

From: sachiko-w.mcalhany@nnsa.srs.gov

Sent: Friday, February 29, 2008 12:34 PM

To: Groome, Chadi D.

Cc: drew.grainger [REDACTED]; Nigam, Hitesh; Dimarzio, John A.

Subject: RE: SCDHEC Presentation (on Plutonium Disposition Progress Status - MOX, etc.)

Attachments: Pit Disassembly and Conversion Facility Contract No. DE-AC02-99CH10903 NEPA Evaluation.pdf

Attached is the B-PDCF-1-02-033 document that is referenced. In this document, it does refer to the change to the sand filter. My apologies, since this document is a year old, I thought it was already provided to you.

Sachiko

"Groome, Chadi D." [REDACTED]
[REDACTED]

02/29/2008 12:15 PM

To <tom.cantey [REDACTED]>, "Nigam, Hitesh" [REDACTED]
[REDACTED] <sachiko-w.mcalhany@nnsa.srs.gov>

cc "Dimarzio, John A." [REDACTED] <drew.grainger [REDACTED]>

Subject RE: SCDHEC Presentation (on Plutonium Disposition Progress Status - MOX, etc.)

The PDCF described in the SPD SEIS does not include a sand filter. That is the last public dissemination of design information for the PDCF. DOE even referred the NRC to the SPD EIS for PDCF information.

From: tom.cantey [REDACTED]

Sent: Friday, February 29, 2008 9:59 AM

To: Nigam, Hitesh; sachiko-w.mcalhany@nnsa.srs.gov

Cc: Dimarzio, John A.; Groome, Chadi D.; drew.grainger [REDACTED]

Subject: Re: SCDHEC Presentation (on Plutonium Disposition Progress Status - MOX, etc.)

The PDCF was always going to use a sandfilter. That has been in the project scope since the 90's.

The WSB uses HEPA's. We are not tied into the sandfilter.

The WSB will not have a true hot startup prior to CD-4 for exactly the reason stated below. It would not make sense to contaminate the facility years before MFFF is hot. But we can't leave the project open for years either. WSB is needed for cold chemical flushes and testing, which is years before MFFF goes hot.

Tom

----- Original Message -----

From: "Nigam, Hitesh" [REDACTED]

Sent: 02/28/2008 04:02 PM EST

To: Sachiko Mcalhany; Thomas Cantey

Cc: "Dimarzio, John A." [REDACTED]; "Groome, Chadi D." [REDACTED]

[REDACTED] Andrew (Drew) Grainger

Subject: RE: SCDHEC Presentation (on Plutonium Disposition Progress Status - MOX, etc.)

[Tom/Sachiko - can you address these questions below.](#)

Hitesh Nigam, Sr. Environmental Engineer
Office of Fissile Materials Disposition, NA-26
DOE/National Nuclear Security Administration
[REDACTED]

From: Groome, Chadi D. [REDACTED]

Sent: Thursday, February 28, 2008 2:51 PM

To: drew.grainger [REDACTED]

Cc: Nigam, Hitesh; Dimarzio, John A.

Subject: RE: SCDHEC Presentation (on Plutonium Disposition Progress Status - MOX, etc.)

[Drew,](#)

Thanks for sending. These slides are definitely useful. But I have 2 questions about their content -- not that I expect you would be the one with the answers.

(1) When did the project decide to use sand filters as shown in the PDCF and WSB layout slide (slide #7)? I don't remember seeing any data to that effect recently (or ever). The NRC EIS did spend a lot of ink discussing a sand filter for the WSB, but only as a technology option.

(2) How can the WSB have hot start up in 2012 when the MOX facility won't be hot until 2016?

Surely, there would be no point in contaminating the WSB 4 years ahead of being needed?

Reviewing the data calls to see if I was asleep at the wheel re the sand filter led me to realize that we may have bigger data gaps than we thought. We've been working on reviewing the data calls and compiling the issues for one response back to you. But I noticed that there are a number of figures that are referred to as in the following excerpt from the Waste Solidification Building NEPA Evaluation provided to us as one of two files for the data call response earlier this month.

Parameter	Current Information
- Features that control releases of airborne contaminants (include diagram of treatment train)	See drawings M-M5-F2865 sheet 3, M-M5-F2865 sheet 4, M-M5-F2867, and M-M5-F2891

Also, we have a question now about the baseline for the PDCF response. Hitesh prepared the MOX, PDCF, and WSB data calls so they could be worked while we were on hiatus.

