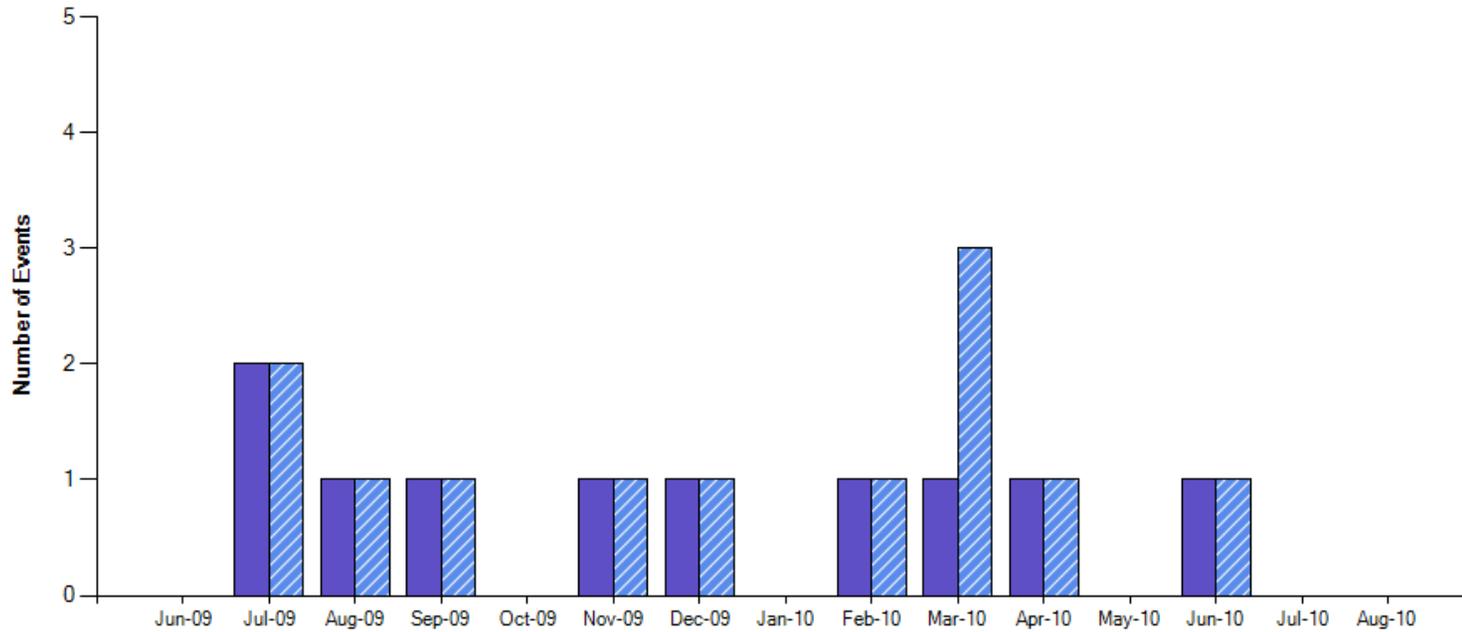


## LWO RADIOLOGICAL SAFETY PERFORMANCE

### Non-ORPS Reportable Personnel Contamination Errors/Cases

Through August 31, 2010



Title	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10
Non-ORPS Reportable Cont. Errors	0	2	1	1	0	1	1	0	1	1	1	0	1	0	0
Non-ORPS Reportable Cont. Cases	0	2	1	1	0	1	1	0	1	3	1	0	1	0	0

#### Definition

This chart reflects non-ORPS reportable personnel contamination errors/cases per month >500 dpm alpha or >5000 dpm beta-gamma. The non-ORPS errors represent the number of events per month and the non-ORPS cases represent the number of personnel involved in the event. Non-ORPS errors are a leading indicator for ORPS events. Oct 2009 begins the new Fiscal Year

