

November 8, 2018

Created by Pamela A Powell 

## **Site ALARA Committee Meeting Minutes**

The Site ALARA Committee and Change Control Board Teleconference was held at 12 pm.

Rollcall was performed and Quorum was met for the SAC and CCB. (See Attached)

### **1) Introduction: Kent Williams**

Kent welcomed everyone to the meeting.

### **2) Environmental ALARA: Teresa Eddy**

Teresa presented the 2018 Environmental ALARA Overview and Guide Status. An increase was requested for the S Area Airborne ALARA guide. The guide was exceeded for August due to unanticipated elevated Cs-137 releases. Increase was approved per the board.

It was presented that the 291-F stack exceeded the DOE derived concentration standards requirement. The rolling 12-month DCS sum of fractions is 4.13 which is above the requirement of 1.0. An exceedance investigation is ongoing. No request for changes to the goal at this time.

It was presented that the A Area Liquid Effluent ALARA guide has exceeded the YTD TED due to detectable levels of TC-99 observed at the TB-2 outfall. ECA will be submitting an exceedance investigation memorandum to Environmental ALARA chair for the September Monthly releases report.

### **3) Review of 3rd Quarter Performance Indicators: Pamela Powell**

#### **4) Review of +/- 25% Discrepancy: Facility Representatives** (Note: All doses are in rem)

HCA - Target 5.25 vs Actual 7.62 (+45.14%)

Johnny Lott attributed the increase to the 638 badges that were issued and more people who normally don't receive dose having dose issued this quarter. This is from an ongoing issue with aging badges. HCA requested to increase their 4<sup>th</sup> quarter dose by 2.4 mrem. The increase was approved per the board.

HBL Target 1.2 vs Actual 0.521 (-56.58%)

Johnny Lott attributed the decrease to the HBL resin job being pushed out. HBL requested to decrease their 4<sup>th</sup> quarter dose by 400 mrem. The request was approved per the board.

Tritium	Target 1.8	vs	Actual 2.376 (+32.00%)
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Spoke per telecom to Deborah Solomon who stated that increase was due to OGM work that had increased dose rates. This work was completed in 3<sup>rd</sup> quarter. No request for goal changes.

**5) New Control Level for the Equivalent Dose to the Lens of the Eye: David Roberts**

David Roberts gave a presentation on the new control level for the equivalent dose to the lens of the eye. Questions were asked about documents for safety glass testing. These documents will be provided to members via email. It was suggested that SRS implement a facility ACL of 5 rem/year for EqD-Eye and provide individual EqD-Eye trending data at the quarterly SAC meetings. Information will be reviewed and implemented accordingly.

**6) External Dosimetry Program Updates: Dennis Hadlock**

Dennis Hadlock gave a presentation on External Dosimetry program updates. Questions were asked about the 3<sup>rd</sup> quarter delinquent TLDs that were still outstanding. List will be sent out to managers.

# SITE ALARA COMMITTEE & CHANGE CONTROL BOARD

## ATTENDANCE ROSTER

Meeting Date: 11/08/2018Quarter/Year: 3/2018

<u>✓</u> <u>✓</u>	<u>Chair</u> Dennis Carr Doug Bumgardner (Vice Chair)	<u>✓</u> <u>✓</u>	<u>Alternate</u> Wyatt Clark Jim Wilson
<u>✓</u> _____ _____ _____ <u>✓</u> _____ <u>✓</u> _____ <u>✓</u> _____ <u>✓</u> _____ <u>✓</u> _____ _____ <u>✓</u> _____ _____	<u>SAC Voting Member</u>  Kent Williams (Ex. Secretary) Kliss McNeel (ESH&Q) Deborah Solomon (SRTE) Verne Mooneyhan (SWM/TRU) Steve Wilkerson (NMD) Janice Lawson (NMSP) Donald Barfield (SRNL) Doug Bumgardner (TF) Joel Cantrell (WT) William Harris Jim Wilson (LWO RPD) Tim West (EC&ACP)	<u>✓</u> _____ _____ _____ _____ _____ <u>✓</u> _____ _____ <u>✓</u> _____ _____ <u>✓</u> _____ _____ _____ _____ _____	<u>Alternate</u>  Roy Windham Mary Flora Ruby Parks Robert Minnick Richard Burns Durwood Melvin Scott Craft   Cindy Head

**Quorum Requirements: SAC = Chair/Vice Chair + 7 other members\* = 8 total**

**\*Member may be represented by designated alternate. At least 2 members from each company are required for an official vote.**

