



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-4005

June 1, 2006

MEMORANDUM TO: Docket File 030-08219 *MB*

THROUGH: D. Blair Spitzberg, Chief  
Fuel Cycle and Decommissioning Branch

FROM: Robert J. Evans, Senior Health Physicist *RJ Evans*  
Fuel Cycle and Decommissioning Branch *5/24/06*

SUBJECT: SUPPLEMENTAL INFORMATION FOR U.S. ENVIRONMENTAL PROTECTION  
AGENCY'S FINAL STATUS SURVEY REPORT

By letter dated August 9, 2004, the U.S. Environmental Protection Agency (EPA) requested a license amendment to remove Building 53 from NRC Materials License No. 05-14892-01. Enclosed to the licensee's letter was a final status survey report dated June 2004.

The NRC conducted an onsite inspection at EPA during October 2005. Results of the inspection are documented in NRC Inspection Report 30-08219/05-001. The inspector discussed the details of the final status survey report with the licensee during the inspection. As a result of these discussions, the licensee submitted explanations and corrected pages to the inspector.

Attached are copies of minor corrections and explanations provided by the licensee during and after the October 2005 inspection. This information supplements the EPA's final status survey report dated June 2004.

Docket No.: 030-08219  
License No.: 05-14892-01

Attachments: As Stated

## Conference call notes for EPA NEIC Final Status Survey Report FSSR

**Date:** 10/19/2005

**Call Time:** 1000 EDT - 1245EDT

### **Participants:**

Al Ossinger, EPA NEIC

Bob Evans, NRC

Randy Rogers, Shaw

James Nelson, Shaw

Becky Collins, Shaw

Rick Greene, Shaw

1. Mr. Evans reported that NRC is conducting review of FSSR and confirmatory sampling at Building 53.
2. NRC must prepare 3 documents to respond to FSSR
  - a. Inspection Report with NRC sample results
  - b. Environmental Assessment
  - c. Safety Evaluation Report
3. Mr. Evans went through the document very thoroughly asking questions about how work was conducted and logic behind certain decisions.
4. Mr. Evans pointed out that NRC license had an error in requirement to use Table 1 values for release, when it should have been dose-based. Shaw reported that we recognized this error at the time work was conducted in winter 2004 and were instructed by EPA to follow the license.
5. Mr. Evans reported he had recently taken over the project and had two sets of questions; his own and his predecessor's.
6. Mr. Evans asked if decontamination was required on equipment to meet release criteria; Shaw stated it was not.
7. Mr. Evans stated that license allowed for discharge of liquid waste via sinks and drains, yet they were not part of sample plan. Al Ossinger stated that while the license allowed liquid wastes to be disposed in sinks, that was not the practice, thus no samples were required.
8. Mr. Evans asked if spills had occurred at the site. Al Ossinger stated that no spills had occurred.
9. Mr. Evans requested us to walk provide an example of data manipulation from field readings to reporting in field data sheets; specifically for lab A1209. James Nelson walked through the calculation and Mr. Evans was satisfied.
10. Action items for Shaw from morning call
  - a. Substantiate reasoning for use of cesium as calibration source.
  - b. Verify MDC for alpha is in agreement with MARSSIM
  - c. Determine for A1209 data sheet if background values were incorrectly incorporated into the calculation of mean and standard deviation
  - d. Vol. 2 cross-reference sheet from Paragon Analytics report has two page 1 of 2 and no page 2 of 2. Can NRC get Page 2 of 2 today?

- e. Identify which instruments (by serial number) were used for scanning in labs A1505 and A1507.

11. Action items for NRC

- a. Provide Shaw with email via Al Ossinger of the above comments in writing to clarify data needs.
- b. Will call Shaw back at 1530 EDT with additional questions and update on our action items.

