WOMEN'S ACTION FOR NEW DIRECTIONS
464 Cherokee Avenue, SE, Suite 201, Atlanta, GA 30312
Phone: 404-524-5999
Fax: 404-524-7593
wandatlanta@mindspring.com

Atlanta 4/28/03
68FR 9728
(11)

RECEIVED
2003 APR 22 PM 2:36
Rules and Directives Branch

ML031140007

April 16, 2003

Dear Mr. Shear:

I'm a U.S. citizen of Georgia and a member of Women's Action for New Directions & would like to commend you & the U.S. government for understanding the importance of dealing with plutonium so that it is not used to make weapons.

However, I have grave concerns about the DEIS process. First, I am deeply concerned that DEIS has not addressed the reasonable alternative to MOX - plutonium immobilization. Immobilization would meet the goal of safeguarding weapons-grade plutonium, and it would provide a large number of jobs, less waste, and it would be cheaper! 78-1

Also, the DEIS process fails to address operational plans & licencing. ~~These~~ The environmental impacts of operation must be considered before the DEIS process is completed. 78-2

Template = ADM-013
E-RIDS = ADM-03
Cc: M. Harris (TEH)
A. Lester (ACL-1)

Most importantly, the DEIS finds from 50-200 people in low-income, minority communities will die from an explosion at a MOX factory. As an environmental & racial justice issue, this risk is unacceptably high. 78-3

Please address the following deficiencies in the final EIS:

1. MOX vs. Plutonium Immobilization (which provides more jobs & is safer!)
2. Failure to subject operations data to review in EIS process
3. The unacceptably high risk of 50-200 deaths in an explosion at a MOX plant.

As someone living close to the S.R.S., the above must be addressed in the EIS process to ensure support for any program dealing with weapons grade plutonium by the local community.

Thank-you,

Amanda Vood
Atlanta, GA

ML 03113 0043

April 11, 2003

2/28/03
68FR 9728
(10)

Linda Ewald
949 Ponder Rd.
Knoxville, TN
37923

00079

Michael T. Lesar, Chief
Rules & Directives Branch, Division of
Administrative Services, Office of Administration
Mail Stop T-6D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Lesar,

I am writing to express opposition to production of mixed-oxide (MOX) fuel from surplus weapons plutonium at the Savannah River Site nuclear facility. 79-1

This is experimental program has never been pursued at this scale. It poses a serious threat to public safety and health and will increase the volume of hazardous, radioactive waste streams at a location already plagued by dangerous waste contamination. An accident could have severe consequences in nearby communities which are primarily minority and low-income. 79-3

This proposal also raises complex consumer and rate-payer concerns over government subsidies unfairly favoring a destructive type of energy production over environmentally safe alternatives. 79-4

Please reconsider conclusions made in the Draft Environmental Impact statement released in late February. 79-3 (Cont)

Sincerely,
Linda Ewald.

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2003 APR 21 AM 10:54
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Branch
USNRC

Template = ADM-013

E-RIDS = ADM-03
Add = T. Harris (Tech)
A. Lester (ACLA)

WOMEN'S ACTION FOR NEW DIRECTIONS
464 Cherokee Avenue, SE, Suite 201, Atlanta, GA 30312
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ML031140009

3/28/03
68 FR 9728
(13)

Michael J. Lesar
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Lesar,

I am writing concerning the DEIS for the MOX application. I am concerned that the DEIS is being finalized before the MOX operations license is submitted for NRC review. The operation of the MOX facility must be subject to review during this same period in the NEPA process governing the EIS. Not reviewing critical aspects of containing the highly dangerous plutonium is irresponsible and blatantly wrong. Separating the construction and the operation of this planned facility in the review process makes no sense. 80-1

Although it is laudable that there is discussion of the environmental justice impacts of the MOX facility in the DEIS, no deaths are acceptable for a plant designed to safe guard plutonium. The mitigation described for this disproportionate impact on low income and minority people is not adequate. There are not even any sirens in the area. Why not provide health care to the communities most impacted by this facility? 80-2

The DEIS does not address the reasonable alternative to MOX – plutonium immobilization. NEPA requires presentation and analysis of a choice of alternatives! This alternative, which would also provide jobs, is cheaper than MOX has a much smaller waste stream, and could provide effective management for existing waste stocks at SRS. 80-3

Sincerely,

Betsy Rivard
3388 Valley Circle, NW
Atlanta, GA 30305

Template = ADM-013

E-RIDS = ADM-03
Add = T. Harris (TEH)
H. Lester (HCL1)

WOMEN'S ACTION FOR NEW DIRECTIONS
464 Cherokee Avenue, SE, Suite 201, Atlanta, GA 30312
Phone: 404-524-5999
Fax: 404-524-7593
wandatlanta@mindspring.com

April 16, 2003

Mr. Michael T. Lesar
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

3/28/03
68 FR 9728
(12)

Dear Mr. Lesar,

Women's Action for New Direction has been studying the problems of plutonium during MOX processing. I have become very concerned that the Draft Environmental Impact Statement for the MOX project estimates 50 to 200 latent cancer fatalities from an explosion at the MOX facility. This catastrophe would be hardest on the poor minority communities living near the Savanah River Site. 81-1

An attractive alternative to MOX immobilization should be analyzed and compared to MOX. 81-2

I am most concerned that the EIS process would terminate before the NRC reviews the MOX operating license 81-3

Please address these deficiencies in the final EIS. We feel the magnitude of this process should be made clear to the public – now –

Sincerely,
Berta Laney

Template = ADM-013

E-RIDS = ADM-03
Add = M. Harris (CTEH)
A. Lester (ACL1)

From: Chris Miller <csmsav@bellsouth.net>
To: <teh@nrc.gov>
Date: 5/5/03 12:35AM
Subject: Re:NUREG 1767

Michael T. Lesar, Chief, Rules & Directives Branch,
Division of Administrative Services,
Office of Administration,
Mail Stop T-6D59,
U.S. Nuclear Regulatory Commission,
Washington, DC 20555.

Mr. Lesar,

As a Savannah resident and a US citizen who is concerned about the health, safety and security impacts of Federal programs, I am deeply troubled by the DOE's proposed MOX facility at the Savannah river site.

I have read the recently released EIS and I am strongly opposed this proposal until the following issues can be reasonably addressed:

* Shouldn't terrorism be addressed in the report? (P. I-29) 82-1

* Shouldn't environmental justice impacts along transportation routes be evaluated? (more important than studying "visual impacts" - P. I-26) 82-2

* Shouldn't emergency preparedness in dealing with accident impacts in nearby communities be studied? (P. I-29) 82-3

* Should any deaths be considered "acceptable"? Why are some communities unfairly burdened with higher risks? (P. 4-57) 82-4

* Why aren't safer and cheaper options being studied? (P. 2-23) 82-5

* Shouldn't it be clearly stated what is really going to be done with surplus weapons plutonium stockpiles before the NRC approves the MOX facility? 82-6

Chris Miller
314 E. 65th St
Savannah, GA
912-351-0649

00083

ATTENTION: TIM HARRIS

May 6, 2003
304 Manor Drive
Sautee, GA 30571

Michael T. Lesar, Chief Rules & Directives Branch
Division of Administrative Services
Office of Administration Mail Stop T - 6D59
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Lesar,

Please consider my opposition to a MOX facility at the Savanna River Site and any use of Mox fuel in our nations nuclear reactors.

I have followed nuclear issues for a number of years, have attended DOE risk assessment workshops, and been a speaker at forums along with NRC spokespersons. In other words, I have done my homework. I am also a Duke Energy stockholder.

I don't want another nuclear production facility on Georgia's borders. I don't want more nuclear waste....in any form....stored anywhere in the country. I don't want a company in which I have a financial interest to be involved in this risky and experimental program. 83-1

The only really proper roll for the Nuclear Regulatory Commission at this time is security and clean up. Mox helps neither.

Sincerely,

Joan O. King

Joan O. King

00084

Received: from igate.nrc.gov
by nrcgwia.nrc.gov; Wed, 07 May 2003 22:13:31 -0400
Received: from imo-r02.mx.aol.com (imo-r02.mx.aol.com [152.163.225.98])
by smtp-gateway ESMTPœ id h4829IOD007262
for <teh@nrc.gov>; Wed, 7 May 2003 22:09:18 -0400 (EDT)
Received: from LALALAND18@aol.com
by imo-r02.mx.aol.com (mail_out_v34.22.) id f.127.28e23ef2 (15865)
for <teh@nrc.gov>; Wed, 7 May 2003 22:13:22 -0400 (EDT)
Received: from aol.com (mow-m31.webmail.aol.com [64.12.137.8]) by air-id06.mx.aol.com (v93.12) with ESMTP id MAILINID64-3df93eb9bd411cb; Wed, 07 May 2003 22:13:22 2000
Date: Wed, 07 May 2003 22:13:21 -0400
From: LALALAND18@aol.com
To: teh@nrc.gov
Subject: Plutonium and MOX Fuel
MIME-Version: 1.0
Message-ID: <4B62AEC4.33F65E95.0ACAED16@aol.com>
X-Mailer: Atlas Mailer 2.0
Content-Type: text/plain; charset=iso-8859-1
Content-Transfer-Encoding: 8bit

In response to the review being done of these military tools, I would like to register my outrage and disgust at the preparedness of the govenment to continue to disregard years of advancement in protecting the public health and natural environment. The testing and transport of these fuels continues to unfairly burden less fortunate communities. How will this be reconciled? The current plans do not allow for accident protection to these communities. Also cheaper and safter methods of acheiving the same ends have not thoroughly enough been explored. I hope a future review would consider other options that would less negatively impact our environment. 84-1 84-2 84-3

Lauren Sorkin
10 Pinkham Road
Medford, MA
02155

(732)-690-6221

00085

From: Valentino, Adrienne [Adrienne.Valentino@us.gambro.com]
Sent: Tuesday, May 13, 2003 8:38 AM
To: 'teh@nrc.gov'
Subject: Plutonium concern

Dear Mr. Harris,

I am a citizen of Savannah and very concerned about the shipment of weapons-grade plutonium to the Savannah River Site. It is my understanding that this nuclear site already has a long history of poor compliance w/ previous regulations concerning proper containment of hazardous materials. Now the NRC is considering expanding this facility?????? 85-1 85-2

I am concerned for the safety and health of all the individuals in this area. These safety issues have not been given the attention and study they deserve. I do not feel your organization has given us conclusive evidence that this site is "safe" for the community that lives around its' borders currently, much less that the people will be safe when this facility is expanded. Where are the health records of the surrounding communities now, before this expansion? 85-3

Throughout the country, individuals are concerned about a terrorist assault. How will this site be protected from a terrorist threat after the expansion when it is already highly vulnerable to this type of an assault? 85-4

Another major concern is the effects of these materials into our ecosystem. Nuclear waste is already seeping under the Savannah river and likely soon into our water system. Our precious marshes are dying. This is where 90% of the fish in the sea originate. Do you not realize that destroying a highly sensitive ecosystem like this will have profound effects on the entire world? Does this not justify a little further reasearch? 85-5

There are too many unanswered questions. When I have written previous letters, my concerns were not addressed nor even responded to. Please consider our concern for our community and our environment. Destroying coastal GA may mean little to the majority of the country, but our marshes alone should warrant further study before proceeding w/ this expansion. 85-6

Thank you for you time,
Adrienne Valentino

DUKE COGEMA
STONE & WEBSTER

Mr. Michael T. Lesar, Chief
Rules & Directives Branch
Division of Administrative Services
Office of Administration, Mail Stop T-6D59
U.S. Nuclear Regulatory Commission
Washington, D.C 20555-0001

13 May 2003
DCS-NRC-000133
Response Required: *No*

SUBJECT: Docket Number 070-03098
Duke Cogema Stone and Webster
Mixed Oxide Fuel Fabrication Facility
Comments on *Draft Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina*

On 14 February 2003, the Nuclear Regulatory Commission (NRC) issued the *Draft Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina* (Draft EIS). In the 28 February 2003 Federal Register notice, comments were requested by 14 April 2003. In a 6 March 2003 letter to stakeholders, Mr. Lawrence Kokajko, Acting Chief, Environmental and Performance Assessment Branch, stated that the comment period was extended 30 days to 14 May 2003. Duke COGEMA Stone and Webster (DCS) submits the attached table of comments on the Draft EIS. DCS would like to highlight the following comments because we believe they represent significant issues.

1. DCS agrees with the Draft EIS conclusion that the recommended action is to proceed with the licensing of the Mixed Oxide Fuel Fabrication Facility. 36-1

2. DCS also agrees with the Draft EIS position to not evaluate immobilization as an alternative. The Department of Energy, as the federal agency charged with developing the surplus plutonium disposition strategy, has already eliminated immobilization as a viable alternative. 36-2

3. The bounding accident for the Mixed Oxide Fuel Fabrication Facility--an explosion in an aqueous polishing cell--was not properly characterized. The discussion provided in Section 4.3.5.2 and Table 4.12 fails to explain that the accident is prevented. *See Draft Safety Evaluation Report on the Construction Authorization Request for the Mixed Oxide Fuel Fabrication Facility* ("Draft SER") Table 10.1-3, footnote b. The Draft EIS should clearly state that an explosion in an aqueous polishing cell is provided for illustrative purposes because, pursuant to NRC's own regulations, the design safety features, will prevent such an 36-3

PO Box 31847
Charlotte, NC 28231-1847

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Charlotte, NC 28202

accident. The Draft EIS further fosters a misimpression on the public by postulating that, once this hypothetical accident occurs, neither DCS, the Department Of Energy, NRC, nor the States of South Carolina or Georgia would take any intervention to protect the public by removing contaminated food or soil. *See* Draft EIS page 4-36, lines 8-18. In fact, the document further assumes that contaminated food is distributed outside the immediate vicinity of the Savannah River Site. *See* Draft EIS page 4-41 lines 25-38. These assumptions are inconsistent with the NRC guidance to use "reasonably foreseeable" accident evaluations that are coordinated with the Draft SER. 86-3 cont.

4. In addition to being unreasonably conservative, the Draft EIS projects a potential environmental justice impact for an accident that is prevented by the designed safety systems. The Draft EIS proceeds to impose mitigative actions (*see* Draft EIS, pages 5-5, lines 18-40 and 5-6, lines 1-11) for this hypothetical accident that is prevented. The projection of an environmental justice impact and inclusion of these mitigative action requirements are inappropriate and inconsistent with the goal of NEPA to provide the public with meaningful environmental analyses, and should be removed from the Draft EIS. 86-4

5. The Draft EIS, on pages xxi through xxiv and pages 5-2 through 5-6, lists 43 highly specific mitigative actions, such as, "…the use of straw bales or siltation fences adjacent to areas disturbed during construction…" Many of these mitigation measures simply duplicate state or other federal agency regulations with which DCS is already required to comply. For example, DCS is required to comply with OSHA regulations regarding workplace exposure to chemicals and South Carolina permit requirements for air emissions from the concrete batch plant. The Draft EIS should be modified to state that DCS will comply with the regulations of the appropriate regulatory agency. 86-5

If you have any questions please contact me at 704-373-7820 or Mary Birch at 704-382-1401.