The first two column headings for the PDCF data call are:

Information Requested	PDCF
(Note: Original NEPA analysis is documented in DOE/ EIS-0283-SA-1 and MOX FFF EIS, NUREG-1767)	Update to Baseline Scope in Current NEPA Analysis (using B-PDCF-1-02-033 as baseline)

Therefore, the delta appears to be from B-PDCF-1-02-033, whatever that is; not from the last completed NEPA as indicated in the first column. Clearly, we need to figure out how to get from the existing NEPA baseline to the new facility design.

Back to the sand filter issue, since that's how I discovered this disconnect. There is a single reference to a sand filter in this (PDCF) table on page 2 where the second column indicates, among other facility design changes: -Changed tiles at bottom of sandfilter.

The NRC's MOX EIS has a discussion of sand filter technology as an option for the WSB (Sections 2.2.5 and 4.3.8), but indicated that DCS had selected HEPA filtration. (Clearly there were some who advocated for sand filtration at that time.) Even so, the WSB data call response does not refer to a sand filter, unless that is what is presented in the referenced figures.

OK, I've probably thoroughly confused everyone. We should probably talk about this even if we don't have all the concerns wrapped up in a nice package at this point. I feel like there may be a systemic problem that we need to resolve in addition to other holes and discrepancies that we are finding.

Thanks,

Chadi

From: drew.grainger [REDACTED]
Sent: Thursday, February 28, 2008 12:54 PM
To: Groome, Chadi D.; Dimarzio, John A.
Subject: Fw: SCDHEC Presentation (on Plutonium Disposition Progress Status - MOX, etc.)

You might find this slide package useful.

Drew

Andrew R. Grainger, NEPA Compliance Officer
Office of the Assistant Manager for Closure Project
Savannah River Operations Office
[REDACTED]
[REDACTED]

----- Forwarded by Drew Grainger [REDACTED] on 02/28/2008 12:50 PM -----

David Hoe [REDACTED]
[REDACTED]
02/28/2008 12:42
PM

To Js Bozzone [REDACTED]
cc Drew Grainger [REDACTED], Gary Hoover [REDACTED] Jim Bolen [REDACTED]
Subject Re: SCDHEC Presentation (on Plutonium Disposition Progress Status - MOX, etc.) [Link](#)

Thanks Joan. Your slides address some of my comments. Carl invited me to participate in your review of this briefing at TAC @ 1:45 PM.

Js Bozzone [REDACTED]

To David Hoe [REDACTED]

02/28/2008 12:33 PM

cc

Subject SCDHEC Presentation (on Plutonium Disposition Progress Status - MOX, etc.)

David,
I planned to introduce the permitting topics with the attached presentation.
Joan Bozzone
[REDACTED]

----- Forwarded by Js Bozzone [REDACTED] on 02/28/2008 12:32 PM -----

David Hoe [REDACTED]

To carl.mazzola [REDACTED]

02/28/2008 10:02 AM

cc Js Bozzone [REDACTED]

Subject Fw: SCDHEC Presentation (on Plutonium Disposition Progress Status - MOX, etc.)

Carl,

Per our conversation this morning, my comments are below.

----- Forwarded by David Hoe [REDACTED] on 02/28/2008 10:01 AM -----

David
Hoe [REDACTED]
Srs

To Jim Bolen [REDACTED]
cc Anthony02 Towns [REDACTED], Armanda Watson [REDACTED], Arthur Gould [REDACTED]
Avery Hammet [REDACTED], David-P Roberts [REDACTED], Dennis Ryan [REDACTED], Drew
Grainger [REDACTED], Gail Whitney [REDACTED], Gary Hoover [REDACTED], Jim Bolen [REDACTED]
[REDACTED], Lee Davis [REDACTED], Mary-M Baranek [REDACTED], Sherry Southern [REDACTED]
[REDACTED], Stephen Danker [REDACTED], Terry Provost [REDACTED]

02/26/2008
12:36 PM

Subject Re: SCDHEC Presentation (on Plutonium Disposition Progress Status - MOX, etc.) [Link](#)

Jim,

I suggest the following be added to the briefing:

- Purpose of the briefing
- Description of NA-226 organization, highlighting key environmental managers
 - Relationship to SRSO
 - Integration of environmental compliance activities with DOE-SR and WSRC
- Describe the status of completion of the environmental training by NNSA environmental personnel
- In addition to slide #9, provide a brief overview of the purpose/function of the main facilities (i.e., MFFF, PAF, PDCF & WSB)
- Provide a brief schedule of facility construction and planned duration of operation
- Be prepared to discuss environmental permitting (if any) needed for Concrete Batch Plant
- Be prepared to discuss expectations for solid waste generation and disposition, especially hazardous and radioactive

I strongly recommend it be dry run with SME's from EQMD acting as DHEC surrogates.

