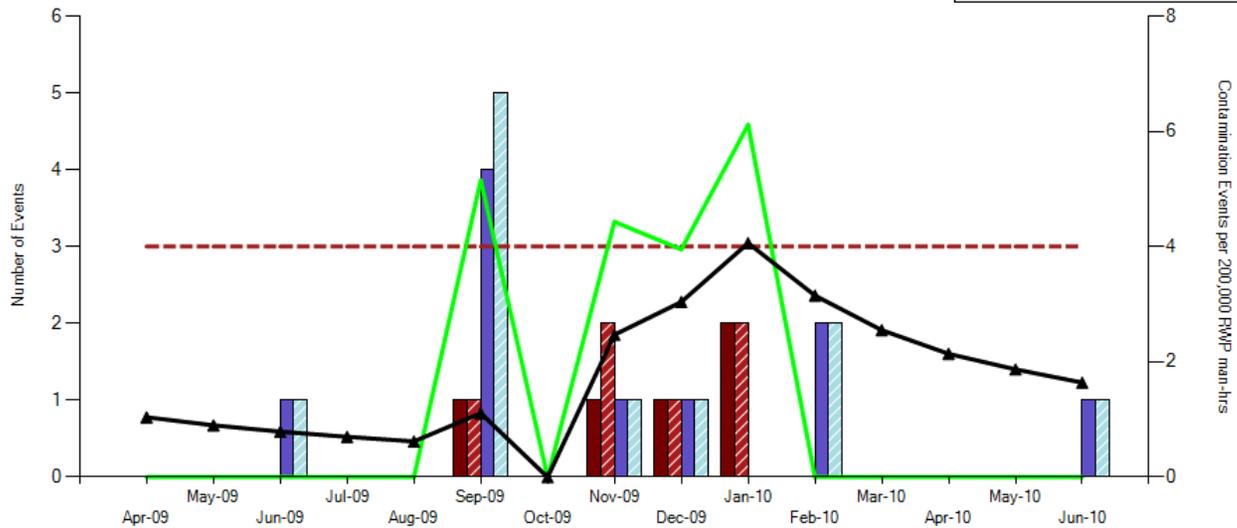


**M&O Radiological Safety  
Total ORPS and Non-ORPS  
Reportable Personnel Contamination Events/Cases  
Through June 30, 2010**



Title	Apr-09	May-09	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
ORPS Cont. Events	0	0	0	0	0	1	0	1	1	2	0	0	0	0	0
ORPS Cont. Events (FY)	1	1	1	1	1	2	0	1	2	4	4	4	4	4	4
ORPS Cont. Cases	0	0	0	0	0	1	0	2	1	2	0	0	0	0	0
Non-ORPS Cont. Errors	0	0	1	0	0	4	0	1	1	0	2	0	0	0	1
Non-ORPS Cont. Cases	0	0	1	0	0	5	0	1	1	0	2	0	0	0	1
Goal/200,000 RWP-hrs	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
RPW Hrs. (Month)	27935	30288	31286	32706	34354	38857	35698	45146	50678	65508	56915	59900	59934	53599	60349
RWP Hrs. (FY)	192861	223149	254435	287141	321495	360352	35698	80844	131522	197030	253945	313845	373779	427378	487727
ORPS Event Monthly Rate	0	0	0	0	0	5.15	0	4.43	3.95	6.11	0	0	0	0	0
ORPS Event FYTD Rate	1.04	0.9	0.79	0.7	0.62	1.11	0	2.47	3.04	4.06	3.15	2.55	2.14	1.87	1.64
Score: ORPS Event FYTD Rate	<=1.5	<=1.5	<=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

## Definition

This chart reflects non-ORPS and ORPS reportable personnel contamination events/cases per month >500 dpm alpha or >5000 dpm beta-gamma. Beginning in Oct. 2008 we converted to an annual goal of  $\leq 3.0$  events per 200,000 RWP-hrs. The monthly and 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. The non-ORPS portion of this PI is a leading indicator for ORPS events. October 2009 begins FY2010.