#### Analysis

**Current Data:** None

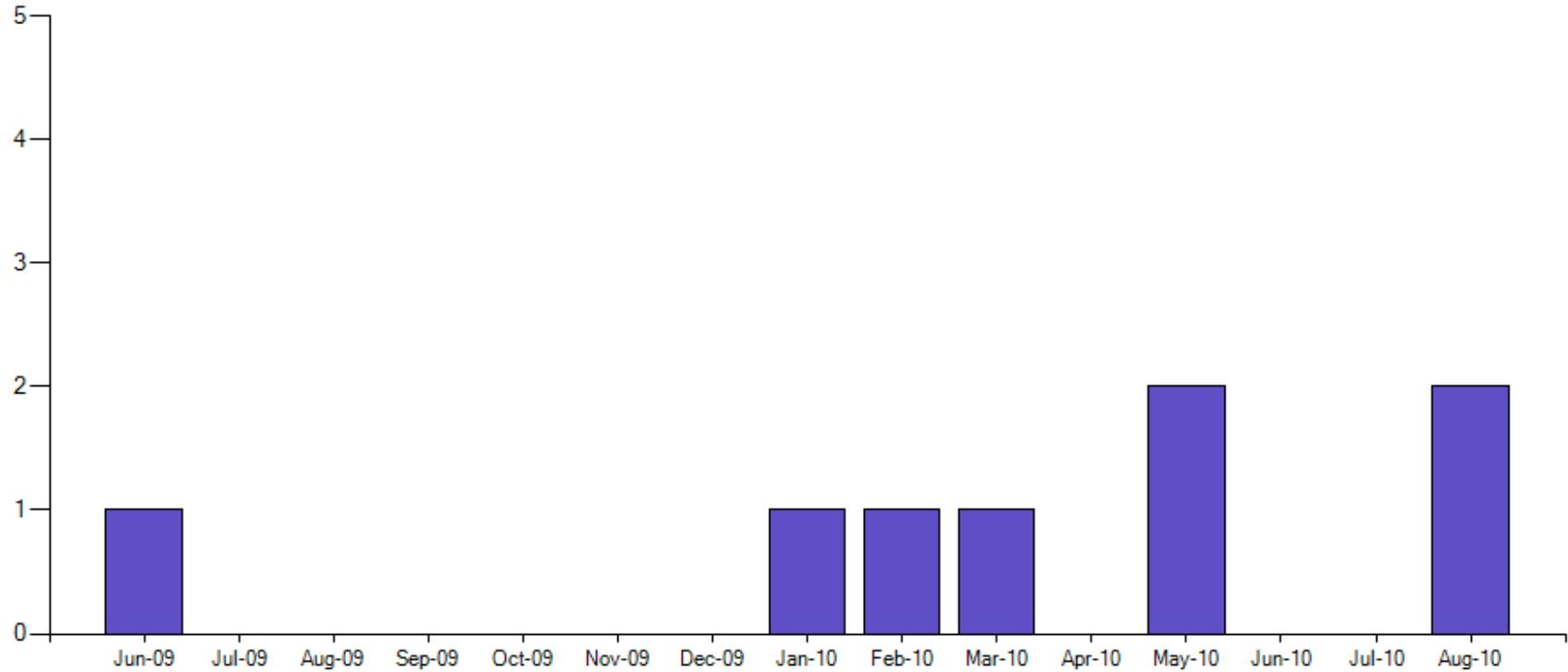
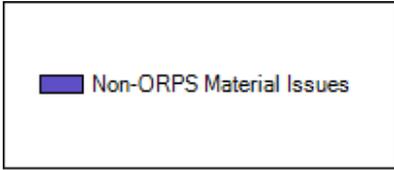
**Historical Data:** **11/11/08:** DWPF shoe 18K d/m/100cm<sup>2</sup> BG **7/7/09:** DWPF M14 Lab tech contaminates face to 12K d/m/100cm<sup>2</sup> BG, ND alpha. **7/15/09:** Saltstone BSRI carpenter contaminates modesty clothing repairing hut to 25K d/m/100cm<sup>2</sup> BG, ND alpha. **8/6/09:** Saltstone BSRI carpenter contaminates modesty clothing at Vault 4, Cell E to 40K d/m/100cm<sup>2</sup> BG, ND alpha. **9/8/09:** DWPF:SRNS Crane inspector contaminates skin/clothes to 12K d/m/100cm<sup>2</sup> BG, ND alpha from contaminated crane pendant (80K d/m BG) in RBA, **11/29/09:** DWPF M14 Lab Tech