Sincerely,

/s/

Peter S. Hastings, P.E.
Manager, Licensing and Safety Analysis

Attachment: DCS Comments on *Draft Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina*

xc: with enclosure
Hitesh Nigam, NNSA/HQ
Timothy E. Harris, USNRC/HQ
Andrew Persinko, USNRC/HQ
Donald J. Silverman, Esq., DCS
Document Control Desk, USNRC/HQ
PRA/EDMS: Coresp/Outgoing/NRC/Licensing/DCS-NRC-000133

without enclosure
David Alberstein, NNSA/HQ
Timothy S. Barr, NNSA/CH
Bernard F. Bentley, DCS
Mary L. Birch, DCS
Theodore J. Bowling, DCS
Edward J. Brabazon, DCS
James R. Cassidy, DCS
Sterling M. Franks, NNSA/SR
Kathy H. Gibson, USNRC/HQ
Joseph G. Gitter, USNRC/HQ
Phillipe Guay, DCS
Robert H. Ihde, DCS
James V. Johnson, NNSA/HQ
Lawrence E. Kokajko, USNRC/HQ
Eric J. Leeds, USNRC/HQ
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Robert C. Pierson, USNRC/HQ
Luis A. Reyes, USNRC/RII
Thomas E. Touchstone, DCS
Martin J. Virgilio, USNRC/HQ

DCS Review of NRC *Draft Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina*

Comment Number	DEIS Section	Page / Line	DEIS Statement or Text	Source Document & Statement or ER Text	Comment & Basis	
1	1.1.2	1-3 / 11-15	Although the DOE has prepared previous EISs that cover impacts of the proposed MOX facility on a programmatic level, those EISs are not considered sufficient to meet NRC needs under NEPA, because DCS has since submitted additional site-specific information, and the proposed MOX facility design has been revised since the DOE's EISs were issued.		Suggest rewording the statement to say that NRC has prepared this DEIS to incorporate additional site specific information and design detail and satisfy the requirements of 10 CFR Part 51 without the judgmental assessment that the DOE SPD EIS is "not considered sufficient."	86-6
2	1.4.1	1-12/ 11-14	A number of commenters requested that the SPD EIS prepared by the DOE be supplemented and many of the decisions already made by the DOE be revisited. Because the scope of this DEIS is limited to the licensing action now under review by the NRC, which is specific to the proposed MOX facility, issues pertaining to decisions already made by the DOE are addressed by referencing the appropriate DOE analysis.		The statement in the DEIS is misleading. Although NRC indicated that they would rely on the appropriate DOE analyses, the NRC recalculated accident analyses described in the DOE SPD EIS using extremely conservative models and assumptions resulting in significantly different impacts than in the DOE SPD EIS.	86-7
3	2.2.3.3.3	2-13/ 42	Wherever possible, the solid wastes would be compacted by the SRS to reduce volume and disposal costs. (Emphasis added)		Currently, SRS is compacting solid waste whenever "practical" rather than "possible."	86-8
4	2.2.4.1	2-14 / 32	Most of the solid waste generated in the WSB would be mixed with concrete and poured into approved containers.	ER Appendix G, G-1.2, Waste Processing	This is an incorrect statement. The **processed liquid wastes** will be mixed in the WSB with concrete and poured into containers to produce solid waste. The solid waste will not be mixed with concrete.	86-9
5	2.2.4.1	2-14/ 46	The LLW form would be sent to E-Area (SRS) or to another permitted disposal site.		Change "permitted" to "suitable". DOE LLW sites are neither permitted nor licensed nor do they need to be.	88-10
6	2.2.4.2.1	2-15 / 31-34	The WSB receipt tanks would be sized to hold three transfers (six weeks capacity in two 11,400-L [3,000-gal] tanks).	ER Appendix G, Table G-7	DEIS should not specify design details such as tank sizes. Otherwise, design evolution might mandate DEIS revisions. Where necessary, bounding conditions can be specified for impact projections; but these should be restricted to the discussions where they are needed and not simply cast about in general descriptions of the facility.	86-11
7	2.2.4.2.1	2-15 / 40-42	After neutralization, the waste would be pumped to two 110-L (30-gal) cement head tanks. One tank would receive material while the other tank is being pumped to the cement mixer. A metering pump would inject controlled amounts of the waste stream from the 110-L (30-gal) head tank to a cement mixer to be continuously mixed with supplied dry		DEIS should not specify design details such as tank sizes. Otherwise, design evolution might mandate DEIS revisions. Where necessary, bounding conditions can be specified for impact projections; but these should be restricted to the discussions where they are needed and not simply cast about in general	86-12

DCS Review of NRC *Draft Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina*

Comment Number	DEIS Section	Page / Line	DEIS Statement or Text	Source Document & Statement or ER Text	Comment & Basis	
			cement powder.		descriptions of the facility.	
8	2.2.4.2.1	2-15 / 39-44	The acidic bottoms collected in the evaporator would be neutralized with sodium hydroxide in a neutralization tank. After neutralization, the waste would be pumped to two 110-L (30-gal) cement head tanks.	ER Appendix G	The acidic bottoms will be collected in a bottoms tank where the solution will be sampled to determine concentrations. Based on this sample, the solution would be metered to one of three cement head tanks where neutralization would occur prior to transfer to the mixer. Suggest the following, "After collection, the waste would be pumped into small batch cement head tanks to be neutralized."	86-13
9	2.2.4.2.3	2-16 / 42	in two 5,700-L (1,500-gal) tanks	ER Appendix G, Table G-7	DEIS should not specify design details such as tank sizes. Otherwise, design evolution might mandate DEIS revisions. Where necessary, bounding conditions can be specified for impact projections; but these should be restricted to the discussions where they are needed and not simply cast about in general descriptions of the facility.	86-14
10	2.2.4.3	2-17 / 41	LLW would be disposed of either at the E-Area at SRS or at another permitted disposal site.		Change "permitted" to "suitable". DOE LLW sites are neither permitted nor licensed nor need they be.	86-15
12	2.2.5	2-18/29	Large fans or blowers are used to circulate the air through the sand filter media.		This sentence may lead the reader to think that SRS has a "re-circulating" system. SRS uses a "once through" system. The blowers are used to <u>draw</u> air through the sand filter media.	88-16
13	2.2.5	2-19/2 & 3	The facility is designed into numerous fire zones, in part to limit the exposure of individual banks of HEPA filters to failure.		Should read: "The facility is <u>divided</u> into numerous fire zones, <u>to limit the amount of combustibles involved in a single fire which reduces the amount of soot reaching individual banks of HEPA filters and assures that the HEPA filters will not fail due to excessive plugging.</u>"	86-17
14	2.4, Table 2-1	2-27/ 49-54	Large spills of nitrogen tetroxide, hydrazine hydrate, hydroxylamine nitrate or nitric acid could have adverse impact on SRS workers or general public and would require rapid emergency response actions.		NRC should consider deleting reference to impact from chemical spills on the general public. The DEIS contains no scenario of a release from the MOX Facility (or PDCF or WSB) that results in any effect beyond the SRS boundary (see p. E-15).	86-18
15	2.4	2-29 / 39 Table 2.1	Nonhazardous liquid waste would be 35% of SRS treatment capacity		The 35% value is apparently calculated by NRC from table 4.11, page 4-30, line 12. This is incorrect because treatment of waste from MFFF, PDCF, and WSB requires much less than 35% of capacity. The correct value is closer to 10% (about half of the	86-19

DCS Review of NRC *Draft Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina*

Comment Number	DEIS Section	Page / Line	DEIS Statement or Text	Source Document & Statement or ER Text	Comment & Basis	
					'nonhazardous liquid waste' from these facilities consists of non-process utility waters that will be released directly to permitted NPDES outfalls). See comments related to Section 4.3.4.1 and 4.3.4.2 Tables 4.10 and 4.11	86-19 cont.
16	2.4, Table 2-1	2-31/ 47-50	Impacts to off-site land use in the immediate vicinity of SRS could occur in the unlikely event of a severe accident		This is an inappropriate use of the term "severe accident" In 10 CFR Part 70 (see NUREG-1718), the appropriate terms are "likely, unlikely, high unlikely, and credible." Text should be changed to say "highly unlikely" (see DEIS p. 2-37 which notes that a severe accident is highly unlikely).	86-20
17	2.4, Table 2.1	2-33/ 47 2-35/ 32	PM2.5 standard level = 65 ug/m^3 PM2.5 levels exceed the annual standard of 15 ug/m^3.		Clarify that 65 ug/m^3 is a 24 hour limit.	86-21
18	2.4	2-34 / 6-8	Measures are being planned by DCS in conjunction with SCHPO to mitigate any potential impacts to historic sites before construction	Information provided in ER Section 4.8.2	These actions are complete and correctly noted in DEIS Table 2.1 lines 1-7. The fact that they are complete needs to be noted in the text on page 2-34.	86-22
19	3.3.1	3-7/ 23-24	The closest downstream water intake to the SRS is that of the Beauford-Jasper Water Authority at Hardeville, South Carolina, about 130 river miles downstream of the SRS (WSRC 2000a).		Typographical error, should be "Beaufort-Jasper".	88-23
20	3.3.1	3-9/ 16-19	It receives water from groundwater aquifer discharges and permitted discharges from several areas at the SRS, including F-Area, S-Area, the S-Area sewage treatment plant, and treated industrial wastewater from the Chemical Waste Treatment Facility steam condensate.		DEIS refers to the S-Area sewage treatment plant. With the opening of the Central Sanitary Waste Treatment Facility, the S-Area plant, and all other area treatment plants at SRS were closed.	86-24
21	3.3.2	3-11 / 3	Groundwater in the Upper Three Runs Creek Aquifer, ...		Delete the word "Creek"; the aquifer is the Upper Three Runs Aquifer.	86-25
22	3.3.2	3-12 / 27-29	The sources of the detected groundwater contamination included burial grounds, canyon buildings, seepage basins, and saltstone disposal facilities (WSRC 2000c).		Change to read "The sources of the detected groundwater contamination include burial grounds, waste management facilities, canyon buildings, seepage basins, and saltstone disposal facilities (WSRC 2000c)."	86-26
23	3.3.2	3-12 / 36-40	In addition, a subsurface plume of tritium and strontium contamination has recently been found in F-Area. This plume is believed to originate from the Old F-Area Seepage Basin (OFASB). The OFASB is located about 180 m (600 ft) north	ER 4.3.3.3, "The source of groundwater contamination is from various heavy industrial and nuclear operations over the past 50 years in the F-Area. The contaminants plume appears to originate inside F Area and extend	The MFFF ER Rev 2 discusses more recent subsurface analyses presented in WSRC 2002, *Work Task Authorization 06: Summary of Groundwater Quality at the Mixed Oxide Fuel Fabrication Facility Site.* A	86-27

DCS Review of NRC *Draft Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina*

Comment Number	DEIS Section	Page / Line	DEIS Statement or Text	Source Document & Statement or ER Text	Comment & Basis	
			of F-Area.	beneath the MFFF site with movement in a fan-like direction of groundwater flow under the MFFF site."	copy of this document was provided to NRC with the references for the MFFF ER Revision 1&2. The DEIS does not appear to account for this information. Please consider the following which accounts for the additional information. Remove the last two sentences "In addition ... (OFASB)." The source of this plume is not believed to be the OFASB. Insert the following sentence at the beginning of the next paragraph: "Contaminated groundwater also exists beneath the Old F-Area Seepage Basin (OFASB)."	86-27 cont.
24	3.3.2	3-12 / 40-45	The OFASB is located about 180 m (600 ft) north of F-Area. Other contaminants of concern at the OFASB include iodine-129, nitrate, uranium-234, and uranium-238. The site has been remediated by filling the basin with clean soil, capping, and stabilizing the contaminated soil within the basin with in-situ grout (WSRC 1997a). Groundwater monitoring is performed on a regular basis with 15 monitor wells. The aquifer is expected to return to an uncontaminated state within a period of 2 to 115 years, depending on the specific contaminant.		Change to read: "The OFASB is located about 180 m (600 ft) north of F-Area, immediately adjacent to the western boundary of the MOX site. The OFASB has been remediated by filling the basin with clean soil, capping, and stabilizing the contaminated soil within the basin with grout (WSRC 1997a). Groundwater contaminants of concern at the OFASB include iodine-129, nitrate, strontium-90, tritium, and total uranium. Contaminants of interest include lead, radium-226, and radium-228. A small component of the contaminant plume from OFASB flows beneath the westernmost corner of the proposed MOX site. Groundwater is monitored on a regular basis with 15 wells. Contaminant fate and transport models predict that the aquifer is expected to return to an uncontaminated state (i.e., a condition in which no maximum contaminant levels are exceeded) within 2 to 115 years, depending on the specific contaminant."	86-28
25	3.3.2	3-13 / 1-5	The predicted fate and transport of shallow groundwater contaminants near the OFASB were examined as part of the *Groundwater Mixing Zone Application for the Old F-Area Seepage Basin* (WSRC 1997a). The results of sampling in the compliance wells for the OFASB indicated that		Delete the first sentence "The predicted fate ...(WSRC 1997a)." Change the next sentence to read: "The results of recent sampling in the compliance wells for the OFASB indicated that concentrations of several target constituents were above drinking water	86-29

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			concentrations of several target constituents were above drinking water standards in several wells.		standards in several wells."	86-29 cont.
26	3.3.2	3-13 / 6-8			The MFFF ER Rev 1&2 discusses more recent subsurface analyses presented in WSRC 2002, *Work Task Authorization 06: Summary of Groundwater Quality at the Mixed Oxide Fuel Fabrication Facility Site*. A copy of this document was provided to NRC with the references for the MFFF ER Rev 1&2. The DEIS does not appear to account to this information. Please consider the following which accounts for the additional information. Append to this paragraph the following text: "There is, however, some uncertainty about whether these exceedances are related entirely to OFASB, to upgradient F-Area facilities, or to both." Insert a new paragraph: "The results of recent groundwater sampling at the proposed MOX facility site indicate that shallow groundwater (i.e., groundwater in the Upper Three Runs Aquifer) is contaminated. Gross alpha and beta activity, tritium, uranium, and trichloroethylene exceeded maximum contaminante levels for drinking water. Contamination is present beneath the entire MOX site, but is greatest beneath the western edge of the site. The contaminant plume appears to originate inside the F-Area fence and was and is related to F-Area nuclear operations and waste management practices at OFASB." Make the following text the final paragraph of this section: "Groundwater in the Upper Three Runs Aquifer beneath the MOX site is contaminated with various heavy industrial and nuclear contaminants. The proposed construction activities will take place at least 9 m. (30 ft.) above the zone of contaminated	86-30

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					groundwater."
27	3.4.13	3-18 / 35 and 3-22 Table 3.3, also 4.3.2, Table 4.6 and corresponding discussion; Table 4.8 and corresponding discussion; as well as Section 4.5.1, page 4-75 and Section 4.7, Table 4-29, with discussion on page 4-90.	A list of the ambient standards and the highest ambient concentrations at the air quality monitoring stations in the vicinity of the SRS is shown in Table 3.3.		The definition of 'vicinity of SRS' and resulting selection of SCDHEC air monitoring stations to characterize existing ambient air quality for the SRS and adjacent counties appears arbitrary. As a result, the air monitoring data that is presented in Table 3.3 has questionable representativeness and cannot support subsequent unequivocal statements regarding air quality compliance. In particular, air monitoring data for particulate matter (PM_{10} and $PM_{2.5}$) reported in Table 3.3 suggest that local air quality is in noncompliance with ambient standards for both the 24-hour and annual averaging periods in each pollutant category. Most of these noncompliant data are attributed to the Cayce, Lexington County, SC monitoring site. This monitor is located near downtown Columbia, SC (over 40 miles from the SRS and MFFF sites) with a setting classified by SCDHEC as 'commercial, urban-city center'. Furthermore, monitoring summaries on the SCDHEC web site show that this monitor consistently reports the highest PM measurements of any monitor in the State. In contrast, PM_{10} monitors near the SRS boundary in the more rural Jackson and Barnwell locations report results for 2001 that are less than one half the values observed at Cayce. For the $PM_{2.5}$ 24-hour category, Table 3.3 lists a value of 71 micrograms per cubic meter from a rural monitor in Colleton County, approximately 60 miles southeast of SRS. A further inspection of the data from Colleton shows this value was the absolute maximum recorded in the year 2001; however, the 98th percentile value (the value that should be used to evaluate compliance with the air standard) for this monitor was 27 micrograms per cubic meter. The 24-hour standard is 65 micrograms per cubic meter. Data given in Table 3.3 for the annual $PM_{2.5}$ category (21.5 micrograms per cubic meter) again is from the Cayce monitor. In contrast, the Colleton monitor gave an

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					annual average of 12.7 micrograms per cubic meter for 2001 which is below the $PM_{2.5}$ standard of 15 micrograms per cubic meter. As part of the discussion of environmental consequences in Chapter 4 of the DEIS, tables 4.6 and 4.8 use a more reasonable set of data for the existing 'background' air quality, except for the $PM_{2.5}$ annual average. Again, the Cayce monitoring data is used (21.5 micrograms per cubic meter) to support the unwarranted conclusion (page 4-11 lines 28-31 and page 4-18 lines 30-32) that 'measured values in the vicinity of SRS already exceed the annual standard'. This conclusion also is repeated in several instances in Section 4.7. The DEIS should be revised throughout to present conclusions regarding $PM_{2.5}$ that are based on more representative data. In addition, Table 3.3 and Tables 4.6 and 4.8 should be revised to present consistent information where possible.	86-31 cont.
28	3.8.5	3-41/ 13	...using 12-hour shifts...		Minor point, but the site uses 24-hour shifts.	86-32
29	3.10.4.2	3-54/ 27-31 3-55 Table 3.11	To assess the potential for adverse human health impacts from ongoing SRS operations, the reported maximum ambient concentration estimates were also compared with health risk-based air concentrations developed by the EPA's Office of Air Quality Planning and Standards (OAQPS) (Smith et al. 1999). The modeled maximum ambient concentrations of several toxic pollutants exceeded or approached the health risk-based concentrations (see Table 3.11).		The DEIS uses data completely out of context to reach erroneous conclusions on several points. The data presented in Table 3.11 for 'SRS maximum modeled ambient concentration' and 'SCDHEC standard' are maximum 24-hour averages; i.e., the maximum value that occurred at the SRS boundary over a single 24-hour period for a one-year period of analysis. Conversely, the EPA risk guideline levels assume a long term exposure. Since the wind does not blow in the same direction all through the year the long term (e.g., annual) average concentration for a pollutant will be **much** less than the maximum 24-hour average. Common extrapolation algorithms suggest that an annual average would be at least $1/100^{th}$ the 24 hour average. Actual SRS modeling results (see DEIS table 4.8, for example) indicate a much greater ratio; however, applying a conservative factor of 0.01 to the 24-hour values results in adjusted concentrations that	86-33