Jim
Bolen

To Mary-M Baranek [REDACTED], Jim Bolen [REDACTED], Lee Davis [REDACTED], Gary Hoover [REDACTED],
[REDACTED], Terry Provost [REDACTED], David-P Roberts [REDACTED], Dennis Ryan [REDACTED],
[REDACTED], Anthony02 Towns [REDACTED], Gail Whitney [REDACTED], David Hoe [REDACTED],
[REDACTED], Avery Hammett [REDACTED], Sherry Southern [REDACTED], Stephen Danker [REDACTED],
[REDACTED], Drew Grainger [REDACTED], Armanda Watson [REDACTED], Arthurb Goulo [REDACTED]

02/26/2008
10:32 AM

cc

Subject SCDHEC Presentation (on Plutonium Disposition Progress Status - MOX, etc.)

[attachment "PDP PROGRESS BRIEFING_REV2.ppt" deleted by David Hoe [REDACTED]]

Please return any comments by NLT Monday 3 March. (Please note, several permits are described herein). (Presentation to DHEC is scheduled currently for Wed the 5th)

Thank you,

jeb

Jim Bolen

[REDACTED]
[REDACTED]
US Department of Energy
Environmental Quality Management Division



Washington Group International

Integrated Engineering, Construction, and Management Solutions

SCAN FOR INFO: MOBLEY
BLUNT
BUXTON
YOUNG

March 2, 2007

FILE: 12600

U.S. Department of Energy
1000 Independence Avenue, SW
Room 6G-050
Washington, DC 20585

LN: WCL-2-07_034

Attention: Mr. Ram Mukunda, NN-262
Technical Manager

Subject: **Pit Disassembly and Conversion Facility**
Contract No. DE-AC02-99CH10903
NEPA Evaluation

Dear Mr. Mukunda,

Accompanying this letter, you will find Revision A of the National Environmental Policy Act (NEPA) Evaluation for the PDCF Project. This evaluation is conducted periodically to document the differences in design that have occurred in comparison to the Surplus Plutonium Disposition (SPD) Environmental Impact Statement (EIS). This document serves to close activity B22502FBC1 in the PDCF IPS schedule.

We have recommended that a Supplement Analysis (SA) be prepared pursuant to 10 CFR 1021.314(c). The SA would supplement the PDCF portion of the analyses in the SPD EIS. With this recommendation, we request your approval to proceed with a Baseline Change Proposal.

This transmittal letter and the attachment have received a classification review and both are unclassified and non-UCNI. Please provide any comments or feedback no later than March 23rd. Contact Randy Reddick (303-843-2309) or me if you have any questions.

Sincerely,

WASHINGTON GROUP INTERNATIONAL, INC.

John G. McKibbin
Project Manager

Attachment

cc: Joe Olencz
Marty Newdorf
Robert Billue
Jim McEntire
Mike Mobley

Approved TH
03-02-2007
W/NOT UCNI

J:\WIP\Corr\Correspondence\LETTERS\DOEWCL-2-07_034.doc

Department of Energy - Chicago Operations Office

Pit Disassembly and Conversion Facility

NEPA Evaluation



Washington Group International
7800 E. Union Avenue, Suite 100
Denver, CO 80237

Contract No. DE-AC02-99 CH10903
Project No. 21124
Revision A
March 2, 2007
Document No. B-PDCF-1-02-033

Unclassified/not UCNI
C. Freiboth 3/2/2007

Pit Disassembly and Conversion Facility NEPA Evaluation

Council on Environmental Quality (CEQ) regulations at Title 40, Section 1502.9(c) of the Code of Federal Regulations (40 CFR 1502.9[c]) require federal agencies to prepare a supplement to an environmental impact statement (EIS) when an agency makes substantial changes in the proposed action that are relevant to environmental concerns or there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. The Department of Energy (DOE) regulations at 10 CFR 1021.314(c) direct that when it is unclear whether a supplement to an EIS is required, a supplement analysis (SA) must be prepared to assist in making that determination.