contaminates facial area to 24K d/m/100cm<sup>2</sup> BG, ND alpha, **12/4/09**: DWPF CDMC Mech. contaminates hand to 16K d/m/100cm<sup>2</sup> BG, ND alpha, **2/19/10**: Saltstone Operator contaminates personnel clothing to 40K d/m/100cm<sup>2</sup> BG at Vault 4. **3/3/10**: Saltstone Three workers personnel clothing became contaminated to a maximum of 40K d/m/100cm<sup>2</sup> BG when a bag of waste leaked 500K d/m/100cm<sup>2</sup> BG on the bumper of the truck while unloading it in an RBA to be placed in a B-25, **4/1/10**: Saltstone: One worker's personnel clothing became contaminated to a maximum of 17K d/m/100cm<sup>2</sup> BG and maximum of 2K d/m/100cm<sup>2</sup> BG on skin while performing work on Vault 4 roof, **6/3/10**: FTF Const. worker contaminates pants leg in RBA during line break 20K d/m/100cm<sup>2</sup> BG.

**Action:** SRR management continues to closely monitor contamination events, even those minor errors that are below the ORPS reporting thresholds. The minor errors are used as a leading indicator that may signal adverse trends that could lead to an increase in the number of reportable events. For each event, corrective actions are taken and documented in STAR and a review is performed for any commonalities that may exist.

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DOE PI Owner: Charles Radford (803) 952-8595

**M&O Non-ORPS**  
**Radioactive Material/Contamination**  
**Radiological Protection**  
**Through August 31, 2010**



Title	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10
Non-ORPS Material Issues	1	0	0	0	0	0	0	1	1	1	0	2	0	0	2
Offsite Discovery	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Definition**

This chart reflects the number of ORPS (6B5) reportable occurrences of radioactive material or spread of contamination found outside of radiological areas (includes RBAs not contiguous with a Contamination Area, clean areas, and controlled areas). Area Non-ORPS errors are leading indicators for Area ORPS events.

**Analysis**

**Analysis: Current Non-ORPS Errors: 8/17/10 ACP-D-Area:** Fixed contamination of 14,000 d/m/100cm<sup>2</sup> BG was found on 420-2D in Zone E. **8/23/10 SFP L-Area:** Plastic wrap around HTS Rack #5 tore when placed on cribbing spilling SP-400 absorbent with a maximum of 6K d/m/100cm<sup>2</sup> BG.