## Conference call notes for EPA NEIC Final Status Survey Report FSSR

**Date:** 10/19/2005

**Call Time:** 1530 EDT - 1600EDT

### **Participants:**

Al Ossinger, EPA NEIC

Bob Evans, NRC

Randy Rogers, Shaw

Rick Greene, Shaw

1. Follow up call following Mr. Evans review of Volume 3 of 3 of FSSR.
2. Mr. Evans stated that figure 2-23 and page 2-6 stated A1004 was used as background, based on inspection and tape marks remaining on surfaces that A1006 actually was the room used for background.
3. Floor tiles outside room A1902 appear to have been used for background yet were not included in the figures showing background.
4. Mr. Evans stated that if document revisions were required for Shaw to please determine if the changes will effect Tables 2-4 and 2-5 and make relevant changes to those tables as necessary since he will rely on those tables for his reports.
5. Randy Rogers requested that any data needs/action items be provided to Shaw in writing so we can respond and not interpret things incorrectly. Mr. Evans stated that Al Ossinger could send us the summary and data request.
6. Randy and Rick Greene reported on status of action items from the 1000 call
  - a. Cesium source – still working
  - b. MDC for alpha – Rick reported this was done using a probability equation in accordance with MARSSIM and is presented in Appendix C
  - c. A1209 data sheets did incorrectly include background in mean and standard deviation calculations.
  - d. Paragon Analytics page 2 of 2; all data has been sent to off-site storage. Shaw can get it in 1-2 days. Mr. Evans stated he did not need it.
  - e. Instruments by serial number – still working.
3. Action items for NRC
  - a. Send photos to Shaw of marks in lab A1006
  - b. Send photos to Shaw of marks outside lab A1902

Action Item #	Lead	Action	Status	Resolution
1	Shaw	Substantiate reasoning for using cesium as calibration source.	Open	
2	Shaw	Verify MDC for alpha is in agreement with MARSSIM.	Closed: Rick Greene reported on the 1530 call on 10/19/05 that MDC for alpha was determined using probability equation in accordance with MARSSIM, as discussed in Appendix C of the FSSR.	Complete
3	Shaw	Determine for lab A1209 data sheet if background values were incorrectly included in the calculation for mean and standard deviation.	Closed: Rick Greene reported on the 1530 call on 10/19/05 that background values in lab A1209 were included in the calculations.	Does EPA or NRC want Shaw to issue revised data sheets for lab A1209?
4	Shaw	In Volume 2, the cross reference sheet from Paragon Analytics has two page 1 of 2 and no page 2 of 2. If available, provide page 2 of 2	Closed: Randy Rogers reported on the 1530 call on 10/19/05 that all data for the project has been sent to off-site storage. Asked if NRC requires this page. NRC stated they do not need the page.	Complete
5	Shaw	Identify which instruments (by serial number) were used for scanning in labs A1505, A1507, A1902, and D2205	Open	Does EPA or NRC want Shaw to issue revised data sheets for labs A1505, A1507, A1902 and D2205?
6	NRC	Provide Shaw with email via Al Ossinger of NRC comments to the Final Status Survey Report to clarify all data needs.	Open	
7	NRC	Contact Shaw at 1530 on 10/19/05 if there are any additional questions/comments to FSSR.	Open	
8	NRC	Send photos to Shaw of marks in lab A1006. Shaw may have reported lab A1004 was used as background rather than A1006 as suspected by NRC.	Open	
9	NRC	Send photos to Shaw of marks outside lab A1902. Shaw may have not have reported this area was used as background location.	Open	

Action Item #	Lead	Action	Status	Resolution
1	Shaw	Substantiate reasoning for using cesium as calibration source.	<p>Release requirements for Building 53 were established by the NRC in a letter to the EPA-NEIC dated August 1, 2003. These release criteria are found in Table 1, "Acceptable Surface Contamination Levels" in the 1987 guidance document entitled, Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material. The beta-emitting contaminants of concern at NEIC were Sr-90 and Cs-137. The release level for Sr-90 was selected from Table 1 as the DCGL for the beta-emitters since it is more restrictive than the release level for Cs-137 and only gross beta measurements were made. Since both contaminants could be present, Cs-137 was selected as the calibration source because it would have a lower efficiency and thus would yield a higher result (i.e. a conservative measure of activity) if Sr-90 were present in the survey unit. Using the more restrictive DCGL and the lower efficiency are both conservative and therefore could tend to indicate that remedial action might be necessary when none was needed. However, no measurements made during the FSS at NEIC exceeded the DCGLs and no remedial action was necessary. The beta activity of the Cs-137 source (92CS5003344) was calculated by dividing the gamma activity on the source certificate by 0.851 (0.946, the branching ratio to Ba-137m, times 0.8998, the intensity of the 662 gamma from Ba-137m).</p>	Complete