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	4.3.1.2.2	4-13 / 16-22	As discussed in Section 3.10.4.2 and Table 3.11, although SRS sitewide hydrazine emissions do not result in exceedance of the ambient level specified in the South Carolina Department of Health and Environmental Control (SCDHEC) standard, the existing emissions may result in exceedance of federal EPA health-risk-based air guideline concentrations.		are all less than the EPA's 10^{-4} risk concentration levels listed in the table. Furthermore, as noted on page 3-54, line 33, the basis of the modeled 24-hour values are already quite conservative with the use of maximum potential, rather than actual emissions. Table 3.11 and accompanying text should be revised to indicate clearly the context of the information that is being presented (i.e., averaging period) and to remove any implication that SRS air toxic emissions pose unacceptable risk to the public, or that (implicitly) the SCDHEC standards to not adequately protect public health. The DEIS is wrong to state (page 3-54, lines 24-25) that any of the modeled-estimated concentrations (24-hour) from the 1998 submittal to SCDHEC exceeds ambient standards. The SCDHEC Air Pollution Control Regulation 61-62.5, Standard 8, states that model estimated concentrations for pollutants with a zero standard are to be rounded to the hundredths decimal place. By applying this guidance to the four pollutants for which the SRS allegedly exceeds the standard (see Table 3.11), the maximum site boundary concentration becomes 0.00. These pollutants, therefore, meet the SCDHEC standard of 0.00 in each case.	86-33 cont.
30	3.10.4.2	3-54/ 34-36	However, emissions of the pollutants listed in Table 3.11 may require further investigation by the SRS to determine that ambient levels are not of concern with respect to human health impacts.		Suggestions by NRC that DOE take any actions for emissions not regulated by NRC are beyond the statutory scope of NRC and should be deleted from the DEIS.	86-34
31	4.3.1.1.1	4-8/ 1-2	Soil would be further sampled for radioactive contamination before excavation begins at the site.	Letter from P. Hastings (DCS) to Cheryl Trottier (NRC), 29 October 2002, Responses to the Request for Additional Information on the Environmental Report, Revisions 1&2, DCS-NRC-000116; Attachment 26, Plutonium Project Pre-construction Environmental Report	The 29 October 2002 correspondence from DCS to NRC responding to requests for additional information included the results of the "further sampling" referred to in the DEIS. The DEIS should have included the results of this report which confirm the previous DCS conclusion that there are no significant concentrations of radioisotopes or chemicals in the soil, that would be hazardous to construction worker health.	86-35

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32	4.3.1.1.2	4-8 / 42 E-16 / 40	… the MEI dose … was estimated from inhalation exposure. Facility workers may also receive an internal dose.		Internal exposures result from breaches of containment and should be included in accident impacts, not normal operations.	86-36
33	4.3.1.2.1	4-11/ 42-45	Exposure to hazardous materials used during construction (e.g., paints, solvents) could be kept to a minimum by following good engineering practices, such as ensuring good ventilation and cleaning up small chemical spills as soon as they occur.		Exposure to hazardous materials used during construction will be minimized by following applicable OSHA regulations and precautions. No additional mitigations are necessary. Rather, the DEIS should state that exposure to hazardous materials used during construction will be minimized by following applicable OSHA regulations and precautions.	86-37
34	4.3.1.2.1	4-12/ 3-6	At this time, however, available data are insufficient to determine whether subsurface soil contamination is present in the proposed construction area. Groundwater contamination exists below the site of the proposed facilities. However, the soils overlying the aquifer are not expected to be contaminated.	Letter from P. Hastings (DCS) to Cheryl Trottier (NRC), 29 October 2002, Responses to the Request for Additional Information on the Environmental Report, Revisions 1&2, DCS-NRC-000116; Attachment 26, Plutonium Project Pre-construction Environmental Report	This statement is incorrect, The 29 October 2002 correspondence from DCS to NRC responding to requests for additional information included the results of the "further sampling" referred to in the DEIS. The DEIS should have included the results of this report which confirm the previous DCS conclusion that there are no significant concentrations of radioisotopes or chemicals in the soil, that would be hazardous to construction workers health.	86-38
35	4.3.1.2.2	4-12/ 19-21	During operations, the proposed MOX facility would use about 30 chemicals for processing, mostly for aqueous polishing to remove impurities from the plutonium (DCS 2002a; Table 3-2); the chemicals would include dodecane, hydrazine, hydrogen peroxide, hydroxyl amine nitrate, nitric acid, nitrogen, nitrogen tetroxide, and tributyl phosphate.		DEIS list is missing oxalic acid, sodium hydroxide, and sodium carbonate all of which were listed in MFFF ER Table 3-2.	88-39
36	4.3.1.2.2	4-12/ 36-37	However, the workplace environment would be monitored to ensure that airborne chemical concentrations were below applicable occupation exposure limits.		Exposure to hazardous chemicals used during operations will be minimized by following applicable OSHA regulations and precautions. No additional mitigations are necessary. Rather, the DEIS should state that exposure to hazardous materials used during operations will be minimized by following applicable OSHA regulations and precautions.	86-40
37	4.3.1.2.2	4-13/ 20-22	During permitting of the proposed MOX facility, demonstration that operational hydrazine emissions would be limited to very low levels that would not cause adverse health impacts to members of the public or SRS employees would		Hydrazine emissions from the MFFF will be subject to South Carolina Department of Health and Environmental Control regulations. No additional mitigations are necessary, DCS will comply with	86-41

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			be conducted.		SCDHEC air quality regulations.	
38	4.3.2.	4-23 / 9	...increments for SO2 and PM10.		NO_2 is omitted from the discussion. The sentence should read: "...increments for SO_2, PM_{10}, and NO_2."	86-42
39	4.3.3.1.2 and 5.2.2	4-25 / 13-14 and 5-7 / 33-35	Nonhazardous wastewater would be treated if necessary and discharged to the F Area process sewer system that connects to the SRS Effluent Treatment Facility	ER pg 3-18, "The uncontaminated HVAC condensate is discharged to the stormwater system in accordance with SCDHEC standard stormwater permit conditions. The remaining nonhazardous wastewater is discharged to the SRS F-Area sanitary sewer system that connects to the CSWTF."	Nonhazardous wastewaters, except for traditional sanitary wastewater, will either be sent to an appropriate permitted treatment facility at SRS, or, in the case of runoff and uncontaminated HVAC condensate, be discharged directly to a permitted NPDES outfall. Sanitary wastewater will be sent to the WSRC Central Sanitary Waste Treatment Facility.	86-43
40	4.3.4.1	4-26 / 37-40	Hazardous (liquid) wastes that would be generated would be similar to those expected during the construction of any industrial facility. Examples of these wastes include liquids (such as motor oil), batteries, and other machinery-related products, cleaning products, and other chemicals (such as insecticides and pesticides).		Not all examples listed (i.e. batteries) are liquid.	86-44
41	4.3.4.1	4-27 / 6	Liquid nonhazardous waste from MOX = 178 m^3/yr (47,000 gal/yr)	ER Table 5-6 Liquid nonhazardous waste from MOX = 47,000 yd^3/yr	There appears to be an error in the unit used in the DEIS. The correct value is 47,000 yd^3/yr (9.5 million gallons/yr or 36,000 m^3/yr).	86-45
42	4.3.4.1 and 4.3.4.2	4-28 / 12 Table 4.10	MOX nonhazardous construction waste = 178 m^3/yr	ER Table 5-6 Liquid nonhazardous waste from MOX = 47,000 yd^3/yr	See comment regarding section 4.3.4.1, p. 4-27, line 6. Correct volume is 36,000 m^3/yr.	88-46
43		4-28 / 12 Table 4.10 4-30/ 12 Table 4.11	SRS treatment capacity for nonhazardous liquid waste = 276,000 m3/yr. (73 Mgal/yr)		Value is wrong. SRS treatment capacity (CSWTF) is provided in the ER on page 4-43 (1.1M gals/day) or Table 5-6, p. 5-80, 1.35M cu. yds/yr (273M gal/yr). Permitted capacity is 1.05M gal/dy. SPD EIS Table 3-41 reports CSWTF capacity as 1.45 Mm3/yr (383 Mgal./yr). Recommend use of 273 Mgal/yr value from Table 5-6.	86-47
44		4-28/ 12 Table 4.10 4-30 / 12 Table 4.11	Storage and disposal of nonhazardous liquid waste are shown as NA with footnote h in Table 4.10 and footnote i in Table 4.11		Delete footnote. Nonhazardous liquid waste (sanitary sewage) is not stored and is released to site streams after treatment. No footnote needed.	86-48
45	4.3.4.2	4-29 / 2	. . .to produce a solid TRU waste matrix similar to that accepted for disposal at WIPP		The solid TRU waste form will be certified to comply with the WIPP Waste Acceptance Criteria. The use of the word "similar" implies some differences and issues. Recommend rewording to say the process will produce a solid TRU waste "suitable" for disposal at	86-49

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					WIPP.	
46	4.3.4.2	4-31 / 19	Wastes of this type are estimated to be about 35% of the capacity of the Central Sanitary Wastewater Treatment Facility		The 35% value is apparently calculated by NRC from table 4.11, page 4-30, line 12. This is incorrect because treatment of waste from MFFF, PDCF, and WSB requires much less than 35% of capacity. The correct value is closer to 10% (about half of the 'nonhazardous liquid waste' from these facilities consists of non-process utility waters that will be released directly to permitted NPDES outfalls). See comments related to Section 4.3.4.1 and 4.3.4.2 Tables 4.10 and 4.11.	86-50
47	4.3.5.1.1 4.3.5.2	4-32/ 36-40 4-36/ 10-18	The events for which accident consequences were evaluated in this DEIS are internal fire, explosion, load handling event, criticality, and chemical releases. The methods employed to analyze accident consequences were based on conservative assumptions and were intended to provide a comprehensive, bounding analysis for all potential events up to and including design basis accidents. The scoping process identified concerns about the impacts from accidents, and **commenters requested that the worst-case impacts be presented**. Whether an individual would be exposed to contaminated soil and food would depend upon the specific protective actions that the applicant and government agencies might take following the accident. If protective actions were taken, the component of dose attributable to exposure to contaminated soil and consumption of contaminated food would be effectively mitigated. However, the actions that would be taken cannot be predicted at this time, so both the early phase and unmitigated intermediate and late phase consequences (corresponding to one year of exposure to the contaminated environment) are provided in this DEIS.	a) The U.S. Supreme Court ruled in *Robertson v. Methow Valley*, 490 U.S. 332 (1989), that NEPA does not require a worst-case analysis. The Court also acknowledged that the CEQ expressly withdrew the requirement to perform a worst-case analysis from its regulations. Similarly, in denying the admission of contentions relating to the inclusion of the environmental impacts of a terrorist attack, the Commission confirmed that the spirit of NEPA is <u>not</u> to require inclusion of speculative events. b) *Environmental Review Guidance for Licensing Actions Associated with NMSS Programs* (Draft NUREG-1748), pg 77-78, states, "The following information should be included in the EIS: ... Comparison of the offsite dose consequences and resulting health effects for reasonably foreseeable (i.e. credible) accidents as calculated by the applicant... " c) MFFF ER Rev 2, pg 5-42 states, "The MFFF processes are designed to preclude explosions through the use of reliable engineering features and administrative controls. ... Thus, explosions at the MFFF resulting in a radioactive material release are remote and speculative and need not be considered under NEPA. ... Although explosion events resulting in a radioactive material release at the MFFF are remote and speculative events, a hypothetical explosion event	The bounding accident for the Mixed Oxide Fuel Fabrication Facility, an explosion in an aqueous polishing cell, was not properly characterized. The discussion provided in Section 4.3.5.2 and Table 4.12 fails to explain that the accident is prevented through the use of PSSCs. Additionally, both NUREG-1748 and the DEIS [pg 4-32] limit accident evaluations to "reasonably foreseeable (credible) accident" and design basis accidents. The DEIS statements on page 4-36, lines 10-18 imply that, in response to a comment, the NRC Staff has selected a "worst case" accident. This is contrary to the Commission, which in its Order CLI-02-25, specifically notes that the "rule of reason" excludes "worst case scenarios." Furthermore, because the Staff could not predict the mitigative actions that would be taken, the Staff assumed that no mitigative actions would be taken. This is in direct conflict with NEPA's "rule of reason." The inclusion of a worst-case impact, even though requested by commenters, is contrary to the Staff's own guidance document, NEPA case law, and the Commission Order. The FEIS should clearly identify that the accidents discussed are "highly unlikely" accidents which are prevented. MFFF, as a facility within SRS, would implement the SRS emergency response procedures, the DEIS should assume that	86-51

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				is evaluated." d) NRC Order CLI-02-25, pg 10-11 states, "Grappling with this concept, various courts have described it as a 'rule of reason,' or 'rule of reasonableness,' which excludes 'remote and speculative' impacts or 'worst case' scenarios."	DCS, DOE, and regulators such as NRC and the States would notify the public of such a release and warn the public not to consume garden crops (both of which are reasonable foreseeable mitigative actions). The DEIS should provide more reasonable consequence projections based on DOE and other regulator intervention.	
48	4.3.5.2	4-33, 39 & 40 Table 4.14 & 4.15			Population and MEI ingestion dose from Tritium release seems high. Suggest revisiting assumptions that were input into model to ensure proper application of methods. The inclusion of an unmitigated food consumption pathway following an accident is more conservative than necessary. Interdiction is established in SRS site emergency response procedures and therefore calculation of ingestion doses is not appropriate.	86-52
49	4.3.5.2	4-36/ 20-22	Population doses were calculated for up to a distance of 80 km (50 mi) from the release point for 10 downwind distances and 16 wind directions. Radiation doses were calculated for the following receptors for accident conditions:	Letter from Dr. William Glaze (EPA Science Advisory Board) to Christine Todd Whitman (EPA Administrator), Review of ORIA's Use and Adaptation of The GENII Version 2 Environmental Radiation Dosimetry System, EPA-SAB-RAC-ADV-01-002 "The RAC found the environmental transport modeling capabilities for air and surface water releases of radionuclides to be adequate for screening purposes but not necessarily appropriate for detailed analysis or emergency situations. ... The conservative nature of the code may lead to excessively conservative dose estimates (i.e., higher than more realistic assumptions might produce), resulting in unnecessarily costly controls and unnecessary expenditures in site cleanup operations. The RAC strongly encourages ORIA to provide more realistic bounds on their dose and risk estimates. ... [T]he straight-line Gaussian and Lagrangian-puff models were designed for "well-behaved" pollution transport from chimney "stacks" and do not apply to more critical scenarios involving fires, explosions and accidental or terrorist aerial releases of contaminants, which the EPA may be called	The DEIS's accident consequences do not provide members of the public with realistic exposure scenarios because the NRC Staff did not use an appropriate model to evaluate dispersion of a highly unlikely MOX explosion event. The NRC used the GENII code to model this accident; the ER used the NRC's MACCS2 code. The EPA Science Advisory Board in their evaluation of the GENII model for EPA use noted that, "The conservative nature of the code may lead to excessively conservative dose estimates (i.e., higher than more realistic assumptions might produce), resulting in unnecessarily costly controls and unnecessary expenditures in site cleanup operations." On page 10 of their report, the SAB specifically notes that, "... the straight-line Gaussian and Lagrangian-puff models were designed for 'well-behaved' pollution transport from chimney 'stacks' and do not apply to more critical scenarios involving fires, explosions and accidental or terrorist aerial releases of contaminants, which the EPA may be called on to evaluate. (emphasis added)" The NRC Staff used the GENII model for exactly the types of accidents that the SAB	86-53

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				on to evaluate."	specifically noted the model should not be used. The GENII code makes a number of simplifying assumptions to make the calculation easier. While the GENII estimates would clearly bound the potential impacts, actual impacts from accidental releases would likely be orders of magnitude lower for both the short-term and 1-year doses. For example, • The GENII code evaluates the dose along the centerline of the plume and assumes that all individuals receive that dose. For the cases evaluated in the DEIS, the accident plumes would be narrow and not expose most of the downwind population to air concentrations nearly as high as the centerline of the plume. This assumption alone could result in collective dose consequences approximately a factor of 7 greater than those produced by MACCS2 depending on the plume characteristics. The principal author of the GENII code indicated that the GENII algorithms for acute releases were designed primarily for evaluating doses to nearby individuals. The July 2002 DOE guidance "Recommendations for Analyzing Accidents under NEPA", (Sect. 3.1 Scenario Development, Conservatisms, page 7) indicates that using estimates of plume centerline concentrations may be appropriate for evaluating impacts to maximally exposed individuals, but would not be appropriate for evaluating population impacts (would overestimate impacts); sector-averaged plume concentrations would yield more realistic results for population impacts. The GENII code does not calculate the lateral dispersion of the plume and overlay that with detailed food production distributions. • Similarly, the GENII code simply predicts the