**Historical Data: 1/22/08 HCA:** Leak found on the east side of HCA at nozzle 82A, 2K d/m/100cm<sup>2</sup> alpha, 4K d/m/100cm<sup>2</sup> BG. **1/25/08 HCA:** Contaminated alpha instrument from 221-HOF, 600 d/m/100cm<sup>2</sup> alpha. **2/7/08 HCA:** Contaminated alpha instrument from 221-H, 600 d/m/100cm<sup>2</sup> alpha. **2/8/08 SRNL:** Contaminated lead found in B-003 during excess activities, 4K d/m/100cm<sup>2</sup> alpha, 2K d/m/100cm<sup>2</sup> BG. **2/20/08 FCA:** FCA W. Dock Area RBA contaminated (see non-ORPS PE), 3K d/m/100cm<sup>2</sup> alpha. **2/28/08 C/S:** RO-20 dose rate instrument contaminated, 400 d/m/100cm<sup>2</sup> alpha, 34K d/m/100cm<sup>2</sup> BG. **3/11/09 Tritium:** Retired equipment found contaminated in clean area, 47K d/m/100cm<sup>2</sup> H3. **3/27/08 SWM:** Contaminated TRU drum found in RMA, 47 d/m/100cm<sup>2</sup> alpha, 11,507 d/m/100cm<sup>2</sup> BG. **4/3/08 SRNL:** F-154 contaminated cabinet found during relocation activities, 20K d/m/100cm<sup>2</sup> BG. **4/29/08 B-Lab:** Contaminated Cs137 Pit Source shield from L-Area found contaminated during release survey, 8K d/m/100cm<sup>2</sup> BG. **6/9/08 SWM/HCA:** Sealand shipment from 211-H-A-Line to SWM leaked yellow substance, 8K d/m/100cm<sup>2</sup> alpha (U-Nat), 200K d/m/100cm<sup>2</sup> BG. **6/18/08 SWM/N-Area:** 3 Offsite Shipping containers from Material & Energy Corp. found contaminated upon receipt, 1700 d/m/100cm<sup>2</sup> alpha. **6/26/08 221-H OF:** EUS RMA stairway found contaminated, 24K d/m/100cm<sup>2</sup> alpha (U-Nat), 300K d/m/100cm<sup>2</sup> BG. **7/28/08 SFP:** C-Area rail spur found contaminated, 20K d/m/100cm<sup>2</sup> BG. **9/25/08 SWM:** Crowbar contaminated at Sealand, 2K d/m/100cm<sup>2</sup> alpha (see ORPS PE). **3/26/09 REF/ACP:** Contaminated respirator, 4K d/m/100cm<sup>2</sup> alpha & BG. **4/29/09 REF/ACP:** Contaminated Respirator, 30K d/m/100cm<sup>2</sup> BG. **6/8/09 REF/ACP:** Contaminated respirator, 12K d/m/100cm<sup>2</sup> BG. **1/4/10 Tritium:** Contaminated protective shipping cap, 43,517 d/m/100cm<sup>2</sup> H3. **2/11/10 REF/ACP:** Contaminated work table, <10K d/m/100cm<sup>2</sup> BG (100% SR), **3/10/10 SWM:** Drum on Pad 6 found to be contaminated to 4K d/m/100cm<sup>2</sup> alpha (transferable 1370 d/m/100cm<sup>2</sup> alpha), **5/10/10 ACP:** Found 14K d/m/100cm<sup>2</sup> BG (probe) during roll back of RMA laundry shack in R-Area, **5/20/10 FCA:** Fire Water Valve contaminated to 3K d/m/100cm<sup>2</sup> alpha probe and 105 d/m/100cm<sup>2</sup>