Action Item Status for NRC Review  
Final Status Summary Report  
Building 53  
EPA NEIC

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5	Shaw	Identify which instruments (by serial number) were used for scanning in labs A1505, A1507, A1902, and D2205 Provide Shaw with email via Al Ossinger of NRC comments to the Final Status Survey Report to clarify all data needs.	Items 1, 2, 3, 7, 8, 10; Room A1505/1507 survey items 1-5; Room A1902 survey items 1-5 <b>Instrument #185774:</b> Room D2205 survey items 4, 5, 6, 9; Room A1505/1507 survey items 6-10; Room A1902 survey items 6-10.	Does EPA or NRC want Shaw to issue revised data sheets for labs A1505, A1507, A1902 and D2205?
6	NRC	Contact Shaw at 1530 on 10/19/05 if there are any additional questions/comments to FSSR.	Open	
7	NRC	Send photos to Shaw of marks in lab A1006. Shaw may have reported lab A1004 was used as background rather than A1006 as suspected by NRC.	Open	
8	NRC	Send photos to Shaw of marks outside lab A1902. Shaw may have not have reported this area was used as background location.	Open	
9	NRC		Open	

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4	Shaw	In Volume 2, the cross reference sheet from Paragon Analytics has two page 1 of 2 and no page 2 of 2. If available, provide page 2 of 2	Closed: Randy Rogers reported on the 1530 call on 10/19/05 that all data for the project has been sent to off-site storage. Asked if NRC requires this page. NRC stated they do not need the page.	Complete
5	Shaw	Identify which instruments (by serial number) were used for scanning in labs A1505, A1507, A1902, and D2205	<b>Instrument #185768:</b> Room D2205 survey items 1, 2, 3, 7, 8, 10; Room A1505/1507 survey items 1-5; Room A1902 survey items 1-5 <b>Instrument #185774:</b> Room D2205 survey items 4, 5, 6, 9; Room A1505/1507 survey items 6-10; Room A1902 survey items 6-10. Shaw requested feedback from EPA on 10/25/05 (email Rogers to Ossinger) if EPA wanted a revised field data collection sheet showing which instruments were used. EPA confirmed via email from Steve Fletcher on 2/8/06 that revised field data collection sheets are required. Revised field collection data sheets transmitted to EPA via email from Rogers to Fletcher on 2/23/06.	Complete
6	NRC	Provide Shaw with email via Al Ossinger of NRC comments to the Final Status Survey Report to clarify all data needs.	Open	Shaw completed action items based on our notes during conference calls on 10/19/05.
7	NRC	Contact Shaw at 1530 on 10/19/05 if there are any additional questions/comments to FSSR.		Complete
8	EPA	Send photos to Shaw of marks in lab A1006. Shaw may have reported lab A1004 was used as background rather than A1006 as suspected by NRC.	Al Ossinger sent photos via email on 11/14/2005.	Complete
9	EPA	Send photos to Shaw of marks outside lab A1902. Shaw may have not have reported this area was used as background location.	Al Ossinger sent photos via email on 11/14/2005.	Complete

Rev. 3  
2/23/2006

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Final Status Summary Report  
Building 53  
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(Page 1 of 5)

**Notes:**  
 Bold values exceed respective criteria.  
 Kcpm - Thousand counts per minute.  
 Bkg. - Background.  
 MDC - Minimum detectable concentration