**CCB = Chair/Vice Chair\* + 5 other members = 6 Total May be represented by designated alternate.**

Quorum Met SAC: Yes No

Quorum Met CCB: Yes No

**SITE ALARA COMMITTEE  
&  
CHANGE CONTROL BOARD**

**ATTENDANCE ROSTER**

Other Meeting Attendees (print name)

Chuck Sanders  
Robin Farmer  
David Roberts  
Teresa Enby  
Eric Dornier  
Martha Thompson  
Paul Rowan

Randy Sullivan  
Robbie Black  
Willie Gordon  
Dennis Hadlock  
Gerald Gochenbach  
Johnny Goff

# 3rd Quarter Site ALARA Committee Meeting

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**Kent Williams**

Radiological Protection Director

Savannah River Nuclear Solutions, LLC

11/08/2018

# AGENDA

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|---------------------------------------|---------------------------------|
| 1. Introduction                       | Kent Williams                   |
| 2. Environmental ALARA                | Teresa Eddy                     |
| 3. 3rd Quarter Performance Indicators | Pamela Powell                   |
| 4. $\pm$ 25% Discrepancy              | Facility Reps – HBL, HCA, TRIT, |
| 5. Lens of the Eye Dose Change        | David Roberts                   |
| 6. Dosimetry Issuance                 | Dennis Hadlock                  |

# 2018 Environmental ALARA Overview and Guides Status

Teresa Eddy

Savannah River Nuclear Solutions, LLC  
November 8, 2018

# Environmental ALARA Airborne Status for August 2018

Area	YTD TED (mrem)	ALARA Guide (mrem/yr)	YTD % of Guide
A-Area	2.19E-05	1.25E-04	17.5%
C-Area	9.52E-05	2.31E-04	41.2%
F-Area	3.29E-04	1.87E-03	17.6%
H-Area	6.20E-04	2.50E-03	24.8%
H-ETP	0.00E+00	1.00E-07	0.0%
H-Tk Farm	4.52E-09	1.00E-06	0.5%
K-Area	1.08E-03	2.05E-03	52.4%
L-Area	1.19E-03	1.95E-03	61.0%
S-Area	2.81E-05	1.00E-05	281%
Tritium	7.27E-02	8.95E-02	81.2%
Z-Area	8.20E-09	5.00E-06	0.2%
Site Totals	7.61E-02	9.82E-02	77.4%



# August S- Area Airborne ALARA Status

- The S-Area Airborne ALARA Guide exceedance for August was due to unanticipated elevated cesium-137 releases for the July 9 – July 16 sample from the 291-S Vitrification Zone 1 exhaust.
- The ECA submitted and exceedance investigation report SRR-ESH-2018-00120 and requested an increase to the ALARA Guide from **1.00E-05** mrem to **5.00E-05** mrem.

# August DCS Compliance Status

- No radiological effluent locations, other than the 291-F stack, exceeded the DOE Order 458.1 Derived Concentration Standards (DCS) requirement. The 291-F stack rolling 12-month DCS sum of fractions is 4.13, which is above the requirement of 1.00.
  - The actinides Pu-239, Am-241, U-238, and U-234 currently make up about 98% of the DCS sum of fractions; Pu-239 represents 89% of the sum of fractions.
  - An exceedance investigation is ongoing.

# Environmental ALARA Liquid Status for August 2018

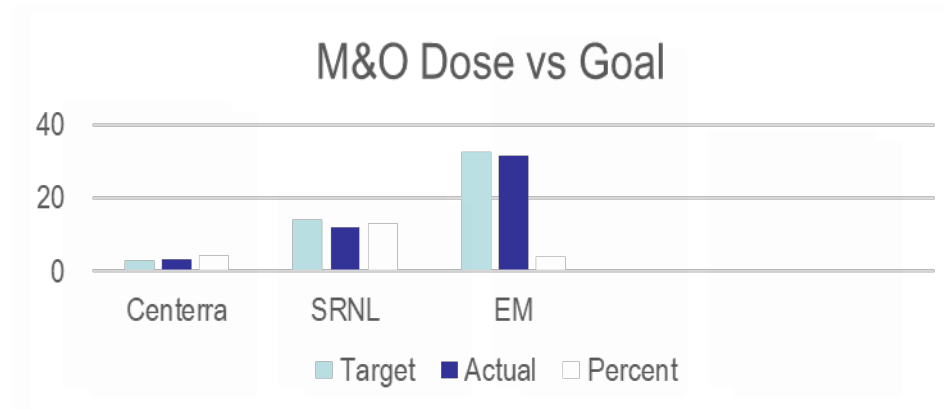
Area	YTD TED (mrem)	ALARA Guide (mrem/yr)	YTD % of Guide
A-Area	9.76E-05	4.00E-05	244%
F-Area	2.89E-04	4.00E-04	72.2%
F-Tk Farm	1.31E-04	1.00E-03	13.1%
H-Area	7.99E-05	1.38E-03	5.8%
H-ETP	2.84E-04	7.25E-03	3.9%
H-Tk Farm	2.17E-03	8.65E-03	25.0%
K-Area	4.00E-07	1.14E-05	3.5%
L-Area	1.00E-05	9.45E-05	10.6%
S-Area	6.53E-05	1.50E-04	43.5%
Tritium	1.63E-04	3.00E-04	54.3%
Site Totals	3.29E-03	1.93E-02	17.1%