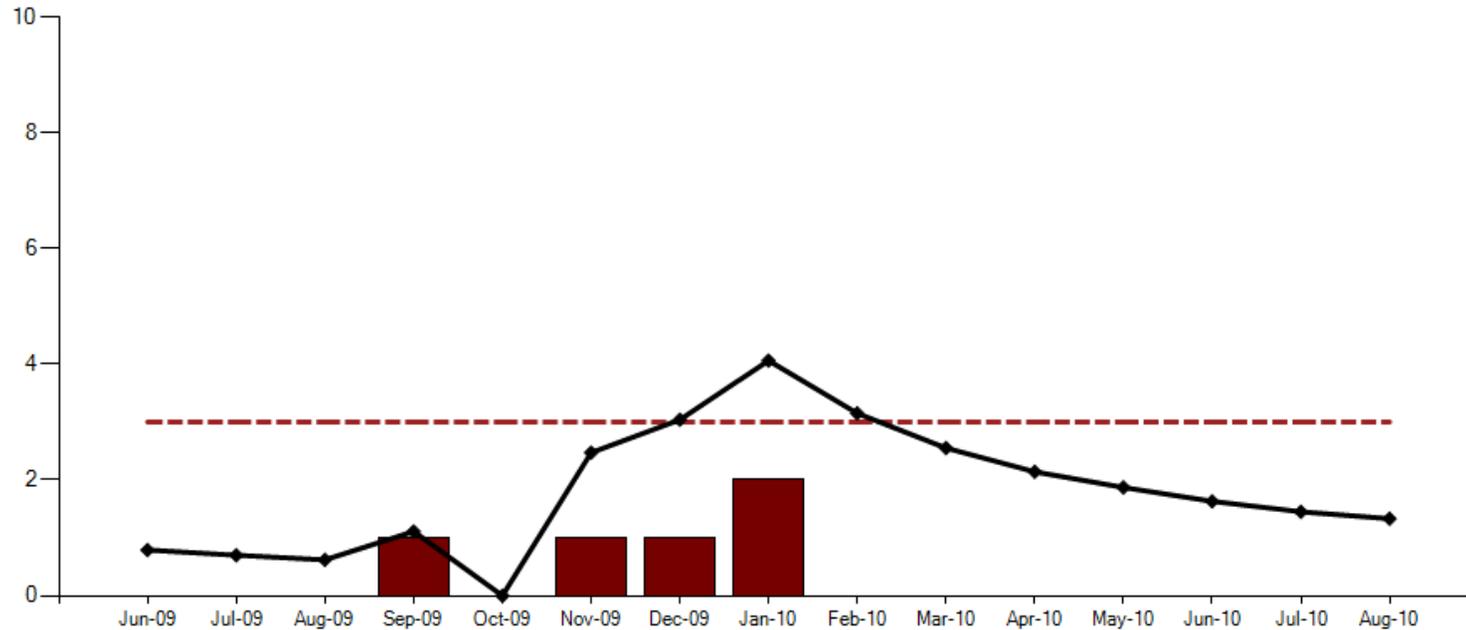
**Action:**

Star Third Tier Bin Items are being categorized with regard to ISMS Core Function. This process will support identification of areas of concern for review and address in response to these leading indicators. Performance continues to be acceptable and stable.

**Scoring Target**

Blue	≤ 1.5
Purple	> 1.5 - < 2.5
Green	≥ 2.5 - < 5.0
Yellow	> 5.0 - < 7.5
Red	> 7.5

**M&O Radiological Safety Performance**  
**Reportable Personnel Contamination Events/200,000 RWP-hrs**  
 Through August 31, 2010



Title	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10
Contamination Events	0	0	0	1	0	1	1	2	0	0	0	0	0	0	0
Contamination Events (FY)	1	1	1	2	0	1	2	4	4	4	4	4	4	4	4
Goal/200,000 RWP-hrs	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
RWP Hrs. (Month)	31286	32706	34354	38857	35698	45146	50678	65508	56915	59900	59934	53599	62660	59978	52146
RWP Hrs. (FY)	254435	287141	321495	360352	35698	80844	131522	197030	253945	313845	373779	427378	490038	550016	602162
Fiscal YTD Rate	0.79	0.7	0.62	1.11	0	2.47	3.04	4.06	3.15	2.55	2.14	1.87	1.63	1.45	1.33
Score: Fiscal YTD Rate	≤1.5	≤1.5	≤1.5	≤1.5	≤1.5	>1.5	≥2.5	≥2.5	≥2.5	≥2.5	>1.5	>1.5	>1.5	≤1.5	≤1.5

**Definition**

This chart reflects the number of ORPS reportable personnel contamination events per month. Beginning in Oct. 2008 the annual goal converted to an annual goal of ≤ 3.0 events per 200,000 RWP-hours. The FYTD rate is obtained by multiplying the number of events by 200,000 hours and dividing by the number of applicable RWP hours. The score coincides with the FYTD Rate. October 2009 begins FY2010.