## Analysis

**Analysis:** Very Good **Color:** Purple

**Current ORPS(6D3) Events:** None

**Current Non-ORPS Errors:** **6/12/10 F/H Lab** Lab Tech's jeans and skin were contaminated when a loose cap on a peanut vial caused the Tech to drop the vial splashing acidic sample onto their lab coat which permeated the labcoat onto jeans/skin. Maximum contamination 2000 d/m/100cm2 alpha (wet) on jeans and 300 d/m/100cm2 alpha on skin.

**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.

**Historical ORPS(6D3) Events:** **4/21/02 SRNL** Tech in B159 contaminates lab coat to 10K d/m/100cm2 alpha and shirt in chest area to 9500 d/m/100cm2 alpha, **9/5/08 SRNL** 2 Researchers contaminate skin 80K-100K d/m/100 cm2 BG, **9/25/08 SWM MRS** 2 Op contaminated PE 20K d/m/100cm2 alpha & 3K d/m/100cm2 alpha (non-ORPS) **11/24/08 HBL** shoe 80K d/m/100cm2 alpha, **9/10/09 HCA** Const. worker PE 40K d/m/100cm2 alpha, **11/9/09 SWM:** 2 Ops contaminated PE working w/Pu238 drums to 10K d/m/100cm2 alpha (worker 1) & 100K d/m/100cm2 alpha (worker2), **12/23/09 SRNL:** Lab tech contaminates white labcoat in B-103 to 400K d/m/100cm2 BG, **1/18/10 F/H Lab:** Construction contaminates PE to 15K d/m/100cm2 alpha while renovating CR in 772-1F, **1/25/10 SRNL:** Lab tech contaminates white labcoat (4-10K d/m/100cm2 alpha), PE (800 d/m/100cm2 alpha), and skin (400 d/m/100cm2 alpha) while working with samples in B-134,

**Historical Non-ORPS(6D4) Errors:** **5/6/08 FCA TRU** Op contaminates modesty clothing to 4K d/m/100cm2 alpha and skin to 500 d/m/100cm2 alpha, **5/16/08 SRNL** Employee shoe found contaminated in PCM to 40K d/m/100cm2, BG, **5/21/08 645-2N** Three ENSAFE subs were found to be contaminated after opening a drum with a maximum of 1900 d/m/100cm2 alpha, **5/31/08 F/H Lab** Tech's shirt contaminated to 8K d/m/100cm2 BG, **7/9/08 SRNL** B159 one tech's white labcoat was contaminated to 4Kd/m/100cm2 alpha, **9/22/08 HCA 292-H** Mech. contaminates hand 800 d/m/100cm2 alpha, 10K d/m/100cm2 BG, **10/6/08 FCA TRU** shoe 1600 d/m/100cm2 alpha, **11/5/08 SRNL** shoe 12K d/m/100cm2 BG, **11/12/08 SRNL** White Labcoat 600 d/m/100cm2 alpha, **2/26/09 SRNL** White lab coat 8K d/m/100cm2 BG, **6/9/09 HCA** Shoe contaminated 4K d/m/100cm2 alpha, **9/1/09 SRNL** 2 shoes 3K d/m/100cm2 & 2400 d/m/100cm2 alpha, **9/9/09 SRNL** 1 White labcoat 3K d/m/100cm2 alpha, **9/23/09 SRNL** 1 shoe contaminated 800 d/m/100cm2 alpha, **9/24/09 SRNL** 1 White labcoat 50K d/m/100cm2 BG, **11/18/09 FH Lab** shoe contaminated 820 d/m/100cm2 alpha, **12/30/09 105-C SFP:** Construction worker contaminates personnel clothing to 30K d/m/100cm2 BG in Transfer Bay, **2/2/10 SRNL:** Researcher contaminated white labcoat in B-154 to 20K d/m/100cm2 BG, **2/22/10 SRNL:** Lab Tech contaminates shoes in B-067 to 2K d/m/100cm2 alpha (Am241).