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					concentrations at the centerline of the plume and assumes food produced is exposed to air concentrations equal to those on the centerline of the plume for the entire plume passage. This simplification results in over prediction of the air contamination level that plants and animals might be exposed to by at least an order of magnitude. • The code does not realistically model the time-dependent harvesting of contaminated food. Instead, the model assumes that all food grown in the sector is harvested instantaneously just after the plume passes. This assumption may be defensible for some crops, but is extremely over-conservative for crops and animal products. An entire year's supply of milk or eggs (or meat or poultry) is not collected in one day. The animals re-equilibrate with air nearly as quickly as the plants. Even allowing for weekends and holidays, the assumption of 100% harvest is probably conservative by a factor of about 200 (it would be close to 365 if harvest was really continuous). • The time-dependent consumption of contaminated food is not realistically modeled. Each of these factors is multiplicative. Collectively, the simplifying modeling assumptions result in an over prediction of ingestion doses by several orders of magnitude. Since it is not possible to fulfill the basic NEPA responsibility of informing the public of the reasonably foreseeable environmental impacts of the proposed action with the GENII code, other codes developed specifically for modeling accident consequence should be used. DCS strongly recommends that a well-established accident consequence code with a strong

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					QA record, such as NRC's MACCS2, be used.
50	4.3.5.2	4-39/19-22	Table 4.14 under the sub-title "Proposed MOX Facility," the dose consequences and "Chance of LCF" for all accident events		The use of the GENII computer code to calculate the collective dose (person-Sv) in the DEIS for a single specific direction, without consideration of any other directions will not produce a site-representative 95th percentile collective dose. For the specific direction selected by the NRC (i.e., the most populated direction), the collective dose appears to be a factor of approximately 20 to 40 greater than the 95th percentile collective dose established from MACCS2 (or a factor of 40 to 80 greater when correcting the error in Table E.7, see comment below). This difference results in a factor of 40 to 80 increase in the reported dose consequences, which DCS believes is not representative of a 95th percentile result. In fact, the collective dose calculated by GENII in this one direction (WNW) is expected to result in a value greater than the 99.5th percentile collective dose produced by MACCS2. This is a result of several differences in these codes: • GENII assesses the consequences to a single direction thereby not producing a site-representative collective dose. The collective dose cited in the DEIS, which is based on the most populous direction, is approximately 4 times greater than a weighted average of the 95th percentile results produced for each direction around the MFFF (as produced by GENII). • The decoupling of the sequential hourly meteorological data measurements by GENII, which uses joint frequency data instead, may allow for unfavorable meteorological conditions to occur for unrealistic durations (i.e., conditions which may occur several times a year, but not several hours in a row, and that produce unfavorable collective doses may be considered to

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					occur within a single analysis period by GENII). Hence, the collective dose results from GENII are considered overly conservative and not representative of a 95th percentile result for accidents involving the proposed MOX facility.	86-54 cont.
51	4.3.5.2	4-40/17-20	Table 4.15 under the sub-title "Proposed MOX Facility," the dose consequences and "Chance of LCF" for all accident events		The use of the GENII computer code to calculate X/Q values in the DEIS for a single specific direction, without consideration of any other directions will not produce a site-representative 95th X/Q. For the specific direction selected by the NRC (i.e., the direction with the nearest boundary to the MFFF), the X/Q appears to be a factor of approximately 4.5 greater than the 95th X/Q established from MACCS2. This difference results in a factor of 4.5 increase in the reported dose consequences which DCS believes is not representative of a 95th percentile result. In fact, the X/Q calculated by GENII in this one direction (NW) results in a value greater than the 99.5th X/Q calculated by MACCS2. This is likely a result of two differences in these codes: • The aforementioned difference in establishing a site-representative X/Q (i.e., a result based on an analysis of a single direction vs. a result considering values from all directions). • The decoupling of the sequential hourly meteorological data measurements by GENII, which uses joint frequency data instead, that may allow for unfavorable meteorological conditions to occur for unrealistic durations (i.e., conditions which may occur several times a year, but not several hours in a row, and that produce large X/Q's may be considered to occur within a single analysis period by GENII).	86-55

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					Consideration of these differences, leads DCS to believe that the results from GENII are overly conservative and not representative of a 95th percentile result.	86-55 cont.
52	4.3.5.2	4-38 through 4-40 Tables 4.13 through 4.15	Footnote. Latent cancer fatalities are calculated by multiplying dose by the FGR 13 health risk conversion factor of 0.06 fatal cancer per person-Sv ($6x10^{-4}$ fatal cancers per person-rem)(Eckerman et al. 1999)	*Cancer Risk Coefficients for Environmental Exposure to Radionuclides*, pg iv, "The dose coefficients given in Federal Guidance Report No. 11 and Report No. 12 continue to be recommended for determining conformance with radiation protection guidance for Federal agencies issued by the President and will be updated in the future as warranted. ... Although the application of these [Federal Guidance Report No 13] risk coefficients for ... Envvironmental Impact Statements ... is encouraged to promote consistency in risk assessments, such use is discretionary. ... Also the coefficients are based on radiation risk models developed for the application to either low acute doses or low dose rated and should not be applied to accident cases involving high doses and dose rates in either prospective or retrospective analyses" MFFF ER – Appendix E, E.2.1, last sentence: The health risk conversion factors (expected health effects per dose absorbed) were taken from the *1990 Recommendations of the International Commission on Radiological Protection* (ICRP 1991). Section E.4 states: "Radiation doses to populations...were multiplied by the ICRP-60 (ICRP 1991) conversion factors and the estimated number of shipments to produce risk estimates in units of LCFs. The ICRP-60 health risk conversion factors are 0.0005 and 0.0004 fatal cancer cases per person-rem for members of the public and workers, respectively.	The Draft EIS does not explain why it relies on EPA Federal Guidance Report 13, rather than international standards such as the ICRP for cancer risk conversion factors. Federal Guidance Report 13 clearly states that the conversion factors in Federal Guidance Report 12 still continue to be recommended for radiation protection. The EPA Federal Guidance Report 13 relies on new studies that have not yet been incorporated into the international standards. This results in an order of magnitude higher risk (10^{-4}) than the studies presented in international standards (e.g. ICRP documents) (10^{-5}). Use of the EPA data, with the other unrealistically and overly conservative assumptions, paints an unrealistic potential impact from the proposed action.	86-56
53	4.3.5.2	4-41/ 13-15	An estimated collective dose of 400 person-Sv (40,000 person- rem) was projected to be received by a population of approximately 309,900 persons extending out to 80 km (50 mi) to the **west-northwest** of the proposed MOX facility.		The meteorological conditions for the MFFF hypothetical explosion involves winds directed to the west-northwest. The meteorological conditions for the PDCF hypothetical tritium release involves winds	86-57

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		4-41/ 24-25	The largest 1-year collective population dose was estimated to be 6,100 person-Sv (610,000 person-rem) from a hypothetical tritium release from the PDCF. This impact was calculated for winds blowing **toward the southwest**, where 18,010 people reside.		directed to the southwest. It is not intuitively obvious why both accident evaluations do not have the same meteorological conditions.	86-57 cont.
54	4.3.5.3	4-45/8	Table 4.16 under the sub-title "Proposed MOX Facility," hydrazine hydrate TEEL values		The TEEL values given for hydrazine hydrate are the TEEL values for hydrazine hydrate, aqueous solutions. DCS used the TEEL values for hydrazine monohydrate. The TEEL values for hydrazine monohydrate are: TEEL-1 0.0075 mg/m^3 TEEL-2 0.06 mg/m^3 TEEL-3 50 mg/m^3	86-58
55	4.3.5.3	4-45/9-18	Table 4.16 under the sub-title "Proposed MOX Facility," the modeled concentrations and distances to reach the TEEL limits for: Hydrazine / sodium hydroxide Hydrazine / hydroxylamine nitrate Hydrogen peroxide Hydroxylamine nitrate Nitric acid		The DEIS appears to contain an erroneous calculation of solute mole fraction and vapor pressure for the listed chemicals (see comment on Appendix E below), which has resulted in significantly larger estimates of the modeled airborne concentrations and distances to reach the TEEL limits.	86-59
56	4.3.5.3	4-45/19	Table 4.16 under the sub-title "Proposed MOX Facility," the maximum storage amount per container for nitrogen tetroxide		This table presents a larger volume of nitrogen tetroxide (i.e. 240 gallons or 912 liters) in a storage/transportation cylinder than is planned to be used at the MFFF. DCS intends to use a storage/transportation cylinder containing 2000 lbm (907 kg) of nitrogen tetroxide. This corresponds to 630 liters of nitrogen tetroxide.	86-60
57	4.3.6.1	4-47/ 16-18	Decommissioning involves the removal of the facility safely from service and reduction of residual radioactivity to a level that permits release of the property for unrestricted use.		After "unrestricted use" add "or restricted use."	86-61
58	4.3.6.1	4-48/ 1-8	Although impacts of decommissioning the facilities were not included in the ER (DCS 2002a), the scoping process did identify decommissioning as a significant issue; therefore, the potential impacts of decommissioning the facilities are	Sections 5.3.4, Projected Environmental Impacts of Deactivation, and 5.3.5, Projected Environmental Impacts of Decommissioning.	The impacts of decommissioning the MFFF were included in the MFFF Environmental Report, Rev. 1 &2, and responses to two RAI questions (July 12, 2001).	86-62

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			presented below.			
59	4.3.6.3.2	4-51/32-36 and 4-52/11-13	The section on waste management indicates that the quantities and classification of waste types cannot be determined at this time, but the costs are based on "...the volumes and types of waste generated during the decommissioning of those buildings..."	5.3.5, Projected Environmental Impacts of Decommissioning.	There appears to be an inconsistency in the decommissioning waste section and the costs section. Although the section on waste management indicates that the quantities and classification of waste types cannot be determined at this time, the costs are, nevertheless, based on "...the volumes and types of waste generated during the decommissioning of those buildings..."	86-63
60	4.3.6.3.2	4-52/17-18	...and costs associated with borrowing funds to finance the project.	RAI Question 50, July 12, 2001, stated that the projected costs did not include site security, residue and fuel deactivation and removal, environmental programs, or overhead management and financial activities.	Although DCS is the licensee, the current contract calls for deactivation of the facility and return to DOE for decommissioning or reuse. It is improper to include the costs associated with borrowing funds to finance the project since DOE is a government agency.	86-64
61	4.3.7.1	4-53/ 27-36	The analysis was based on guidelines for environmental justice analyses described in *Environmental Review Guidance for Licensing Actions Associated with NMSS Programs* (NRC 2001). An 80-km (50-mi)-diameter buffer zone around F-Area at the SRS was used as the basis for the analysis so as to include potential adverse human health or socioeconomic impacts related to the construction and operation at the SRS that might occur at greater distances than have been used in other analyses. On the basis of information received during scoping meetings at the site, a larger area was also used to address the concern that any accidental releases to the environment would also have the potential to affect fishing resources that might be used for subsistence by low-income and minority population groups some distance downstream of the site (see Appendix I).	a) *Environmental Review Guidance for Licensing Actions Associated with NMSS Programs* (Draft NUREG-1748), Appendic B states, "Guidelines for determining the area for assessment are provided in the following discussion. If the facility is located within the city limits, a radius of approximately 0.6 miles (1 square mile) from the center of the site is probably sufficient for evaluation purposes; however, if the facility itself covers this much area, use a radius that would be equivalent to approximately 0.6 miles from the site. If the facility is located outside the city limits or in a rural area, a radius of approximately 4 miles[footnote 3] (50 square miles) should be used. [footnote 3 - Because of the nature of NMSS facilities a 50 mile radius is not automatically required as is the case for NRR facilities.] b) Letter from M. Galloway (NRC) to R. Ihde (DCS), 11 Dec. 2000, states, "The SRP states that the description of the affected environment should include '[s]ocioeconomic information, including that for low income and minority populations within a 50-mile radius.' This dimension is incorrect. DCS should follow the Nuclear Materials Safety and Safeguards Policy and Procedures letter 1-50, Rev 2, which states,	Although the DEIS states that the guidance in NUREG-1748 was followed, the DEIS, by using a 50-mile radius for environmental justice impacts does not follow the guidance of NUREG-1748, which proscribes a radius of 4 miles. Additionally the DEIS is directly contrary to specific guidance provided by NRC to DCS in the 11 Dec. 2000 letter from M. Galloway to R. Ihde. This guidance was that the 50-mile radius in NUREG-1718 was incorrect and DCS should follow the NMSS Policy and Procedures letter proscribing a 4-mile radius. The DEIS should conform to NRC guidance and only analyze EJ impacts within a 4-mile radius of the proposed MOX Facility. If the Final EIS will contain a larger area for EJ analyses in an effort to be overly conservative, the DEIS should acknowledge this, but not tie EJ mitigation to overly conservative analyses. In other words, if no EJ mitigation measures would have been imposed had the Draft EIS adhered to the applicable Staff EJ guidance, then the fact that a more conservative EJ assessment was performed should not be the basis for imposing such measures.	86-65

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				'...if the facility is located outside the city limits or in a rural area, a 4-mile radius (50 square miles) should be used.'"		86-65 cont.
62	4.3.7.3.3	4-57/ 42-45	In the unlikely event of a tritium release at the PDCF or an explosion at the proposed MOX facility, the communities most likely affected would be minority or low income, given the demographics within 80 km (50 mi) of the proposed MOX facility.		As established in our comments to DEIS 4.3.5.2, the accident scenario relied upon to justify the conclusion that there are disproportionate impacts to low-income or minority populations is flawed. NRC should validate the accident scenario using an appropriate model and proper "reasonably foreseeable" assumptions before asserting that there are any impacts to low-income or minority populations.	86-66
63	4.4.1.1	4-61/ 32-end	Assessment of the transport of plutonium pit material considered shipments from existing storage sites to the SRS. Of the 34 MT (37.5 tons) of plutonium expected to be processed into MOX fuel, 7.3 MT (8.0 tons) would be initially available at the SRS site. Under a separate action (DOE 2002a), approximately 6 MT (6.6 tons) of surplus plutonium is to be shipped from RFETS to SRS (Roberson 2002), which currently has 1.3 MT (1.4 tons) (DOE 1996a). The proposed action would therefore require the shipment of another 26.7 MT (29.4 tons) of plutonium, approximately 21.3 MT (23.4 tons) of which is expected to come from the Pantex Plant in Texas. This DEIS analyses the transportation impacts of the Pantex shipments and the remaining 5.4 MT (5.9 tons) of plutonium whose origins are not yet determined. However, the remaining plutonium would come from storage at other DOE sites. For the purposes of this DEIS, the analysis assumed that the remaining 5.4 MT (5.9 tons) of plutonium would come from the Hanford Site, the plutonium storage site farthest from the SRS. Thus, the actual transportation impacts are expected to be lower than those presented here because some plutonium from closer storage sites is expected to be used.		The impacts resulting from shipping 50 metric tons of surplus plutonium to the SRS were covered in the DOE's SPD EIS. NRC should have simply deferred to that analysis instead of reanalyzing impacts already evaluated by another federal agency.	86-67
64	4.4.1.2.1	4-63/ 22	0.040 mSv/h for TRU waste		Value for TRU appears to be a great deal higher than experience.	86-8
65	4.4.1.2.1	4-64, Table	Footnote "d": Latent cancer fatalities are calculated by	*Cancer Risk Coefficients for Environmental Exposure*	The Draft EIS does not explain why it relies on EPA	86-69

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		4.20, Lines 39-40	multiplying dose by the FGR 13 health risk conversion factor of 0.06 fatal cancer per person-Sv (6x10-4 fatal cancers per person-rem)(Eckerman et al. 1999)	*to Radionuclides*, pg iv, "The dose coefficients given in Federal Guidance Report No. 11 and Report No. 12 continue to be recommended for determining conformance with radiation protection guidance for Federal agencies issued by the President and will be updated in the future as warranted. ... Although the application of these [Federal Guidance Report No 13] risk coefficients for ... Environmental Impact Statements ... is encouraged to promote consistency in risk assessments, such use is discretionary. ... Also the coefficients are based on radiation risk models developed for the application to either low acute doses or low dose rated and should not be applied to accident cases involving high doses and dose rates in either prospective or retrospective analyses " MFFF ER – Appendix E, E.2.1, last sentence: The health risk conversion factors (expected health effects per dose absorbed) were taken from the *1990 Recommendations of the International Commission on Radiological Protection* (ICRP 1991). Section E.4 states: "Radiation doses to populations...were multiplied by the ICRP-60 (ICRP 1991) conversion factors and the estimated number of shipments to produce risk estimates in units of LCFs. The ICRP-60 health risk conversion factors are 0.0005 and 0.0004 fatal cancer cases per person-rem for members of the public and workers, respectively.	Federal Guidance Report 13, rather than international standards for cancer risk. Federal Guidance Report 13 clearly states that the conversion factors in Federal Guidance Report 12 still continue to be recommended for radiation protection. The EPA Federal Guidance Report 13 relies on new studies that have not yet been incorporated into the international standards. This results in an order of magnitude higher risk (10^{-4}) than the studies presented in international standards (e.g. ICRP documents) (10^{-5}). Use of the EPA data, with the other unrealistically and overly conservative assumptions, paints an unrealistic potential impact from the proposed action.	86-69 cont.
66	4.4.2	4-67, Lines 20-21	The impacts of the general conversion process are described in the environmental assessment for the last license renewal of that facility (NRC 1977).		Incorrect reference cited – NRC 1977 (NUREG-0170) is the FEIS for all commercial types of radioactive material shipments ---not specific for the GE conversion facility in Wilmington, NC.	86-70
67	4.4.2	4-67, Lines 16-37	Conversion of Uranium Hexaflouride to Uranium Dioxide		Why does this impact need to be discussed since the MOX fuel will be replacing an equal quantity of low-enriched uranium fuel that would also undergo this conversion process. Comment is also relevant for the impacts of spent MOX fuel to the geologic repository	86-71