## Analysis

**Analysis:** Excellent **Color:** Blue

**ORPS(6D3) Event:** None

**Historical ORPS(6D3) Event:** **4/21/08 SRNL** Researcher's white labcoat was contaminated to 10K d/m/100cm<sup>2</sup> alpha and shirt to 9500 d/m/100cm<sup>2</sup> alpha, **9/5/08 SRNL** 2 Researchers contaminate skin 80K-100K d/m/100cm<sup>2</sup> BG, **9/25/08 SWM MRS** 2 Op contaminated PE 20K d/m/100cm<sup>2</sup> alpha & 3K d/m/100cm<sup>2</sup> alpha (non-ORPS) **11/24/08 HBL** shoe 80K d/m/100cm<sup>2</sup> alpha, **9/10/09 HCA** Construction worker contaminates PE 40K d/m/100cm<sup>2</sup> alpha, **11/9/09 SWM 2** Ops contaminated PE working w/Pu238 drums to 10K d/m/100cm<sup>2</sup> alpha (worker 1) & 100K d/m/100cm<sup>2</sup> alpha (worker 2), **12/23/09 SRNL:** Lab Tech contaminates white labcoat in B-103 to 400K d/m/100cm<sup>2</sup> BG, **1/18/10 CLAB** 1 Construction worker contaminated personal clothing to 15K d/m/100cm<sup>2</sup> alpha while renovating Control room in 772-1F. **1/25/10 SRNL** Lab tech. contaminates white labcoat (4-10K d/m/100cm<sup>2</sup> alpha), PE (800 d/m/100cm<sup>2</sup> alpha), and skin (400 d/m/100cm<sup>2</sup> alpha) while working with samples in B-134.

### **Action:**

Star Third Tier Bin Items are being categorized with regard to ISMS Core Function. This process will support identification of areas of concern for review and address in response to these leading indicators. Performance continues to be acceptable and stable.

SRNS PI Owner: Jim Stafford (803) 952-9888, SRNS SME Ellen Parrish (803) 208-1027

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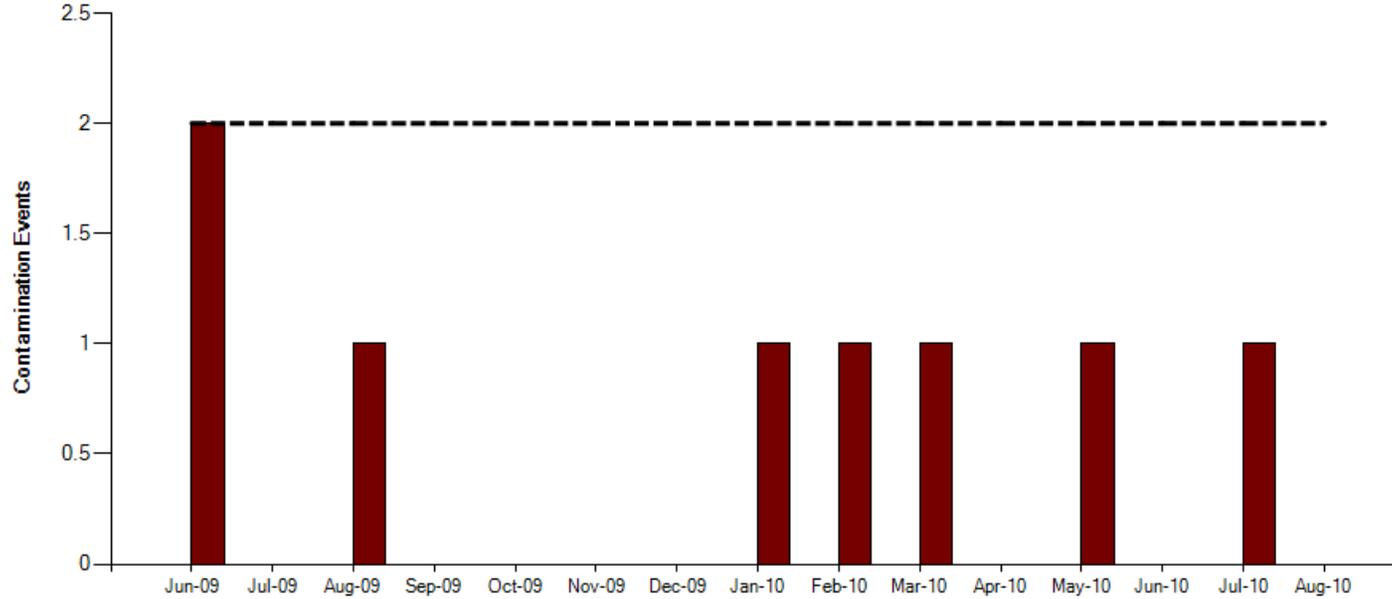
## M&O RADIOLOGICAL SAFETY PERFORMANCE