CONTAMINATION / RADIATION SURVEY REPORT		PROJECT NUMBER 10115		DATE 03-04-04		TIME START 1600		TIME COMPLETE 1700		PAGE 1 OF 10	
LOCATION: EPA NEIC Denver Federal Center, CO Denver, CO		SURVEYOR(S) Stephens / Frank		SURVEY NUMBER 030404-35		MAP ID: LAB A1902		Alpha		Beta-Gamma	
ACCEPTABLE SURFACE CONTAMINATION LEVELS Loose 20 dpm/100cm² Alpha 200 dpm/100cm² Beta-Gamma Total 100 dpm/100cm² Alpha 1,000 dpm/100cm² Beta-Gamma		ACCEPTABLE SCAN LIMITS MDCR <sub>Survey</sub> Beta MDCR <sub>Survey</sub> Alpha		Radiation Surveys		Beta-Gamma		Alpha spm		Beta spm	
Source Check Data		Contamination Surveys		Beta-Gamma		Alpha		Beta-Gamma		Alpha	
Instrument		α		β-γ		β-γ		Total		Total	
Source Type and ID		104904 / 185768		185774		185774		Total		Total	
Source Strength in dpm		Th-230, 117089		Cs-137, 82CS5000		Cs-137, 82CS5000		Total		Total	
Efficiency		13500		76926		76926		Total		Total	
MDC in dpm/100 cm²		0.13 / 0.15		0.15 / 0.17		0.18		Total		Total	
Background in cpm		See attached instrument sheets for material specific backgrounds and MDC's.		Sat. <input type="checkbox"/> Unsat. <input type="checkbox"/>		Remarks or Remarks		Total		Total	
REASON FOR SURVEY		PROCEDURE NO. FINAL STATUS SURVEY PLAN		SCANS		ROUTINE		Total		Total	
Contamination		By SHN <input type="checkbox"/> Day <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/>		By SHN <input type="checkbox"/> Day <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/>		By SHN <input type="checkbox"/> Day <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/>		Total		Total	
Radiation		By SHN <input type="checkbox"/> Day <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/>		By SHN <input type="checkbox"/> Day <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/>		By SHN <input type="checkbox"/> Day <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/>		Total		Total	
COMMENTS:		Instrument #185768 was used for items 1-5.		Instrument #185774 was used for items 6-10.				Total		Total	
GACS - See Attached Data Sheet		Alpha (TOTAL)		Beta-Gamma (TOTAL)		Beta-Gamma (TOTAL)		Total		Total	
INSTRUMENT / SERIAL #		2360, 185774		2360, 185774		2360, 185774		Total		Total	
		2360, 185768		2360, 185768		2360, 185768		Total		Total	
		N/A		N/A		N/A		Total		Total	
THE KNOWING & WILLFUL RECORDING OF FALSE, FETTERED, OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHABLE AS A FELONY UNDER FEDERAL STATUTES.		RC3 REVIEW		DATE		3-5-04		Total		Total	

# Contamination / Radiation Survey Report

CONTAMINATION / RADIATION SURVEY REPORT		PROJECT NUMBER: 101115		DATE: 2-26-04		TIME START: 0900		TIME COMPLETE: 1030		PAGE 1 OF 10	
LOCATION: EPANEIC RM 2205		SURVEY(S): W-2205		SURVEY NUMBER: 022604-22		MAP ID: LAB D2205		ACCEPTABLE SCAN LIMITS		Item or Location	
Denver Federal Center, CO		Denver, CO		MDCR Survey: Beta		MDCR Survey: Alpha		MDCR Survey: Beta		Alpha cpm	
ACCEPTABLE SURFACE CONTAMINATION LEVELS		Loose: 20 dpm/100cm <sup>2</sup> Alpha		200 dpm/100cm <sup>2</sup> Beta-Gamma		1,000 dpm/100cm <sup>2</sup> Beta-Gamma		1,000 dpm/100cm <sup>2</sup> Alpha		Beta cpm	
Source Check Data		Total: 100 dpm/100cm <sup>2</sup> Alpha		1,000 dpm/100cm <sup>2</sup> Beta-Gamma		1,000 dpm/100cm <sup>2</sup> Beta-Gamma		1,000 dpm/100cm <sup>2</sup> Alpha		Material	
Radiation Surveys		Alpha		Beta-Gamma		Beta-Gamma		Beta-Gamma		Total	
Item #		Loose		Total		Loose		Total		dpm/100cm <sup>2</sup>	
1										FT	
2										WB	
3										WB	
4										WB	
5										WB	
6										WB	
7										WB	
8										WB	
9										WB	
10										WB	
11										WB	
12										WB	
13										WB	
14										WB	
15										WB	
16										WB	
17										WB	
18										WB	
19										WB	
20										WB	
21										WB	
22										WB	
23										WB	
24										WB	
25										WB	
Instrument		184004 / 185768		185774		185774		185774		C-3	
Source Type and ID		Th-230, 117089		Th-230, 117089		Cs-137, 52C55000		Cs-137, 52C55000		A-2	
Source Strength in dpm		13800		13800		789295		789295		B-3	
Efficiency		0.13 / 0.15		0.15		0.16 / 0.17		0.16		A-5	
MDC in dpm/100 cm <sup>2</sup>										B-6	
Background in cpm										C-5	
REASON FOR SURVEY		PROCEDURE NO. FINAL STATUS SURVEY PLAN								F-3	
SURVEY		SPECIAL		ROUTINE						G-5	
Contamination		By Shift		Daily		Weekly		Monthly		H-3	
Radiation		By Shift		Daily		Weekly		Monthly		E-1	
COMMENTS:		Judgmental scans									
		Instrument # 185768 was used for items 1,2,3,7,8,10.									
		Instrument # 185774 was used for items 4,5,6,9.									
BADS - See Attached Data Sheet											
Contamination Survey		ALPHA TOTAL		184904		BETA-GAMMA TOTAL		2360		184904	
INSTRUMENT		SERIAL #		2360		BETA-GAMMA TOTAL		2360		185768	
		ALPHA TOTAL		N/A		BETA-GAMMA TOTAL		N/A			
		ALPHA (TOTAL)		N/A		BETA-GAMMA (TOTAL)		N/A			
		ALPHA (TOTAL)		N/A		BETA-GAMMA (TOTAL)		N/A			
THE INQUIRY & WILLFUL RECORDING OF FALSE, FETTERING, OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHABLE AS A FELONY UNDER FEDERAL STATUTES.											
RCS REVIEW		DATE		3-2-04							