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					(replacing a like quantity of low-enriched uranium fuel). If the NRC Staff feels compelled to retain these impacts, the DEIS should note that these impacts replace similar avoided impacts from the conversion and disposal or low enriched uranium fuel and that the net impact is zero.	86-71 cont.
68	4.5.1	4-70 / 42-44. Tables 4-6, 4-8, and 4-23.	Impacts to air quality resulting from operations of new facilities and roads would result in changes to regional air quality as represented by the SRS baseline in Table 4.23.		The 'SRS baseline' concentrations summarized in Table 4-23 **do not** represent regional air quality – only representative air monitoring data or regional modeling studies can characterize regional conditions. The 'SRS baseline' data are a hypothetical set of values that are based on modeling maximum potential emissions of SRS sources and are applicable only as a screening level for evaluating and managing Savannah River Site air permits. This section of text must be revised accordingly.	86-72
					In addition, footnotes to the columns 'SRS Maximum' in Tables 4-6, 4-8 or the column 'SRS Baseline' in Table 4-23 should be modified to state that the listed values are hypothetical levels based on maximum potential (i.e., permitted) emissions from SRS sources and do not necessarily quantify actual air quality conditions.	
69	4.7.1	4-92 / 29 4-92 / 36	The nonhazardous liquid waste generated would represent less [than] about 35% of the SRS capacity Nonhazardous liquid waste generated by facility operations are estimated to be about 35% . . .		The 35% value is apparently calculated by NRC from Table 4.11, page 4-30, line 12. This is incorrect because treatment of waste from MFFF, PDCF, and WSB requires much less than 35% of capacity. The correct value is closer to 10% (about half of the 'nonhazardous liquid waste' from these facilities consists of non-process utility waters that will be released directly to permitted NPDES outfalls). See also comments related to Section 4.3.4.1 and 4.3.4.2 Tables 4.10 and 4.11.	86-73
70	5.2.1 – Table 5-1	5-2/ 13-14	Soils on-site will be graded or moved to create a uniform elevation that would reduce soil erosion. DCS	40 CFR 1508.20 "Mitigation" includes: (a) Avoiding the impact altogether by not taking a certain action or parts of an action. (b) Minimizing impacts by limiting the degree or	Grading the site to a uniform elevation is an inherent aspect of the MFFF design (the grading would be the same regardless of the MFFF location). Consequently, the grading is incorrectly identified as a "mitigation."	86-74

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				magnitude of the action and its implementation. (c) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment. (d) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action. (e) Compensating for the impact by replacing or providing substitute resources or environments		86-74
71	5.2.1 – Table 5-1	5-2/ 19-21	Accidental spills during construction shall be promptly cleaned up as required by DCS's Spill Prevention Control and Countermeasures Plan.		MFFF ER page 7-13, Table 7-1 specifically notes that a Spill Prevention Control and Countermeasures Plan is not required for the MFFF. DCS indicated in ER Section 7.2.1.2 that prior to operations a Spill Prevention Control and Countermeasures Plan will be developed. DCS did not commit to a Spill Prevention Control and Countermeasures Plan during construction, and it is inappropriate to levy this as a mitigation requirement when the SCDHED regulation clearly does not require it.	86-75
72	5.2.1 – Table 5-1	5-2/ 23-24	A Sediment Control Plan will be developed prior to disturbance of areas exceeding 2 ha (5 acres).		MFFF ER page 7-13, Table 7-1 specifically notes that a Stormwater Pollution Prevention Plan will be developed for the MFFF not a Sediment Control Plan. The DEIS should correctly identify the mitigative action as the implementation of the Stormwater Pollution Prevention Plan in compliance with SCDHEC regulations.	86-76
73	5.2.1 – Table 5-1	5-2/ 31-34	Good engineering practices, such as the use of straw bales or siltation fences adjacent to areas disturbed during construction, will be used to control sediment and limit runoff to Upper Three Runs Creek.		MFFF ER page 7-13, Table 7-1 specifically notes that a Stormwater Pollution Prevention Plan will be developed for the MFFF, which is more comprehensive and responsive to SCDHEC enabling regulations. Details of this comprehensive plan are contained in ER Section 7.2.1.2 paragraphs 5 and 6. DCS has not stated which specific controls will be part of the Stormwater Pollution Prevention Plan. The mitigtive action identified by the DEIS should be limited to implementation of a Stormwater Pollution Prevention Plan in compliance with SCDHEC regulations.	86-77
74	5.2.1 –	5-2/ 43-45	Dust suppression measures such as watering will be used	MFFF ER 7.2.1.1 states, "...a Construction Emissions	The South Carolina Department of Health and	86-78

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	Table 5-1		during construction to reduce fugitive dust emissions by at least 50%.	Control Plan will be developed to provide assurance that fugitive dust emissions will be effectively managed and minimized throughout MFFF construction."	Environmental Control does not specify requirements for reduction of fugitive construction dust. As noted in the MFFF ER, DCS will have a Construction Emissions Control Plan which will implement a number of different good engineering practices to reduce fugitive dust emissions. The MFFF ER does not identify specific actions or emissions reductions. The mitigative action specified in the DEIS should be limited to compliance with appropriate SCDHEC air quality regulations.	86-78 cont.
75	5.2.1 – Table 5-1	5-2/ 46-49	Particulate emissions from the silo hopper and concrete mixer used during the cementation process to construct the WSB shall be reduced by 90%.		The MFFF ER identifies that the concrete batch plant will be subject to the provisions of a South Carolina Department of Health and Environmental Control air quality permit. The concrete batch plant will meet the conditions of that permit. The mitigative action specified in the DEIS should be limited to compliance with appropriate SCDHEC air quality regulations.	86-79
76	5.2.1 – Table 5-1	5-3/ 1-12	Prior to construction, sites will be surveyed for plants and nests of migratory birds. To ensure compliance with the Migratory Bird Treaty Act and to provide additional protection for other bird species of concern (e.g., raptors), the following steps should be taken: (1) obtain a list from the Department of the Interior of migratory birds protected by the Act; (2) determine if protected migratory birds or their nests exist in the areas to be cleared for the proposed action; and (3) if protected birds or their nests or eggs are present, consult with the Department of the Interior for the appropriate precautions to be taken. This consultation should be undertaken as far in advance of construction as practicable. Consultation and coordination with state and federal natural resource and wildlife agencies shall be conducted prior to any site disturbances to ensure that all potential sensitive species (including candidate and listed species) are protected to the maximum extent possible.		The MFFF ER 4.6 describes the ecological habitat and the habitat surveys conducted prior to construction activities. MFFF ER Appendix A, pages A-25 and A-26 provides letters of negative declaration from the U.S. Fish and Wildlife Service that the MFFF construction and operation will not affect resources under the jurisdiction of the U.S. Fish and Wildlife Service. All necessary ecological surveys are complete. No sensitive species or nests of migratory species are present. These precautionary and mitigative actions presented in the DEIS are misleading and unnecessary.	86-80
77	5.2.1 – Table 5-1	5-3/ 20-21	Environmental supervisors shall be present during vegetation clearing to ensure that impacts are held to a minimum.		As noted in DEIS 3.6.1 (pg.3-34) the SRS forests are managed by the U.S. Forest Service. The removal of	86-81

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					trees and protection of trees not designated for removal will be under the direction of the U.S. Forest Service. The mitigative action specified in the DEIS should be limited to compliance with appropriate U.S. Forest Service regulations.	86-81 cont.
78	5.2.1 – Table 5-1	5-3/ 29-32	The loss of the existing storm-water basin near the southern boundary of the proposed site would be compensated for by construction of a new basin that would provide more viable aquatic habitat.	Letter from P. Hastings (DCS) to Document Control Desk (NRC), 29 October 2002, DCS-NRC-000116, Responses to the Request for Additional Information on the Environmental Report 1&2, Attachment 14a, letter from D Osteen (SRS) to F. Veal (USA C of E), Waters of the United States Walkdown on July 16, 2002	As noted in Attachment 14a of the letter from P. Hastings to the NRC Document Control Desk, the U.S. Army Corps of Engineers concluded that the existing storm-water basin is not part of the waters of the United States. Consequently, it is not appropriate to specify any mitigative action.	86-82
79	5.2.1 – Table 5-1	5-3/ 34-36	Measures shall be taken to protect trees not selected for removal. Any trees or other landscape features accidentally scarred or damaged should be replaced.		As noted in DEIS 3.6.1 (pg.3-34) the SRS forests are managed by the U.S. Forest Service. The removal of trees and protection of trees not designated for removal will be under the direction of the U.S. Forest Service. The mitigative action specified in the DEIS should be limited to compliance with U.S. Forest Service regulations.	86-83
80	5.2.1 – Table 5-1	5-3/ 38-42	Reclamation plans shall be developed for laydown areas and other construction areas that will not be occupied by structures, parking lots, or roads. Reclamation will include removal of all temporary construction features, stabilization of soils, and reseeding with appropriate plant species.		Property beyond the 41-acre MFFF site is managed under the DOE jurisdiction for the SRS. Land reclamation will be in accordance with DOE directives. The mitigative action specified in the DEIS should be limited to compliance with appropriate DOE policies for reclamation of construction areas.	86-84
81	5.2.1 – Table 5-1	5-4/ 7-12	▪ Monitoring of ground-disturbing construction activities will be conducted for the two directly affected eligible archaeological sites to complete obligations set forth in the data recovery plan for sites. ▪ Awareness training will be conducted for workers so they do not disturb eligible archaeological sites. ▪ Restrictions will be established regarding where heavy machinery is allowed. ▪ Periodic monitoring of nearby eligible archaeological sites will be conducted to check for possible erosion. ▪ Additional mitigation measures, such as avoidance agreements, will be determined in consultation with the SCSHPO.	Letter from D.Nulton (DOE) to C. Abrams (NRC), 25 Sep 2001, Designation of Department of Energy as the Lead Agency for Mitigation at National Historic Preservation Act Eligible Site Within the Proposed Location of the Mixed Oxide Fuel Fabrication Facility	Because NRC and DOE have designated DOE as the lead agency for mitigation under the NHPA, NRC specified mitigation actions are not appropriate. The mitigative action specified in the DEIS should be limited to compliance with DOE PMOA policies for archaeological management of construction activities.	86-85
82	5.2.1 –	5-4/ 34-39	Construction workers will be protected from inadvertent	Letter from P. Hastings (DCS) to Cheryl Trottier	The 29 October 2002 correspondence from DCS to	86-86

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	Table 5-1 5.2.8	 5-11/ 40-43	chemical and radiological exposures by soil testing and analysis prior to excavation to ascertain that levels of inorganic and/or organic chemicals in soils would not present a health hazard during construction activities. During construction, workers could be adversely affected by exposure to soil or groundwater previously contaminated by radioactivity or chemicals. Impacts from contaminated soil would be mitigated by conducting further sampling of the soil for radioactive contamination before excavation begins at the site.	(NRC), 29 October 2002, Responses to the Request for Additional Information on the Environmental Report, Revisions 1&2, DCS-NRC-000116; Attachment 26, Plutonium Project Pre-Construction Environmental Report	NRC responding to requests for additional information included the results of the Plutonium Project Pre-construction Environmental Report, including the results of soil analyses at the MFFF site. The DEIS should have included the results of this report which confirm the previous DCS conclusion in the MFFF ER that there are no significant concentrations of radioisotopes or chemicals in the soil that would be hazardous to construction workers health. Consequently, the mitigative action is misleading and unnecessary.	86-86 cont.
83	5.2.1 – Table 5-1	5-5/ 1-5	During licensing of the proposed MOX facility, DCS should demonstrate that the offgas treatment system will limit hydrazine to very low levels that would not cause adverse health impacts to members of the public or SRS employees.		Hydrazine emissions from the MFFF will be subject to South Carolina Department of Health and Environmental Control regulations. The mitigative action specified in the DEIS should be limited to compliance with SCDHEC air quality regulations. Regarding potential accidents, the offgas treatment system (or any ventilation system at the MFFF) is not required to be credited to reduce the hydrazine concentration in air after a spill because calculations indicate that releases that originate indoors (inside the reagent building or the MOX Building) do not result in concentrations that exceed any TEEL limits for the site worker or public. There appear to be errors in the DEIS hydrazine airborne concentration calculation that leads to this conclusion (see comments on Appendix E.1) and furthermore, crediting the release as an indoor release, which reduces the air speed across the surface of the spilled solution, provides sufficient reduction in the airborne concentration to result in acceptable consequences without mitigation by any offgas treatment system.	86-87
84	5.2.1 – Table 5-1	5-5/ 18-40 5-6/ 1-11	• DCS should work closely with SRS to implement procedures to protect low-income and minority groups in the event of an accidental chemical or radiological release from		As established in our comments to DEIS 4.3.5.2, the accident scenario relied upon to justify the conclusion that there are disproportionate impacts to low-income	86-88

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			the proposed MOX facility that impacts areas beyond the SRS boundary. • DCS should conduct focused public information campaigns to provide important information to low-income and minority groups/communities. Included in these campaigns would be descriptions of existing monitoring programs, and information on the nature, extent, and likelihood of any airborne release from the facility. The campaigns would also include a description of the relevant risks associated with the proposed MOX facility and MOX fuel transportation programs. These campaigns should include information on sheltering and other protection strategies that may be needed, including detailed descriptions of any evacuation procedures that may be required. • DCS should provide public information to local agencies and groups representing low-income or minority groups on existing soil or groundwater contamination monitoring programs and the nature, extent, and likelihood of surface release. Key information would include the extent of any likely damage to drinking water supplies and subsistence resources, and the relevant preventative measures that may be taken. • Meet with local communities providing emergency response services and other emergency facilities to discuss additional measures to ensure that the low-income and minority population in their jurisdictions are located and fully prepared in the event that sheltering or evacuation procedures are required. In addition to public information campaigns targeting low-income and minority groups, this would include the development of spatial databases providing information on the location of lowincome and minority populations, local resources available to emergency response agencies, and any evacuation routes that might be required.		or minority populations is flawed. Furthermore, the projection of potential impacts from a highly unlikely accident scenario that is prevented by the design requirements resulting from the safety regulations in 10 CFR Part 70 does not provide a reasonable basis for the proscribed mitigative actions and runs counter to the Commission guidance to use "reasonably foreseeable" events. As a separate matter, the DEIS provides no justification why DCS should provide local agencies or groups representing EJ groups with "public information" on existing soil or groundwater contamination monitoring, or the nature, extent, or likelihood of surface releases. Providing such information is not a mitigation action related to the MOX Facility, which has yet to be constructed. Similarly, the DEIS does not provide a justification why DCS should take the unprecedented initiative to create a spatial database for use by local authorities. In the event of any incident at SRS, the authorities would alert all potentially affected communities, not just minority communities.
85	5.2.1 – Table 5-1	5-5/ 35-40	DCS should provide public information to local agencies and groups representing low-income or minority groups on existing soil or groundwater contamination monitoring programs and the nature, extent, and likelihood of surface release. Key		For NRC to proscribe mitigative actions for existing soil or groundwater contamination is beyond the statutory authority of NRC. The DEIS has not identified a pathway involving soil or water contamination resulting from MFFF operations that

86-88 cont.