## Scoring Target

FYTD Goal is based on ORPS contamination events and RWP-hrs

Blue	$\leq 1.5$
Purple	$> 1.5 - < 2.5$
Green	$\geq 2.5 - < 5.0$
Yellow	$> 5.0 - \leq 7.5$
Red	$> 7.5$

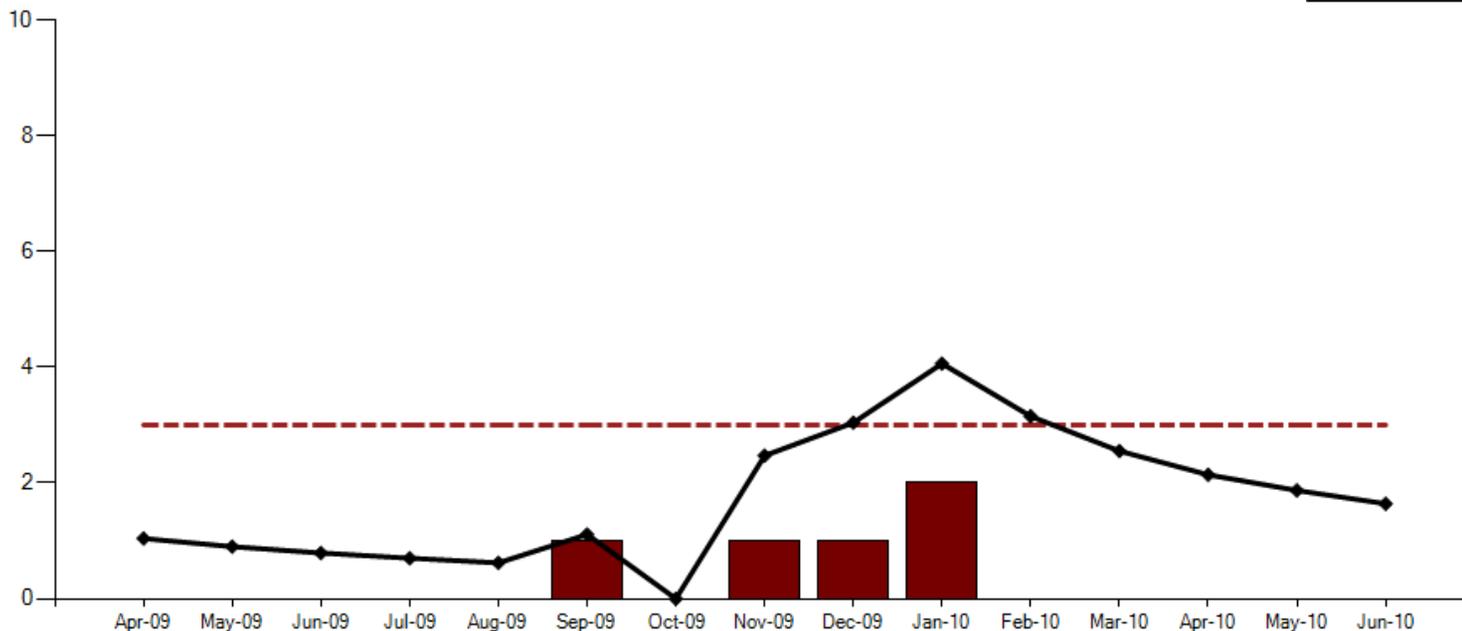
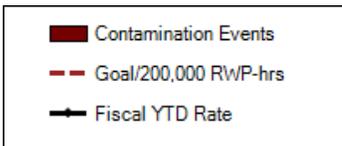
SRNS PI Owner: Jim Stafford (803) 952-9888, SRNS SME Ellen Parrish (803) 208-1027

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

**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 June 30, 2010



Title	Apr-09	May-09	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
Contamination Events	0	0	0	0	0	1	0	1	1	2	0	0	0	0	0
Contamination Events (FY)	1	1	1	1	1	2	0	1	2	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)	27935	30288	31286	32706	34354	38857	35698	45146	50678	65508	56915	59900	59934	53599	60349
RWP Hrs. (FY)	192861	223149	254435	287141	321495	360352	35698	80844	131522	197030	253945	313845	373779	427378	487727
Fiscal YTD Rate	1.04	0.9	0.79	0.7	0.62	1.11	0	2.47	3.04	4.06	3.15	2.55	2.14	1.87	1.64
Score: Fiscal YTD Rate	≤1.5	≤1.5	≤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