### Number of Occurrences of Radioactive Material/Contamination Detected Outside of Radiological Areas

Through August 31, 2010

#### Scoring Target

Blue	≤ 1 per month
Purple	> 1 per month
Green	> 3 per month
Yellow	> 6 per month
Red	> 9 / month or 1 offsite



Title	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10	Jul-10	Aug-10
Offsite Contamination Events	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Score: Offsite Contamination Events	=0	=0	=0	=0	=0	=0	=0	=0	=0	=0	=0	=0	=0	=0	=0
Contamination Events	2	0	1	0	0	0	0	1	1	1	0	1	0	1	0
Score: Contamination Events	>1	<=1	<=1	<=1	<=1	<=1	<=1	<=1	<=1	<=1	<=1	<=1	<=1	<=1	<=1

#### Definition

This chart reflects the number of ORPS (6B1, 6B2, 6B3, 6B4) reportable occurrences of radioactive material or spread of contamination found outside of radiological areas (includes RBAs not contiguous with a Contamination Area, clean areas, and controlled areas).

#### Analysis

**Color:** Blue  
**Analysis:** Excellent

**Current ORPS Events:** None

**Historical ORPS Events:** **3/3/08 SWM** Empty culvert contaminated to 16K d/m/100cm<sup>2</sup> alpha, **3/13/08 SPF** 105-C Legacy cask shipment to ORNL w/internal contam. 5,188,130 d/m/100cm<sup>2</sup> 3H, **3/18/08 HPICL** Tungsten source shield contaminated to 600K d/m/100cm<sup>2</sup> BG, **8/25/08 F-Area** DUO Oxide Gondola Rail car metal piece probes 800 d/m/100cm<sup>2</sup> alpha and 60K d/m/100cm<sup>2</sup> BG, **2/26/09 ACP** 100-P Settler Tank paint chips 130K d/m/100cm<sup>2</sup> BG, **6/29/09 105-C** Deionizer Pad 180K d/m/100cm<sup>2</sup> BG, **6/25/09 Tritium** HAOM 1.1E6 d/m/100cm<sup>2</sup> 3H, **8/30/09 L-Area** RMA Canisters 70K d/m/100cm<sup>2</sup> BG fixed, **1/29/10 SWBG Pad 17** Contamination found on footprint area of culvert mining. Max. fixed was 60K d/m/100cm<sup>2</sup> alpha, max. transferable was 40,100 d/m/100cm<sup>2</sup> alpha, **2/2/2010 SRNL** Contaminated chair found in F-090 Breakroom with maximum contamination of 280K d/m/100cm<sup>2</sup> BG, 20K d/m/100cm<sup>2</sup> alpha, **3/10/10 HOF:** A valve on the High Line at 211-H was found to be probing 20K d/m/100cm<sup>2</sup> alpha & BG. **5/3/10 SWM** Culvert ML14 leaked at bottom seam on Pad 1: 80K d/m/100cm<sup>2</sup> alpha (probe), **7/26/10 SWM:** 85-gallon TRU drum overpack on Pad 16 found leaking with levels >2,000,000 d/m alpha probing.

**Action:**

Star Third Tier Bin Items are being categorized with regard to ISMS Core Function. This process will support identification of areas of concern for review and address in response to these leading indicators. Performance continues to be acceptable and stable.

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