86-89

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			information would include the extent of any likely damage to drinking water supplies and subsistence resources, and the relevant preventative measures that may be taken.		would result in disproportionate impacts to low-income or minority groups. As established in our comments to DEIS 4.3.5.2, the accident scenario relied upon to justify the conclusion that there are disproportionate impacts to low-income or minority populations is flawed. Furthermore, the projection of potential impacts from a non-credible accident scenario that is prevented by the design requirements resulting from the safety regulations in 10 CFR Part 70 does not provide a basis for the proscribed mitigative actions.	86-89 cont.
86	5.2.2	5-7/ 18-27	However, construction could directly impact groundwater quality if any of the buildings or structures extended below the surface of the groundwater. This direct impact would be mitigated by selecting a site in which the groundwater is deeper than any of the anticipated construction, as is the case for the proposed site.		This entire paragraph hinges on the speculation of what resources **might** be impacted **if** any MFFF structures extended into groundwater. The fact is that the structures do not extend to groundwater. Speculation of what might happen if the structures should extend to groundwater should be removed from the DEIS.	86-90
87	5.2.2	5-7/ 45-46	Operation of a sand filter would not directly impact groundwater because the filter would be covered to prevent infiltration and it would have a concrete wall and bottom.		Because the proposed action does not include a sand filter this statement is irrelevant.	86-91
88	5.2.3	5-8/ 23-25	For example, a portion of the construction activities for the proposed MOX facility would take place on a former spoils pile used for previous F-Area construction,		The statement is incorrect. The MFFF will not be constructed **on** a former spoils pile; the spoils pile will be removed prior to construction.	86-92
89	5.2.3	5-8/ 35-44	Prior to construction, the proposed facility sites would be surveyed for nests of migratory birds in accordance with the Migratory Bird Treaty Act, and preconstruction surveys and consultations with the U.S. Fish and Wildlife Service and the South Carolina Department of Natural Resources would be conducted to ensure that impacts on any sensitive animal and plant species (e.g., the smooth coneflower) living in or near F-Area or rights-of-way would be insignificant. Some possible mitigative measures include avoiding species and their habitats entirely or just during critical time (e.g., during breeding season) or relocating sensitive species away from areas likely to be disturbed. These mitigation strategies would be coordinated with appropriate state and federal regulatory	ER, Appendix A, pg A-26, Letter from L. Duncan (USFWS) to A. Gould (DOE-SR), *Informal Consultation Under Section 7 of the Endangered Species Act for the Surplus Plutonium Disposition-Mixed Oxide Fuel Fabrication Facility*, 20 June 2001.	The MFFF ER 4.6 describes the ecological habitat and the habitat surveys conducted prior to construction activities. MFFF ER Appendix A, pages A-25 and A-26 provides letters of negative declaration from the U.S. Fish and Wildlife Service that the MFFF construction and operation will not affect resources under the jurisdiction of the U.S. Fish and Wildlife Service. All necessary ecological surveys are complete. No sensitive species or nests of migratory species are present. These precautionary and mitigative actions presented in the DEIS are misleading and unnecessary.	86-93

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			agencies as part of the consultation process.			
90	5.2.7	5-11 / 3	... permitted commercial recycling , treatment, or disposal facility.		Eliminate "recycling".	86-94
91	5.2.7	5-11 / 18	A new tank would be constructed at the WSB so that the high-alpha-activity waste could be neutralized before being transferred to the F-Area HLW tank Farm		Reword: A new tank would be constructed within the WSB so that the high-alpha-activity waste can be neutralized before being solidified to a TRU waste form.	86-95
92	5.2.7	5-11 / 23-24	... SRS facilities for on-site treatment and disposal.		Remove "on-site". Treatment can occur "off-site" as well.	86-96
93	5.2.9	5-13 / 16	Impacts of construction to two prehistoric archaeological sites have been mitigated in part through data recovery as described . . .Monitoring of these site during construction activities is also part of the mitigation strategy.	Letter from P.S. Hastings (DCS) to Document Control Desk (NRC), 12 December 2002, (DCS-NRC-000122) provided NRC with a copy of the letter from C.C. Long (SHPO) to A.B. Gould (DOE), "...our office concurs with the Department of Energy's determination that field obligations have been met for data recovery investigations at 38AK546 and 38AK757. The excavations exceeded the requirements of approved data recovery plans."	Information provided by DCS to NRC on 12 December 2002 demonstrated that the SHPO has agreed that all mitigation action is complete. No monitoring is required. Inadvertent discoveries will be handled in accordance with Federal Law and the SRS PMOA. The NRC mitigation is inappropriate.	86-97
94	5.2.10	5-14 / 7	The tallest new structure would be a stack that is less than 30 m (100 ft) above the existing grade.	ER section 5.1.7, page 5-7. "the tallest new structure is an exhaust stack which is located on top of the MFFF building. The stack is 120 ft (37 m) above the existing grade.	Note that the revised ER increased the height of the structure to 120 feet.	86-98
96	6/ Table 6.1	6-6/ 40-48	*State Water Quality Certification* certifying that the applicable state water quality standards will not be violated as a result of discharges to navigable waters by an activity authorized by a federal license. DCS has initiated consultation with the SCDHEC regarding a determination of whether an NRC license requires a 401 Water Qualification Certification in accordance with SCDHEC regulations 61-101 (DCS 2003).		SCDHEC informed DCS that a 401 Water Quality Certification is only required if a 404 Permit is issued by the Corps of Engineers. SCDHEC does not anticipate any requirement for a 401 Water Quality Certification for the MFFF.	86-99
98	C.1.3.1	C-6/ 37-38	The model takes into account the mode of transportation and the type of packaging.		Perhaps it would be better to state "The model allows the user to evaluate transportation risk, considering differences in the mode of transport and package used. The user selects parameters to represent the probability	86-100

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					of an accident occurring and consequences of a spectrum of accident severities."	86-100 cont.
99	C.1.3.1	C-7/ 1-10	The calculation of the collective population dose following the release and dispersal of radioactive material includes the following exposure pathways: • External exposure to the passing radioactive cloud • External exposure to contaminated ground, • Internal exposure from inhalation of airborne contaminants, and • Internal exposure from the ingestion of contaminated food.		The use of the ingestion pathway resulting from the consumption of contaminated food is highly speculative. Public policy and emergency response experiences from TMI in 1979 and Chernobyl in 1986 indicate that, essentially all food, whether contaminated or not was destroyed making the ingestion scenario not "reasonably foreseeable."	86-101
101	C.2	C-12/ 36	Depleted UF6 and UO2 shipments would use Type A packaging.		The MFFF ER specifies a 55-gallon Industrial Type 1 drum for the shipment of UO2. The DEIS specifies a 30-gallon Type A drum size.	86-102
102	C.2.1.1	C-9	However, the final determination of the route is left to the discretion of the carrier, such as for shipments of depleted UF 6 and UO2, unless the shipment contains a "highway route controlled quantity" (HRCQ) of radioactive material as defined in 49 CFR 173.403 (*Definitions*), such as the plutonium metal or the MOX fuel.		It is important to clarify that none of the shipments would meet HRCQ requirements. The UF6 and UO2 won't because of the material hazards; the Pu metal and MOX will be handled securely by DOE's OST, and the TRU waste will follow WIPP-prescribed routes.	86-103
103	C.2.1.2	C-10/ 19	0 to 39		Should be "0 to 139"	86-104
104	Appendix C, C.2.3	C-14, Table C.2, lines 7- 9	"Number of shipments" for Pu metal from Pantex and Hanford to PDCF – 343 and 87, respectively	SPD EIS – Appendix L, Table L-1 gives 530 shipments of the pits from Pantex to the PDCF.	Provide reference for how the number of shipments of Pu metal to PDCF was determined, since it differs from that used in the SPD EIS.	86-105
105	C.2.3	C-14/Table C.2	124 (273)		These are not accurate (per package) quantities. Please note that these may be more accurate for a "per shipment" amount.	86-106
106	C.2.3	C-14/ 26-29			Need to update. TSD is now called the Office of Secure Transportation, and the DOE AL is now an NNSA Service Center.	86-107
107	C.2.3	C-15 Table C.3	Curies related to various Pu isotopes in Pu metal, MOX fuel, and TRU waste		Pu isotopic distribution is the same for Pu metal, MOX fuel, and TRU waste. Curie content should be linear with mass of Pu in each stream. In Table C.3 it is not.	86-108
108	Appendix C,	C-19, Table	Footnote "b" for Type A and Type B Release fraction		Footnote is misleading as this footnote currently is	86-109

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	C.2.4.2	C.5, line 7 & 19	columns. Footnote "b" currently gives: *Source*: NRC (1977b), used for Pu metal shipments.		used for the Type A packages as well as Type B. Type A packages are not used for Pu metal shipments. The intent is to differentiate between the Type B release fractions used for the Pu metal shipments and those used for the fresh MOX fuel shipments (Footnote "c").	86-109 cont.
109	Appendix C, C.2.5 and C.3	C-22, Table C.7, Line 9 And C-24, Table C.8, lines 45-46	Stop Time (h/km) parameter used as RADTRAN input of 0.011 for all shipments (RADTRAN default value)	MFFF ER, Appendix E, Table E-4 footnote: It has been assumed that no stops would be required for MOX fresh fuel shipments by SGT.	Assumption that stops with the same duration and public exposure as spent fuel truck shipments would occur for SGT shipments of both the fresh MOX fuel and the Pu metal is overly conservative.	86-110
110	C.2.7	C-23/ 20	Thus, in this assessment, a value of 8.36 × 10-10 latent fatalities/km for truck transport was used.		Units on this risk factor, based on the subsequent text, should be "latent fatalities-km/person", taking into account the "latent fatalities/km" divided by "persons/km**2."	86-111
111	Appendix C, C.3	C-24, Table C.8, lines 45-46	Footnote "d": Latent cancer fatalities are calculated by multiplying dose by the FGR 13 health risk conversion factor of 0.06 fatal cancer per person-Sv (6x10-4 fatal cancers per person-rem)(Eckerman et al. 1999)	*Cancer Risk Coefficients for Environmental Exposure to Radionuclides*, pg iv, "The dose coefficients given in Federal Guidance Report No. 11 and Report No. 12 continue to be recommended for determining conformance with radiation protection guidance for Federal agencies issued by the President and will be updated in the future as warranted. ... Although the application of these [Federal Guidance Report No 13] risk coefficients for ... Environmental Impact Statements ... is encouraged to promote consistency in risk assessments, such use is discretionary. ... Also the coefficients are based on radiation risk models developed for the application to either low acute doses or low dose rates and should not be applied to accident cases involving high doses and dose rates in either prospective or retrospective analyses " MFFF ER – Appendix E, E.2.1, last sentence: The health risk conversion factors (expected health effects per dose absorbed) were taken from the *1990 Recommendations of the International Commission on Radiological Protection* (ICRP 1991).	The Draft EIS does not explain why it relies on EPA Federal Guidance Report 13, rather than international standards for cancer risk. Federal Guidance Report 13 clearly states that the conversion factors in Federal Guidance Report 12 still continue to be recommended for radiation protection. The EPA Federal Guidance Report 13 relies on new studies that have not yet been incorporated into the international standards. This results in an order of magnitude higher risk (10^{-4}) than the studies presented in international standards (e.g. ICRP documents) (10^{-5}). Use of the EPA data, with the other unrealistically and overly conservative assumptions, paints an unrealistic potential impact from the proposed action.	86-112
112	E.1	E-5/38-42	Raoult's Law was used to make additional adjustments to		The calculations of mole fractions in Table E-1 are	

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		E-7/4-16	spill vapor pressures to account for dilute solutions (such a solution lowers the vapor pressure of the solvent below that of the solute in proportion to the mole fraction of the solute). Table E.1 gives the computed mole fractions used in the analysis, along with the assumed spill volumes and the given chemical inventories and concentrations.		incorrect, which leads to errors in the modeled airborne concentrations and distances to reach TEEL limits in Table 4.16. It appears there are also errors in the calculation of the moles of solvent in a solution, total moles of solution, mass of solvent in a solution, and the total spill mass, some of which may have led to the error in the mole fractions.	86-113 cont.
113	E.1	E-6/12	Table E.1		The solution molecular weight (94 g/mole) and the solution density (2.13 kg/l) for hydrazine / sodium hydroxide appear to be incorrect.	86-114
114	E.1	E-6/13	Table E.1		The solution density for hydrazine / hydroxylamine nitrate (1.54 kg/l) appears to be incorrect.	86-115
115	E.1	E-11/9-35 E-12/1-27 E-14/5-30	Table E.3 Table E.4		Evaporation rates and vapor pressures of evaporating chemicals appear to be incorrectly calculated for chemicals where mole fractions were used to calculate the vapor pressures, which in turn were used to calculate the evaporation rates. See previous comments on Table E.1.	86-116
116	E.2.1.2	E-17 / 32	To obtain conservative estimates of potential exposure and doses, the SRS employees were assumed to be exposed to radiation from airborne emissions without any shielding by buildings or other structures.		If factors of 0.5 and 0.7 from US NRC 1.109 were used as stated on the next page, shielding was taken into account.	86-117
117	E.2.1.2	E-18 / 37	On an annual basis, the total time of external exposure to the plume and contaminated soil for all SRS employees was assumed to be 0.5 year (NRC 1977).		This is an incorrect interpretation of the 0.5 factor in US NRC 1.109. The 0.5 accounts for shielding while the individual is present. The individual is present approximately 23% of the time (2000/365/24) and this factor is further reduced by the 0.5.	86-118
118	E.2.1.2	E-18 / 45	On an annual basis, the total time of annual external exposure to the plume and contaminated soil for the MEI was assumed to be 0.7 year. For the inhalation pathway, an exposure time of 1 year was assumed (NRC 1977).		This is an incorrect interpretation of the 0.7 factor in US NRC 1.109. The 0.7 accounts for shielding while the individual is present. The individual is present approximately 23% of the time (2000/365/24) and this factor is further reduced by the 0.7 factor.	86-119
119	E.2.1.2	E-18 / 45	On an annual basis, the total time of annual external exposure to the plume and contaminated soil for the MEI was assumed to be 0.7 year. For the inhalation pathway, an exposure time of 1 year was assumed (NRC 1977).		The individual is present approximately 23% of the time (2000/365/24) Exposure time should be 0.23 years and not 1 year for workers.	86-120
120	E.2.1.2	E-19 / 2 Table E.6			Table needs a reference.	86-121

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121	E.2.1.3	E-19/ 28	The GENII code was used to assess radiation exposures of members of the public outside the SRS boundaries.	Letter from Dr. William Glaze (EPA Science Advisory Board) to Christine Todd Whitman (EPA Administrator), Review of ORIA's Use and Adaptation of The GENII Version 2 Environmental Radiation Dosimetry System, EPA-SAB-RAC-ADV-01-002 "The RAC found the environmental transport modeling capabilities for air and surface water releases of radionuclides to be adequate for screening purposes but not necessarily appropriate for detailed analysis or emergency situations. ... The conservative nature of the code may lead to excessively conservative dose estimates (i.e., higher than more realistic assumptions might produce), resulting unnecessarily costly controls and unnecessary expenditures in site cleanup operations. The RAC strongly encourages ORIA to provide more realistic bounds on their dose and risk estimates. ... However, the straight-line Gaussian and Lagrangian-puff models were designed for "well-behaved" pollution transport from chimney "stacks" and do not apply to more critical scenarios involving fires, explosions and accidental or terrorist aerial releases of contaminants, which the EPA may be called on to evaluate."	The DEIS's accident consequences do not provide members of the public with realistic exposure scenarios because the NRC Staff did not use an appropriate model to evaluate dispersion of a highly unlikely MOX explosion event. The NRC used the GENII code to model this accident; the ER used the NRC's MACCS2 code. The EPA Science Advisory Board in their evaluation of the GENII model noted that, "The conservative nature of the code may lead to excessively conservative dose estimates (i.e., higher than more realistic assumptions might produce), resulting unnecessarily costly controls and unnecessary expenditures in site cleanup operations." On page 10 of their report, the SAB specifically notes that, "... the straight-line Gaussian and Lagrangian-puff models were designed for 'well-behaved' pollution transport from chimney 'stacks' and do not apply to more critical scenarios involving fires, explosions and accidental or terrorist aerial releases of contaminants, which the EPA may be called on to evaluate. (emphasis added)" The NRC Staff used the GENII model for exactly the types of accidents that the SAB specifically noted the model should not be used. The GENII code makes a number of simplifying assumptions to make the calculation easier. While the GENII estimates would clearly bound the potential impacts, actual impacts from accidental releases would likely be orders of magnitude lower for both the short-term and 1-year doses. For example, • The GENII code evaluates the dose along the centerline of the plume and assumes that all individuals receive that dose. For the cases evaluated in the DEIS, the accident plumes would be narrow and not expose most of the downwind population to air concentrations nearly as high as the centerline of the plume. This assumption alone

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					could result in collective dose consequences approximately a factor of 7 greater than those produced by MACCS2 depending on the plume characteristics. The principal author of the GENII code indicated that the GENII algorithms for acute releases were designed primarily for evaluating doses to nearby individuals. The July 2002 DOE guidance "Recommendations for Analyzing Accidents under NEPA", (Sect. 3.1 Scenario Development, Conservatisms, page 7) indicates that using estimates of plume centerline concentrations may be appropriate for evaluating impacts to maximally exposed individuals, but would not be appropriate for evaluating population impacts (would overestimate impacts); sector-averaged plume concentrations would yield more realistic results for population impacts. The GENII code does not calculate the lateral dispersion of the plume and overlay that with detailed food production distributions. • Similarly, the GENII code simply predicts the concentrations at the centerline of the plume and assumes food produced is exposed to air concentrations equal to those on the centerline of the plume for the entire plume passage. This simplification results in over prediction of the air contamination level that plants and animals might be exposed to by at least an order of magnitude. • The code does not realistically model the time-dependent harvesting of contaminated food. Instead, the model assumes that all food grown in the sector is harvested instantaneously just after the plume passes. This assumption may be defensible for some crops, but is extremely over-conservative for crops and animal products. An entire year's supply of milk or eggs (or meat or poultry) is not

86-122 cont.