**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  $\leq 3.0$  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:** Very Good **Color:** Purple

**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.

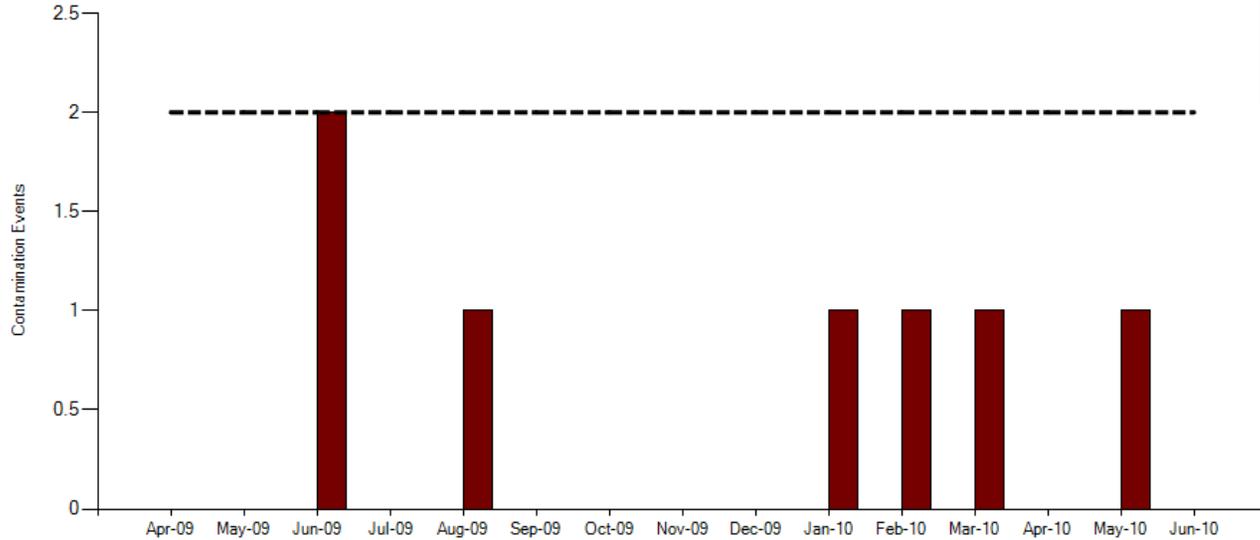
SRNS PI Owner: Jim Stafford (803) 952-9888, SRNS SME Ellen Parrish (803) 208-1027

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

## M&O RADIOLOGICAL SAFETY PERFORMANCE

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

Through June 30, 2010



Title	Apr-09	May-09	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
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	0	0	2	0	1	0	0	0	0	1	1	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/100cm2 alpha, 3/13/08 SPF 105-C Legacy cask shipment to ORNL w/internal contam. 5,188,130 d/m/100cm2 3H, 3/18/08 HPICL Tungsten source shield contaminated to 600K d/m/100cm2 BG, 8/25/08 F-Area DUO Oxide Gondola Rail car metal piece probes 800 d/m/100cm2 alpha and 60K d/m/100cm2 BG, 2/26/09 ACP 100-P Settler Tank paint chips 130K d/m/100cm2 BG, 6/29/09 105-C Deionizer Pad 180K d/m/100cm2 BG, 6/25/09 Tritium HAOM 1.1E6 d/m/100cm2 3H, 8/30/09 L-Area RMA Canisters 70K d/m/100cm2 BG fixed, 1/29/10 SWBG Pad 17 Contamination found on footprint area of culvert mining. Max. fixed was 60K d/m/100cm2 alpha, max. transferable was 40,100 d/m/100cm2 alpha, 2/2/2010 SRNL Contaminated chair found in F-090 Breakroom with maximum contamination of 280K d/m/100cm2 BG, 20K d/m/100cm2 alpha, 3/10/10 HOF: A valve on the High Line at 211-H was found to be probing 20K d/m/100cm2 alpha

& BG. **5/3/10 SWM** Culvert ML14 leaked at bottom seam on Pad 1: 80K d/m/100cm2 alpha (probe).