Following is a brief list of documented design changes in the Pit Disassembly and Conversion Facility (PDCF) since the Surplus Plutonium Disposition (SPD) EIS was published in November 1999. The purpose of this evaluation is to identify changes in the program or in the design that could result in changes in the environmental impacts described in the SPD EIS. No attempt is made to distinguish the varying degrees of significance in a NEPA sense; rather, this evaluation is intended to highlight those items where changes from the SPD EIS can be documented.

PDCF Design Comparison

1. Resource Requirements and Other Design Parameters

Parameter	SPD EIS (November 1999)	Current Design
Project Costs ^a	\$2.7B to \$2.9B (PDCF, Mixed Oxide Fuel Fabrication Facility [MFFF], Immobilization Facility, excludes Waste Solidification Building [WSB])	PDCF \$2.5B; MFFF \$4.7B; WSB \$0.25B; Total = \$7.4B
Construction Start	2001	~FY2011
Start and Duration of Operations	2004, 15-year duration	4Q FY2016, 7.5-year duration
Facility Acreage	5 acres	50 acres for PDCF plus 7 acres for WSB
Number of Staff	400	600
Electrical Consumption	16,000 Megawatt-hours (MWh)	92,000 MWh – this is largely driven by requirement for 100% outside air
Liquid Waste Management	Transuranic (TRU) Waste Characterization and Certification Facility would manage liquid TRU waste once solidified	WSB – new construction

a – Current project costs for this evaluation were obtained from the FY2008 Congressional Budget Request, National Nuclear Security Administration, February 2007. The original project costs were obtained from the SPD EIS Record of Decision, dated January 11, 2000. These figures do not include a “fuel offset” for MFFF.

2. Facility Design

Parameter	SPD EIS (November 1999)	Current PDCF Design
Final Exhaust Filtration	High efficiency particulate air (HEPA) filter	Sand filter added, HEPA still used
Process Steps		
- Direct Metal Oxidation (DMO)	No discussion of DMO	DMO added. Highly enriched uranium (HEU) will first be oxidized prior to shipment to Oak Ridge Reservation (ORR) for storage and disposition. HEU metal will not be shipped as originally planned.
- Gallium Removal	Gallium removal included in both PDCF and MFFF	Gallium removal deleted – to be performed at MFFF
- Hydride-Oxidation	Hydride-oxidation	Hydride/dehydride
Security	Hardened Facility; page 2-15 SPD EIS	Upgraded to Denial Facility
Unclassified Vault	Unclassified vault included	Unclassified vault deleted
Potential change under review; not yet implemented in design	Inclusion of declassification furnaces; page 2-18 SPD EIS	Removal of furnaces in sanitization; send classified shapes to WIPP

Facility Square Footage		
- Process Building ^a : Main process area plus loading dock, safe haven, interstitial space, and fire water containment basin	200,000 square feet	153,606 square feet: (108,300 + 4,580 + 12,880 + 18,786 + 9,060)
- Utilities ^b : Mechanical support, utility, fan house, sand filter, Perimeter Intrusion Detection and Assessment System (PIDAS) Entry Control Facility (ECF), diesel storage, and Administrative Support Building	26,000 square feet	155,417 square feet: (55,660 + 15,525 + 8,140 + 43,360 + 7,820 + 1,932 + 22,980). Administrative Support Building (22,980) is 100% Title I – WGI is not responsible for the Administrative Support Building Title II design

a – See architectural drawings A-A2-F-2913 for main process building, loading dock, and safe haven square footage and drawing A-A2-F-2926 for interstitial space and fire water containment basin square footage.

b – See architectural drawings A-A2-F-2928 for mechanical support square footage, A-A2-F-2950 for Utility Building square footage, A-A2-F-2944 for Fan House square footage, A-A2-F-2946 for Sand Filter square footage, and A-A2-F-2955 for PIDAS ECF square footage.