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					collected in one day. The animals re-equilibrate with air nearly as quickly as the plants. Even allowing for weekends and holidays, the assumption of 100% harvest is probably conservative by a factor of about 200 (it would be close to 365 if harvest was really continuous). • The time-dependent consumption of contaminated food is not realistically modeled. Each of these factors is multiplicative. Collectively, the simplifying modeling assumptions result in an over prediction of ingestion doses by several orders of magnitude. Since it is not possible to fulfill the basic NEPA responsibility of informing the public of the reasonably foreseeable environmental impacts of the proposed action with the GENII code, other codes developed specifically for modeling accident consequence should be used. DCS strongly recommends that a well-established accident consequence code with a strong QA record, such as NRC's MACCS2, be used. 86-122 cont.
122	E.2.2	E-23 / 11-13 Table E.9	Ingestion parameters for root vegetables, fruit, and grain		Each line repeats the same number (276 kg/yr for the MEI and 163 kg/yr for the population) when this should be the total for all three. 86-123

Vegetable	Average consumption (kg/yr)	Maximum Consumption (kg/yr)
Fresh Vegetables	66	92
Fruits	60	120
Grains	37	64
Total	163	276

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123	E.2.2.1	E-28/ Table E.13	**Table E.12. Source terms for detailed accident analyses** Hypothetical accident event / Quantity of plutonium at risk (kg) / Damage ratio / Respirable release fraction / Leak path factor Internal fire / 84 (polished) / 1 / 0.0006 / 0.01 Load handling / 254 (polished) / 1 / 0.0006 / 0.0001 Explosion / 75 (unpolished) / 1 / 0.01 / 0.01 Criticality / 41.6 (unpolished) / 1 / 0.0005[a] / 0.0001[b]		Table E.12 indicates that NRC used a leak path factor of 0.01 for the internal fire and explosion events. DCS used a leak path factor of 0.0001 for these events. DCS is currently discussing with the NRC safety analysis staff the appropriate leak path factor to use. If the NRC staff ultimately agrees to a leak path factor of 0.0001, DCS assumes the EIS staff will reevaluate the accident scenarios with this new leak path factor.	86-124
124	E.2.2	E-29 / 11-15 Table E.13	Curies of Uranium isotopes released for WSB accidents	ER Table D-7 lists source terms for isotopes released.	Does not include U-238, 99% of uranium inventory.	86-125
125	F.2.2	F-7/11	Engine-specific emission factors were available for criteria pollutants.		Sentence should read: "…factors were NOT available for…"	86-126
126	H.3.1.4	H-9 / 13 – 16	The transmission line Right of Way provides suitable habitat for the smooth coneflower. Thus the ROW would need to be surveyed before clearing . . .	ER, Appendix A, pg A-26, Letter from L. Duncan (USFWS) to A. Gould (DOE-SR), *Informal Consultation Under Section 7 of the Endangered Species Act for the Surplus Plutonium Disposition-Mixed Oxide Fuel Fabrication Facility*, 20 June 2001.	The ecological survey is complete and conclusive and did not reveal any populations of the smooth purple coneflower within the designated survey area. It was acknowledged by the US Fish & Wildlife Service in June 2001 that, "...We concur with your determination that the proposed action will have no effect on resources under the jurisdiction of the USFWS…"	86-127

00087

From: Allison Macfarlane [allisonm@MIT.EDU]
Sent: Tuesday, May 13, 2003 9:14 PM
To: Mary Olson; Frank von Hippel; rnelson@Princeton.EDU; jmkang55@hotmail.com
Cc: teh@nrc.gov
Subject: NRC DEIS comments

Dear Colleagues,

Here are my comments on the NRC's draft EIS for the MOX fuel fabrication facility, for your information. You will note that on page 2-24, they mention our report on Storage MOX explicitly.

with best regards,

Allison

Comments on NRC's "Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina" NUREG-1767, February 2003

Allison Macfarlane

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There are a number of unresolved, significant issues in the NRC's draft environmental impact statement on the construction of a MOX fuel fabrication facility (MOX FFF) at the Savannah River site, in South Carolina (hereafter DEIS). I outline them below.

(1) Cart Before the Horse.

The most alarming problem is the NRC's endorsement of a cart-before-the-horse plan. The entire point of a new environmental impact statement was to address the changes wrought by DOE's decision to use only MOX to disposition plutonium, instead of the hybrid immobilization and MOX plan. These 87-1

changes will result in an expansion of a process at the MOX FFF called the "aqueous polishing" process. This process is simply a version of that used to reprocess spent nuclear fuel, including the PUREX process. New radioactive waste streams will result from "aqueous polishing", and these will require further processing at a facility to be constructed called the Waste Solidification Building (WSB). Herein lies the problem: the WSB is part of the Pit Disassembly and Conversion Facility (PDCF), which will be constructed *after* the MOX FFF is operational!

In fact, DOE has changed the design of the MOX FFF, which was originally to include equipment to solidify radioactive liquid waste, but now, according to DOE's Supplement Analysis and Amended Record of Decision of April 2003, this equipment is to be located in the WSB.

DOE's current schedule, laid out in its February 15, 2002 Report to Congress, call for construction of a MOX FFF from 2004-2007, once licensed by the NRC, with operations beginning in 2007. The PDCF will be constructed from 2006-2009, with startup in 2009. What does DOE plan to do with the waste streams generated by "aqueous polishing" in the MOX FFF in the interim? 87-1 Cont.

Furthermore, exactly which plutonium stocks will the DOE process at the MOX FFF until the PDCF is complete? Clearly DOE cannot use plutonium metal until the PDCF is completed. My understanding of the remaining plutonium stocks (25 MT being pure metal) is that of the available weapons grade plutonium to be processed (6.5 MT according to DOE's SA and ROD 2003) is all of the impure variety. These impure stocks, therefore, will require "aqueous polishing", which will create waste streams. *The NRC's DEIS does not address the issue of what will happen to these waste streams in the interim.*

I would suggest that the NRC in its EIS carefully address the scheduling issues with regards to the treatment of radioactive waste. In its DEIS, the NRC acknowledges the existence of "connected actions" in that the PDCF must exist first to handle the waste streams generated by the MOX FFF, the subject of the DEIS. I would argue that acknowledgement of these connections is simply not enough to license a facility whose operation without the PDCF will produce potentially large safety impacts to humans and the environment, especially since the DOE has explicitly stated that the required facility will not operate until years after the MOX FFF is planned to begin operations.

(2) Waste Streams.

In its account of liquid wastes, the NRC details a number of the waste streams to be dealt with including chloride, americium, and uranium. NRC does not mention other impurities that exist in some of the plutonium oxide stocks. They are listed below. How will these wastes be dealt with?

Impurities in Plutonium Feedstock for MOX FFF 87-2

ImpurityConcentrationAm-241<200 ppm to ~15 wt%Depleted U<200 ppm to >70 wt%Enriched UTrace to >99 wt%NpHighly variableThHighly variableAl, C, Ca, Cl, Cr, Fe, F, Ga, K, Mg, Mo, Na, Si, Ta, W, and Zn<100 ppm to ~90 wt%Other potential impurities and forms of impurities: MgF2, CaF2, NaCl, KCl, MgCl2, ZnCl2, CaCl2, Co, Ni, Hf, Nb, B, P. The salts can be driven off through heating (they are volatile).

(3) Alternatives Considered But Not Analyzed in Detail.

(a) Immobilization

NRC discounts consideration of immobilization as a path for disposing of plutonium because of the DOE decision to cancel the immobilization plant. Though part of DOE may no longer require immobilization facilities for dispositioning some weapons-grade plutonium, the fact remains that DOE currently has no plans for the remaining10.5 MT of plutonium, both weapons- and reactor-grade, from the original 17 MT that was to be sent to an immobilization facility. Even if DOE transfers "ownership" of this plutonium from one subdepartment (materials disposition) to another (environmental management), it is quite possible that an immobilization facility will be necessary to dispose of this material that the government declared excess to military needs. It seems short-sighted, then, to completely discount immobilization as a "reasonable" alternative. 87-3

A smaller point: on page 2-23, lines 20-21, in the DEIS, NRC states that it "solicited views" on whether immobilization should be considered. Whose views did it consider?

(b) Off-Spec MOX Fuel

First, as one of the "principal proponents" of this approach, I must point out that the off-spec MOX alternative is simply a variant of immobilization. NRC seems to stumble on to that fact near the end of their discussion of this issue. I am flattered, thought, that they have given this option a reasonable amount of consideration, but I have a number of comments on this section.

First, on page 2-24, lines 5-6, there is no need for a country like the United States to limit its radiation barrier for the off-spec MOX to spent fuel. Most reactors do not have facilities to separate fuel pins from assemblies, which would be required by countries that do not have large quantities of high-level waste waiting to be vitrified. Instead of using spent fuel, one could adopt a variant of the can-in-canister approach planned for the immobilization facility. One could emplace the pellets of off-spec MOX into high-level waste glass, for instance. NRC should not limit itself to such narrow analysis. 87-4

The analysis in lines 23-32 all applies to immobilization in general, of course.

Inlines 43-46 on page 2-24, continued on page 2-25 (lines 1-2)NRC makes a specious argument. It should be omitted from this analysis. Yes, Am-241 would not be removed from the impure plutonium in immobilization. But the MOX fuel method does not eliminate it from the planet - it just puts it into a different waste stream. Am-241 will still poses a hazard. Moreover, there will be *very little* Am-241 in the plutonium because it will be weapons-grade plutonium, not reactor-grade plutonium – at least for that covered by the Bilateral Plutonium Disposition Agreement. 87-5

Lines 4-8 on page 2-25 report yet another specious argument. By *DOE's own analysis*, the immobilization method (via can-in-canister) would be much cheaper than the MOX-only plan they are currently following. In its 2001 cost estimate (the last time DOE compared MOX and immobilization

costs), the MOX FFF was projected at $2.5 billion versus $1.5 billion for the immobilization facility (planned for 50 MT of plutonium through-put). That's a savings of $1 billion, even given the "fuel credit." 87-5 Cont.

In its February 2002 Report to Congress, DOE asserts its 2002 plutonium disposition budget projections are $2 billion less than its 2001 estimates. The reduction is due, they claim, to the elimination of the immobilization program, the streamlined design of the PDCF, and the shorter operating lifetimes of both the MOX FFF and the PDCF. The total cost of the disposition program in 2001 was estimated to be $6.2 billion versus $3.8 billion in the 2002 estimate. Removing the immobilization facility from the 2001 numbers reduced the difference between the 2001 and 2002 budgets by $1 billion. The remaining $1 billion difference between the 2001 and 2002 cost estimates is from the PDCF, whose capital costs have been inexplicably halved. Though additional modifications will be required of the MOX FFF, the costs presented in the congressional report do not reflect that. They also do not reflect the capital cost of dealing with the additional waste streams created by plutonium purification. Furthermore, the 2002 cost estimates do not reflect the additional operating time needed to (1) handle more material through the MOX FFF (34 MT versus 25.6 MT), (2) purify the surplus plutonium streams that would previously have remained untreated in the immobilization program, and (3) to handle the additional wastes generated from purifying the contaminated plutonium. 87-6

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00088

May 14, 2003

Michael T. Lesar

Chief, Rules & Directives Branch

Division of Administrative Services

Office of Administration

U.S. Nuclear Regulatory Commission

Washington, DC 20555

Plutonium Bomb Fuel is a Threat

Dear Sir:

I am concerned about the MOX fuel program for the following reasons:

1. Shouldn't terrorism be addressed in the report? (P. I-29) 87-1

2. Shouldn't emergency preparedness in dealing with impacts from an accident in nearby communities be studied? (P. I-29) 87-2

3. Should any deaths be considered "acceptable"? Why are some communities unfairly burdened with higher risks? (P. 4-57) 87-3

4. Shouldn't we study safer and cheaper options? (P. 2-23) 87-4

Please consider these points before making your decisions. As these decisions will affect generations to come.

Sincerely,

Soumya Ganapathy

14 Thackery Place

Savannah GA 31405

00089

Department of Energy
National Nuclear Security Administration
Washington, DC 20585

May 14, 2003

Mr. Michael T. Lesar, Chief
Rules Review and Directives Branch
U.S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, D.C 20555-0001

Subject: Comments on NUREG-1767, Draft *Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina*

Dear Mr. Lesar:

Attached are the Department of Energy's (DOE) comments on the Nuclear Regulatory Commission's (NRC's) Draft *Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina* (DEIS), NUREG-1767. DOE's greatest concern with the DEIS is that the consequences reported for postulated accidents at the Mixed Oxide (MOX) facility and the Pit Disassembly and Conversion Facility (PDCF) are unrealistically high and, if accurate, would raise environmental justice issues that could require the implementation of unnecessary mitigative actions. DOE believes this potentially erroneous result is caused by a number of factors, in particular the code used for accident analysis and the multiplicative effects of using overly conservative assumptions for each analytical parameter. DOE's concerns in a number of areas related to the accident analyses in the DEIS are summarized below and discussed in greater detail in Attachment 1. 89-1

- *The use of the GENII v. 1485 ("GENII") code for evaluating accident scenarios for the MOX facility and PDCF is not appropriate.* The GENII code was developed for modeling small, routine releases of radionuclides to confirm that these releases remain below regulatory limits. Although the GENII code does have an acute release component, the simplifying assumptions in the code produce highly unrealistic results when applied to the short-term, puff-type release characteristic of accidents.[1,2] The accident analysis community generally uses codes such as MAACS2, a code developed under NRC sponsorship, that is designed to realistically, but conservatively, estimate both the short-and long-term 89-2

[1] EPA's Science Advisory Board, in a published review of the GENII code, found the environmental transport modeling capabilities for air and surface water to be adequate for screening purposes but not necessarily appropriate for detailed analysis or for emergency situations. Among the Board's conclusions is that the conservative nature of the GENII code may lead to excessively conservative dose estimates, i.e., estimates higher than more realistic assumptions might produce, and that could, in turn, result in unnecessarily costly controls.

[2] The lead author of the GENII code also indicated in an e-mail message of February 26, 2003 to Doug Outlaw of SAIC (DOE Contractor), that there is a potential for obtaining erroneous results while using the GENII code for accident analysis.

impacts of large accidental releases of radionuclides. Moreover, MACCS2 has been used extensively for accident analysis for both NRC-licensed and DOE facilities. It is validated and is widely accepted as the code of choice. 89-2 Cont.

- *The results reported in the DEIS errata sheets are not physically possible.* The predicted doses for the explosion scenario for the MOX facility would seem to require more plutonium to be ingested than would be released in the postulated accident. To result in the number of latent cancer fatalities attributed to the ingestion pathway, the calculations strongly suggest that the offsite population would be required to ingest contaminated food containing almost twice the amount of plutonium postulated by the NRC to have been released by this accident. 89-3

- *Despite statements that population impacts in the DEIS are based on meteorological conditions at the 95th percentile, they may actually be based on conditions at the 99th to 99.5th percentile.* DOE's attempts to duplicate the DEIS calculations indicate that what is reported in the DEIS appears to be actually 99 to 99.5 percent meteorology. Using the overly-conservative GENII code, reanalysis with 95 percent overall meteorology indicates that for plutonium releases, population doses due to inhalation could actually be 6 times lower than indicated in the errata sheets; and for ingestion 44 times lower. Likewise, for tritium releases, population doses due to inhalation could actually be 6 times lower than indicated in the errata sheets, and for ingestion, 4 times lower. 89-4

- *The plutonium source term is far greater than would be expected for a reasonably foreseeable, credible event (i.e., the evaluated bounding accidents are beyond design basis).* The multiple conservative bounding assumptions used are additive and result in significant overestimation, by orders of magnitude, of the explosion source term. 89-5

- *DOE believes that the NRC's DEIS is inconsistent with the NUREG-1748, Environmental Review Guidance for Licensing Actions Associated with NMSS Programs (September 2001), to consider the potential impacts of reasonably foreseeable, not worst case, accidents.* By evaluating worst case accidents instead of reasonably foreseeable accidents, and further, by compounding conservative assumptions for each input parameter in the analysis, NRC is inadvertently presenting the public and the decision makers with an unrealistic picture of the potential consequences of operation of the MOX facility and PDCF. The potentially erroneous results may engender ill-founded safety concerns among the public, especially local residents, by suggesting unrealistically high accident consequences. Further, the consequences presented in the DEIS and its errata sheets indicate the need for mitigation measures to relieve potential environmental justice issues. These measures, which but for the potentially erroneous accident results may be unnecessary, would be costly to implement and unduly burdensome to both the applicant and the public. 89-6

In addition to providing more details about the DEIS accident analyses, the following issues are discussed in Attachment 1:

- Reanalysis of the PDCF
- Identification of Environmental Justice issues
- Use of non-representative air quality monitoring stations
- Treatment of decontamination and decommissioning in the DEIS
- Identification of excessive mitigation measures
- Discussion of the waste solidification building

Attachment 2 contains specific textual comments for your consideration. Please contact Hitesh Nigam of my staff if you have any questions or wish to discuss any of our comments. He may be reached by telephone at (202) 586-0750, or via e-mail at Hitesh.Nigam@nnsa.doe.gov.