# Contamination / Radiation Survey Report

CONTAMINATION / RADIATION SURVEY REPORT		PROJECT NUMBER: 101115	DATE: 03/02/04	TIME START: 1300	TIME COMPLETE: 1615	PAGE 1 OF 10
LOCATION: EPA NEIC	SURVEYOR(S): Trent Stephens					
Denver Federal Center, CO	SURVEY NUMBER: 030204-30					
Denver, CO	MAP ID:					
ACCEPTABLE SURFACE CONTAMINATION LEVELS Loose 20 dpm/100cm <sup>2</sup> Alpha 200 dpm/100cm <sup>2</sup> Beta-Gamma Total 100 dpm/100cm <sup>2</sup> Alpha 1,000 dpm/100cm <sup>2</sup> Beta-Gamma			ACCEPTABLE SCAN LIMITS MDCR Surveyor Beta MDCR Surveyor Alpha			
Source Check Data			Radiation Surveys			
Instrument			Beta-Gamma			
Source Type and ID			NA			
Source Strength in dpm			NA			
Efficiency			NA			
MDC in dpm/100 cm <sup>2</sup>			NA			
Background in dpm			NA			
REASON FOR SURVEY			PROCEDURE NO. FINAL STATUS SURVEY PLAN			
Contamination			By SHR <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/>			
Radiation			By SHR <input type="checkbox"/> Daily <input type="checkbox"/> Weekly <input type="checkbox"/> Monthly <input type="checkbox"/>			
COMMENTS:			Instrument # 185768 was used for items 1-5. Instrument # 185774 was used for items 6-10.			
BADS - See Attached Data Sheet						
Contamination Survey INSTRUMENT / SERIAL #			ALPHA (TOTAL) 2360			
			BETA-GAMMA (TOTAL) 185774			
			ALPHA (TOTAL) 2360			
			BETA-GAMMA (TOTAL) 185768			
			ALPHA (TOTAL) N/A			
			BETA-GAMMA (TOTAL) N/A			
THE KNOWING & WILLFUL RECORDING OF FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS OR ENTRIES ON THIS DOCUMENT MAY BE PUNISHABLE AS A FELONY UNDER FEDERAL STATUTES.						
RCS REVIEW: <i>[Signature]</i>						DATE: 3-5-04

bcc w/enclosure (via ADAMS e-mail distribution):

LDWert

DBSpitzberg

JEWhitten

BASchlapper

RJEvans

RSBrowder

FCDB

RIV Materials Docket Files - 5th Floor

SUNSI Review Completed: RJE ADAMS: ☒ Yes ☐ No Initials: RJE

☒ Publicly Available ☐ Non-Publicly Available ☐ Sensitive ☒ Non-Sensitive

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