# August A-Area Liquid ALARA Guide Status

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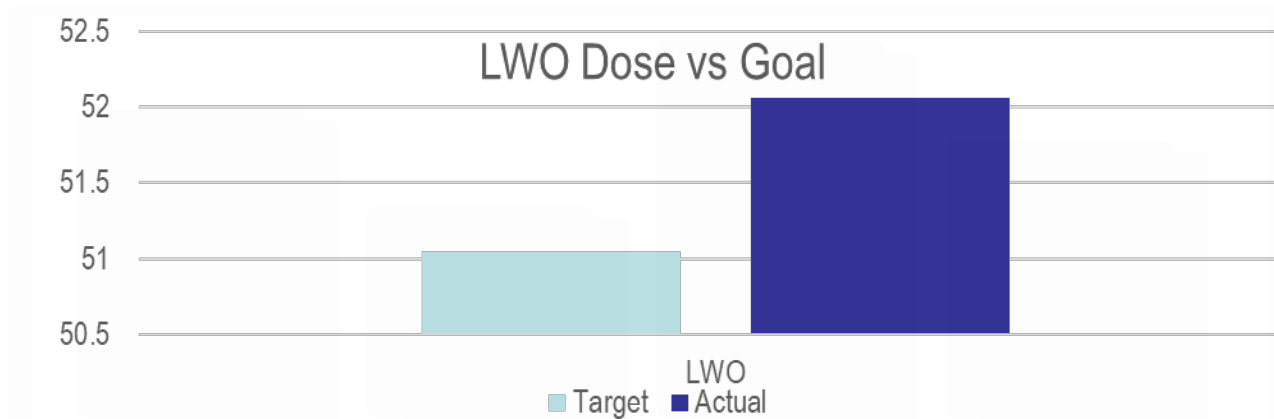
- The A-Area Liquid Effluent ALARA Guide has exceeded the Year to Date TED of  $4.00\text{E-}05$  mrem due to detectable levels of technetium-99 observed at the TB-2 outfall.
- ECA will be submitting an exceedance investigation memorandum to Environmental ALARA Chair for the September Monthly Radiological Releases Report.

# M&O Dose vs Goal



Title	Target	Actual	Percent
Centerra	3.0	3.128	+4.27
SRNL	14.0	12.152	-13.2
EM	32.745	31.479	-3.87

# LWO Dose vs Goal



Title	Sept 2018
LWO Target	51.045
LWO YTD Dose	52.058
LWO Percent	+1.98%

# Maximum Individual Dose

Title	YTD	QTR	Facility
EM	0.325	0.133	NMM
LWO	0.321	0.148	SSS
SRNL	0.246	0.093	
Centerra	0.098	0.043	

# Maximum Extremity

Title	CY18
EM Maximum Extremity Dose	4.378 (HCA)
LWO Maximum Extremity Dose	8.498 (SSS)



# Radiological Events

Title	Sept 2018	Event
M&O ORPS PerCon	1	SRNL Shoe Contamination
M&O Non ORPS Percon	0	
M&O ORPS Rad Mat	0	
M&O Non ORPS Rad Mat	0	
LWO ORPS PerCon	0	
LWO Non ORPS PerCon	0	
LWO ORPS Rad Mat	0	
LWO Non ORPS Rad Mat	0	

# Intakes

Title	CY18
M&O > 500 mrem	0
M&O > 100 mrem	0
LWO > 500 mrem	0
LWO > 100 mrem	0

## +/- 25% Discrepancy

Title	Target	Actual	Percent
HCA	5.25	7.62	+45.14
HBL	1.2	0.521	-56.58
Tritium	1.8	2.376	+32.00

# New Control Level for the Equivalent Dose to the Lens of the Eye (EqD-Eye) Health Physics Services (HPS): External Dosimetry