3. Waste Generation

Parameter	SPD EIS (November 1999)	Current Design
	Annual Volume	
TRU and Mixed TRU Solid	636 cubic feet (ft ³)	4,970 ft ³
Low-Level Waste (LLW) Solid	2,119 ft ³	30,975 ft ³
Low-Activity Waste (LAW) Liquid	Included with solid waste	24,041 gallons
Mixed LLW Solid	35 ft ³	None
High-Activity Waste (HAW)/Mixed HAW/Concentrated Liquids	Included with solid waste	11,721 gallons
Hazardous Solid	71 ft ³	4 ft ³
Non-Hazardous Solid	63,566 ft ³	63,000 ft ³
Non-Hazardous Liquid	6,604,000 gallons	8,235,000 gallons

4a. Air Quality - Operations

Pollutant	Averaging Period	SPD EIS (November 1999)	Current Design
		Concentrations (micrograms per cubic meter [µg/m ³]) from Operations of PDCF	
Carbon Monoxide	8 hours	0.0942	4.24
	1 hour	3.73	22.3
Nitrogen Dioxide	Annual	0.0287	0.05
Particulate Matter with diameter less than 10 micrometers (PM ₁₀)	Annual	0.00182	0.0624
	24 hours	0.026	1.433
Sulfur Dioxide	Annual	0.041	0.0025
	24 hours	0.56	0.056
	3 hours	1.46	0.30
Total Suspended Particulates	Annual	0.00182	0.0601

4b. Radiological Impacts

Parameter	SPD EIS (November 1999)	Current Design
	Millirem (mrem)	
Maximally exposed individual, annual dose	0.0037	0.0182

4c. Air Quality – Construction

Pollutant	Averaging Period	SPD EIS (November 1999)	Current Design
		Concentrations ($\mu\text{g}/\text{m}^3$) from Construction of PDCF	
Carbon Monoxide	8 hours	0.911	2.79
	1 hour	4.14	14.72
Nitrogen Dioxide	Annual	0.0601	0.03
PM ₁₀	Annual	1.03	0.0479
	24 hours	0.026	1.097
Sulfur Dioxide	Annual	0.00391	0.0014
	24 hours	0.0964	0.031
	3 hours	0.578	0.168
Total Suspended Particulates	Annual	0.0977	0.055

5. Facility Accidents

Parameter	SPD EIS (November 1999)	Current Design
	Annual Volume	
Accidents analyzed in facility design that are not in SPD EIS	Not analyzed	1) SST Truck Bay including a fire on dock and a tornado or tornado generated missile 2) Fire in the Main Vault due to an AGV fire 3) Overpressurization of milk bottles in the Interim Storage Area 4) Sanitization Furnace steam explosion 5) Loss of offsite power 6) Criticality in the Main Vault
Fire	A bounding glovebox fire is analyzed involving 24 grams of plutonium oxide at risk.	Multiple-room fires are analyzed with kilogram quantities of material at risk.

Summary

The potential environmental impacts described in the SPD EIS have increased significantly in a number of areas. The areas of greatest increased impacts include the facility acreage and square footage of the utility support functions, electrical consumption, volume of waste generated, air emissions, and the quantity of material at risk for a facility accident. Other noticeable changes in the PDCF project since the 1999 publication of the SPD EIS are the delay in the start of operations and the increased cost. While the SPD EIS and supporting Records of Decision did not specifically mention PDCF's share of the total project costs, the life-cycle costs for the PDCF are estimated to have increased more than \$1.5B since the project inception, and the start of operations is nearly 12 years later than originally planned.

The SPD EIS analyzed multiple aspects to the plutonium program, including the PDCF. Since 1999, no new NEPA documents have been prepared for the PDCF portion of the program; however, DOE prepared an SA for the MFFF in 2003 (DOE/EIS-0238-SA1, April 2003). The MFFF SA determined that additional NEPA analyses were not required.

DOE has established a rule-of-thumb to review site-wide EISs at least every 5 years. The CEQ, the federal agency that oversees compliance with NEPA, has stated that if a proposal has not yet been implemented, or if an EIS concerns an ongoing program, any EIS that is more than 5 years old should be reexamined to determine if a supplement is required [46 FR 18026, March 23, 1981, as amended, 51 FR 15618, April 25, 1986].

The notable changes in PDCF design could be relevant to environmental concerns, and this would require preparation of an SA. As noted above, the PDCF project has encountered multiple delays that have driven the start of operations out approximately 12 years and cost increases totaling more than \$1.5B. The preparation of an SA would satisfy the DOE and CEQ guidance to reexamine EISs over 5 years old as well as address the environmental concerns.

Recommendation

It is recommended, pursuant to 10 CFR 1021.314(c), that an SA be prepared to fully document and disclose the changes that have occurred in the PDCF portion of the SPD Program since 1999.