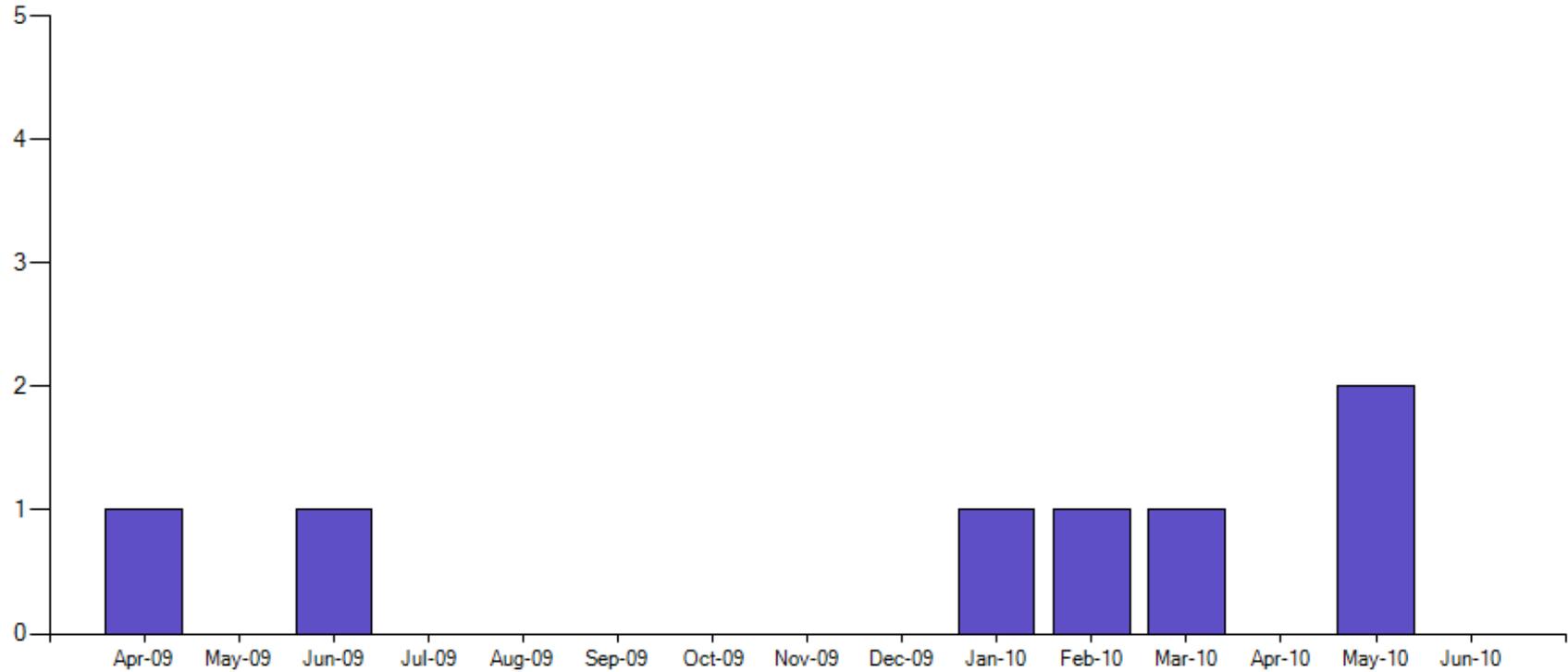
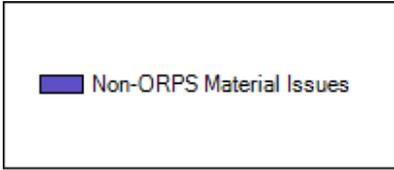
**Action:**

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

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

**M&O Non-ORPS  
Radioactive Material/Contamination  
Radiological Protection  
Through June 30, 2010**



Title	Apr-09	May-09	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
Non-ORPS Material Issues	1	0	1	0	0	0	0	0	0	1	1	1	0	2	0
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:** None

**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.