# Department of Energy (DOE) Standard 1098 , Article 216 Revision

- ***DOE STD 1098 Article 216 Revision***
  - *“A special control level of 5 rem in a year for EqD-Eye should be considered for radiological workers performing work in non-uniform radiation fields where the maximum exposure is to the worker’s head” (DOE-STD-1098-2017, January 2017)*
- ***Revision based on the International Commission on Radiation Protection’s (ICRP’s) recommendations***
  - Recent review of biological data has resulted in a threshold reduction for radiation-induced effects to the lens of the eye
  - ICRP recommends lowering the limit for EqD-Eye from 15 rem/year to 10 rem in 5 years with the dose in any single year limited to 5 rem

# Savannah River Site's (SRS) EqD-Eye Dose Requirements

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- 5Q Radiological Control Manual Chapter 2
  - EqD-Eye: 15 rem/year
- The EqD-Eye = sum of the quarterly whole body and Multipack dosimeter results
- Using Multipack Dosimetry provides the best estimate for the EqD-Eye

# SRS EqD-Eye Requirements

- **Multipack Dosimeters are required if any one of the following conditions are present (5Q1.2, Procedure 217 Rev. 40)**
  - Whole body dose rate (gamma plus neutron) is  $\geq 1$  rem/hr in the general work area
  - The  $\beta$ - $\gamma$  dose rate is  $\geq 10$  rad/hr in the general work area
  - The general work area radiation field is estimated to cause a whole-body radiation dose of at least 100 mrem
  - The deep dose rate is at least 100 mrem/hr
  - When the dose to a portion of the whole body is projected to exceed 50% of the expected chest dose

## SRS EqD-Eye Requirements

- The EqD-Eye can be reduced for Beta radiation fields by wearing safety glasses
  - Only site approved and HPS tested safety glasses can be used as specified in SRR-RPE-2016-00006 "Evaluation of Safety Glasses for Beta Radiation Attenuation".
  - External Dosimetry will apply the appropriate correction based on dosimeter response, source term and radiation fields
- External Dosimetry provides notification when the EqD-Eye dose is  $\geq 1,000$  mrem



# SRS EqD-Eye Historical Data

Year	Max/Individual (mrem)
2004	3,574
2005	3,385
2006	1,798
2007	1,178
2008	1,011
2009	2,390
2010	1,484
2011	1,712
2012	2,067
2013	2,831
2014	1,628
2015	2,006
2016	1,168
2017	1,463

## Conclusion / Recommendations

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- Historical data indicates EqD-Eye below 5 rem/year, but may exceed 10 rem EqD-Eye within a 5-year period
- The EqD-Eye limit of 15 rem/year will not change based on the requirements in 10 CFR 835 Subpart C “Standards for Internal and External Exposure”
- Safety glasses can reduce EqD-Eye for beta radiation fields, but they must be site approved and HPS tested

## Conclusion / Recommendations

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- SRS should implement the following
  - Implement a facility Administrative Control Limit (ACL) of 5 rem/year for EqD-Eye
  - Provide individual EqD-Eye trending data at the quarterly Site ALARA Committee meetings

# External Dosimetry Program Updates

## Health Physics Services: External Dosimetry

## External Dosimetry Outsource Update

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The implementation of external dosimetry outsourcing has been delayed. DOELAP has reviewed the use of amendments to accreditations and determined that DOELAP could not justify an amendment to the current accreditation for the External Dosimetry program at SRS without an on-site assessment. An on-site assessment has been scheduled for the week of 12/10/18. Accreditation for the use of outsourced dosimetry is expected sometime during the first quarter of 2019.

# Rad Worker Training and Dosimeter Issuance

- *Current 5Q1.2, 217*

- "Employees without current Radiological Worker Training (RWT) should be instructed to defer getting a TLD until they have an immediate need to enter an area that requires a TLD and have a qualified escort to do so."

- *Revised 5Q1.2, 217*

- "Employees without current Radiological Worker Training (RWT) should be instructed to defer getting a dosimeter until they have an immediate need to enter an area that requires a dosimeter and have a qualified escort to do so. Employees without current RWT will be allowed to receive a dosimeter a total of three times. A warning will appear at the third issuance that the employee will NOT be allowed to be issued additional dosimetry until the employee has current RWT."
- *Dosimetry issuance beginning 1/1/19*

## Timely Dosimeter Return

- *For the Third Quarter of this year:*
  - *10/08/18: 929 dosimeters outstanding; emails to managers*
  - *10/15/18: 244 dosimeters outstanding; workers placed on rad hold in ProRad*
  - *11/06/18: 65 workers still on rad hold for outstanding dosimeters*
- *Workers should turn in their dosimeter early when going on SV or long break over the end of the quarter*
  - *With the upcoming holidays remind workers to turn in dosimeter before leaving for SV or long break*