Sincerely,

Edward J. Siskin
Assistant Deputy Administrator for
Fissile Material Disposition

Attachments

cc: Tim Harris, NRC
Mary Birch, DCS

ATTACHMENT 1

Department of Energy's Major Comments

I. Accident Analysis

The Department of Energy (DOE) is concerned about the methodology used by the Nuclear Regulatory Commission (NRC) for the accident analyses for both the Mixed Oxide Fuel Fabrication Facility (MOX facility) and the Pit Disassembly and Conversion Facility (PDCF). DOE is concerned not only with the code used to evaluate the potential effects of postulated accidents, but also with the manner in which NRC's code of choice may have been implemented. The results reported in the Draft *Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site* (DEIS), NUREG-1767, are higher than would be predicted with accident consequence models using the DEIS source terms and assumptions. In addition, the results are higher than those reported in the *Surplus Plutonium Disposition Environmental Impact Statement* (SPD EIS), the *Mixed Oxide Fuel Fabrication Facility Environmental Report*, and the MOX Construction Authorization Request. DOE has reanalyzed the accidents using NRC's inputs with consequence models designed specifically for accident analysis and the results contained in the DEIS do not appear to be realistic and moreover may not be physically possible. DOE's basic concerns about the accident analysis methodology are as follows: 89-7

- *The use of the GENII v. 1485 ("GENII) code for evaluating accidents at the MOX facility and PDCF is not appropriate.* NRC used the GENII code to evaluate accidents for the DEIS. Although the GENII code does have an acute release component, the code was developed for modeling small, routine releases of radionuclides from DOE facilities to confirm that the releases remain below regulatory limits. Because routine releases from DOE facilities are very small, a number of simplifications were included in the code to make it easier to use and less time-consuming to run, and still be able to demonstrate that potential impacts are well below regulatory limits. These bounding, simplifying assumptions, such as use of plume centerline doses to represent the doses from the entire plume, lack of plume depletion, and "instantaneous" harvesting of crops followed by consumption of an entire year's production, while acceptable for estimation of annual doses from routine releases, appear to be unrealistic when applied to the short-term, puff-type release characteristic of accidents described in the DEIS[1]. 89-2 Cont.

  Furthermore, the Radiation Safety Information Computational Center issued a notice in March 2003 that there is a potential for obtaining erroneous results using the GENII code for accident analyses. This notice was issued based on information provided by the lead author of the GENII code who identified the concern while reviewing DEIS accident analyses.

[1] The lead author of the GENII code also indicated in an e-mail message of February 26, 2003, to Doug Outlaw of SAIC (DOE Contractor), that there is a potential for obtaining erroneous results while using the GENII code for accident analysis.

The accident analysis community generally uses codes such as MAACS2, a code developed under NRC sponsorship, that is designed to realistically, but conservatively, estimate the short- and long-term impacts of large accident releases of radionuclides. MACCS2 has been used extensively for accident analysis for both NRC-licensed and DOE facilities. It is validated and is widely accepted as the code of choice. DOE analysis using the MAACS2 code for the explosion at the MOX facility results in less than 1 latent cancer fatality (LCF), as compared to 200 LCF reported in the DEIS for collective off site public one-year exposure. (WSMS-TR-03-0011, May 2003)

In addition, at the Savannah River Site (SRS), DOE has been using a computer model, UFOTRI, developed by the German national laboratory Karlsruhe to assess radiological consequences due to postulated accidental releases of tritium from nuclear facilities. The UFOTRI model was selected for use at SRS after evaluation of a number of codes to determine which code best predicted the results of environmental sampling in the vicinity of SRS. This model was used to evaluate the postulated tritium release from the PDCF, and the results were compared with the DEIS. The DEIS errata sheets estimated a collective off site public one-year exposure that results in approximately 100 LCFs, whereas the UFOTRI model results in approximately 1 LCF. (WSMS-TR-03-0011, May 2003)

Moreover, the Radiation Advisory Committee (RAC) of EPA's Science Advisory Board, in a review of the GENII v.2 requested by the EPA's Office of Radiation and Indoor Air (ORIA) (EPA-SAB-ADV-01-002, June 2001), found the environmental transport modeling capabilities for air and surface water releases of radionuclides to be adequate for screening purposes but not necessarily appropriate for detailed analysis or for emergency situations, and came to similar conclusions with respect to the modeling of exposures to tritium, among other radionuclides.[2] The report states that the more complex environmental radionuclide transport modeling inputs required for catastrophic events (e.g., fires, explosions, accidents and terrorist acts) involve "near-field" physics not captured by the generalized GENII module. Comments in the transmittal letter include: 89-2 Cont.

- *The need for the dose and risk estimates to be as unbiased as possible. The high level of conservatism apparently built into the GENII code is not sufficiently transparent to the user, who must be able to decide explicitly on the level of conservatism appropriate for the particular application.*

- *The conservative nature of the code may lead to excessively conservative does estimates (i.e., higher than more realistic assumptions might produce), resulting in unnecessarily costly controls and unnecessary expenditures in site cleanup operations.*

[2] This review was conducted on draft Version 2 of the GENII code, which is an update of Version 1.485 used for the DEIS analyses. The analytical model in Version 2 is similar to Version 1.485. Therefore, EPA's comments about the technical aspects of the code are also applicable to Version 1.485.

ORIA was strongly encouraged in the latter comment to provide more realistic bounds on their dose and risk estimates than available by using GENII.

- *The results reported in the DEIS errata sheets are not physically possible.* DOE's analysis indicates that the predicted doses for the explosion scenario for the MOX facility require more plutonium to be ingested than is postulated to be released. DOE has performed calculations that start with the doses and LCFs reported in the DEIS errata sheets, and worked backwards to calculate the source terms necessary to achieve these results.

  The DEIS errata sheets report that for the MOX facility explosion scenario, the highest initial population impacts, 50 LCFs due to inhalation of plutonium, would occur if the wind transported the initial plume to the populated west-northwest sector. The DEIS also reports that if the plume instead traveled to the southwest, one-year doses due to the consumption of contaminated agricultural products would be maximized. The DEIS errata sheets indicate that, absent mitigative actions (e.g., crop interdiction), there would be 200 LCFs from initial plume passage towards the southwest where there is substantial farming activity. DOE analyses using the NRC modeling assumptions indicate that for this case, more than 95 percent of the dose would be received from ingestion of contaminated foodstuffs. However, DOE's experience in performing similar accident analyses strongly shows that ingestion doses are routinely a small fraction of inhalation doses.

  DOE used EPA Federal Guidance Report-13 dose conversion factors (also used in the DEIS) to estimate the amount of plutonium that would have to be ingested to result in the reported population doses. These calculations demonstrate that the offsite population would be required to ingest contaminated food containing almost twice the amount of plutonium postulated by the NRC to have been released by this accident to result in the number of LCFs attributed to the ingestion pathway. It would seem to be unreasonable to assume that a population ingests more plutonium than is released.

  Similarly, inhalation dose conversion factors were used to estimate the amount of plutonium that would have to be inhaled to result in the population doses reported in the DEIS. For 50 LCFs to result from the initial plume passage, the downwind offsite population to the west-northwest (more than 5 miles away) would have to inhale approximately 0.23 percent of the total amount of plutonium released in the accident. It is usually not possible for the downwind population to inhale such a high fraction of the material released in the accident. More that 96 percent of the people in the west-northwest sector reside farther than 20 miles from the MOX facility. Most of the plutonium would settle to the ground well before reaching the highly populated areas.

  Similarly, for the tritium release from PDCF, the DEIS results imply that about 0.04 percent of the total tritium released would have to be inhaled if the initial plume passes to the west-northwest and 0.51 percent of the total tritium release would have to be ingested by the consumption of contaminated food over the next year if the plume travels to the southwest. As with the plutonium accident cases, DOE's experience indicates that

89-3 Cont.

the realistic fraction to be inhaled or ingested to be several orders of magnitude less than these numbers indicate.

In addition, DOE believes that this consequence modeling appears to be overly conservative and unrealistic, thus, misleading. Due to the natural effects of dilution with the transport of radioactive materials, the actual fraction of the plutonium or tritium released that could be realistically inhaled is typically much smaller that the reported results would indicate. The amount that could realistically be ingested would be even smaller.

89-3 Cont.

- *The DEIS indicates that the analyses use meteorology at the 95th percentile, but it may actually be 99th to 99.5th percentile.* Page E-31 of the DEIS indicates that impacts are based on 95 percent meteorology, which the DEIS defines as "weather conditions that produce impacts that are not exceeded 95 percent of the time." Attempts to duplicate the DEIS calculations appear to indicate that what is reported is actually 95 percent meteorology in the worst sector rather than 95% overall as stated in the DEIS. Based on a Monte Carlo simulation using the results of GENII with the addendum meteorology, the consequences reported in the addendum actually correspond to 99 to 99.5 percent meteorology. The reported results therefore correspond to weather conditions that produce impacts that are not exceeded 99 percent or more of the time. The resulting effects are significant. Reanalysis using GENII with true 95 percent overall meteorology (rather than 95 percent in the worst sector), indicates that for plutonium releases, population doses due to inhalation are 6 times lower than indicated in the errata sheets; and for ingestion 44 times lower. Likewise, for tritium releases, population doses due to inhalation are 6 times lower than indicated in the errata sheets, and for ingestion 4 times lower.

89-4 Cont.

- *The plutonium source term appears to be far greater than would be expected for a reasonably foreseeable, credible event (i.e., the evaluated bounding accidents are beyond design basis).* The assumed parameters for the plutonium source terms, material at risk, damage ratios, respirable release fractions, and leak path factor listed in Table E.12 of the DEIS are clearly bounding but also so overly conservative as not to be realistic. Each is based on a bounding, worst-case type accident for that category without consideration of the design of specific systems. As such, they may be more appropriate for determining performance factors and license conditions for safety systems, such as the building confinement systems. However, values for *reasonably foreseeable* accidents specified by National Environmental Policy Act (NEPA) regulations would require a more reasoned view of the performance of safety systems. For example, each of the MOX facility accidents identified would be "design-basis" type accidents for which the safety systems, including mitigation systems such as building confinement and filtration systems, would be expected to continue to perform their minimum safety function. For example, in the case of the explosion scenario, it would appear beyond the rule of reason to assume, as the DEIS analysis does:

  - That all the plutonium is involved in the accident. Because the material at risk is in three separate tanks within a cell, only a fraction of total plutonium would be involved in the event. Therefore, it is very unlikely that all the material would be

89-5 Cont.

subject to the full explosive forces that would support the assumed airborne release factor and respirable fraction. The release is therefore unlikely to involve more than one-third of the plutonium in the cell, since there are three separate tanks within the cell.

- The upper limit of possible airborne release fractions and respirable fractions for explosions without considering the design of the processes and potential energies that might be involved. Many types of events would have much lower values for the product of the airborne release fractions and the respirable fractions, or involve a smaller fraction of the inventory. (DOE-HDBK-3010-94 [Mishima] and NUREG/CR-6410 [NRC Accident Analysis Handbook] provide more guidance on this subject.)

- That the building confinement system suffers a major breach without a strong technical basis to demonstrate that this breach might be reasonably foreseeable. This accident is a design basis accident and the building confinement system, including HEPA filters, would not be substantially impaired. The conditional probability that the building confinement system would also be substantially impaired is very low. The typical historical recommendation for safety analysis is 99.9 percent efficiency for the first HEPA filter and 99.8 percent for the second. This implies that a leak path factor of as low as 2×10^{-6} could be considered reasonable, as opposed to the leak path factor of 1×10^{-2} used in the DEIS (Elder 1986; NUREG/CR-6410, Section F2.1.3, 1998).

89-5 Cont.

Collectively, these multiple conservative bounding assumptions are additive and DOE believes that they result in significant overestimation, by orders of magnitude, of the explosion source term.

- *DOE believes that the NRC's DEIS is inconsistent with NUREG-1748, Environmental Review Guidance for Licensing Actions Associated with NMSS Programs (September 2001), to consider the potential impacts of reasonably foreseeable, not worst case, accidents.* NUREG-1748 specifies in several locations (Sections 5.4, 5.4.12.2.2, 6.4, and 6.4.12.2.2) that (quoting specifically from Section 5.4, Environmental Impacts),

  This section summarizes the known and potential impacts of the proposed action and each alternative. These impacts should consider normal operational events as well as reasonably foreseeable accidents (e.g. ... credible consequence events for Part 70 licensees).

89-6 Cont.

By evaluating worst case accidents instead of reasonably foreseeable accidents, and further, by compounding conservative assumptions for multiple input parameter in the analysis, NRC is inadvertently presenting the public and the decision makers with an overly conservative and, we believe, unrealistic picture of the potential consequences of operation of the MOX facility and PDCF. This makes it difficult to make an informed decision, and does not, as required by NEPA, allow a reasoned comparison between reasonable alternatives. Even though the DEIS properly explains that the probability of either of these accidents is so remote that the risk to the public is negligible, it would

seem inappropriate to present such unrealistic consequences. If unchanged, these results are likely to engender ill-founded safety concerns among the public, especially local residents, by suggesting unrealistically high accident consequences. Further, the consequences presented in the DEIS and its errata sheets indicate the need for mitigation measures to relieve potential environmental justice issues. These measures, which but for the questionable accident results may not be necessary, would be costly to implement, and would be unduly burdensome to both the applicant and the public.

89-6 Cont.

II. Reanalysis of the Pit Disassembly and Conversion Facility

DOE believes that the NRC should not have reanalyzed the PDCF at all, since as the NRC points out in the DEIS (page 1-12, lines 12 through 15):

> *Because the scope of this DEIS is limited to the licensing action now under review by the NRC, which is specific to the proposed MOX facility, issues pertaining to decisions already made by the DOE are addressed by referencing the appropriate DOE analysis.*

89-8

NRC was informed by DCS that the most recent information available for the PDCF is that which is found in the SPD EIS. Absent new information, NRC seems bound by its own admission to accept and reference DOE's analysis of the PDCF. As existing DOE analyses pertain to issues covered in the DEIS, NRC should incorporate, either by reference or by reprinting, the information already on the record. DOE completed a thorough analysis of the potential impacts of construction and operation of the PDCF at the SRS in the SPD EIS. This accident analysis should be incorporated into the DEIS without reevaluation.

III. Environmental Justice

Because the DEIS accident analysis predicts significant consequences (albeit with a very low frequency, hence minimal risk) from postulated facility accidents, NRC has indicated that these potential impacts would disproportionately affect minority and low-income populations residing in the vicinity of SRS, and has required DCS to implement programs and procedures to protect these groups, conduct focused public information campaigns, and implement other mitigative actions. DOE believes that no mitigative measures are required, and that those identified in Table 5.1 (pages 5-5 and 5-6) should be deleted, because our reanalysis of the accident impacts (as mentioned above) appears to be negligible.

89-9

IV. Air Quality Monitoring Stations Not Representative

The DEIS should use the most representative ambient monitoring data and reach conclusions regarding exceedence of ambient standards using a methodology consistent with those standards. Instead, the affected environment section of the DEIS presents ambient air quality data from a number of monitors in Georgia and South Carolina, not necessarily close to or representative of the SRS area, and records the highest measured values for each of the parameters. In some cases the monitors are representative of urban locations rather than the more rural location around SRS, while data from monitors in counties adjacent to SRS are not presented. While it may be reasonable to assume that when the highest monitored value at a representative monitoring

89-10

station is well under an ambient standard the ambient standard is met, it is not reasonable to presume that an ambient standard is not met based on unrepresentative monitoring data or data averaged inconsistently with that standard. This error in reasoning is most notable for $PM_{2.5}$, for which background $PM_{2.5}$ levels are not available from the South Carolina Department of Health and Environmental Control (SCDHEC). Compliance with the $PM_{2.5}$ standard should be evaluated by using the most representative monitored values, and consistent with the ambient standard, i.e., for 24-hour standard use the 3-year average of the 98th percentile values should be used; for the annual standard, the 3-year average of the annual average values should be used.

89-10 Cont.

Therefore, the ambient air quality monitoring data presented in DEIS Table 3.3 should be replaced with data that are more representative of the SRS area, and the conclusions based on these data revised accordingly (pages 3-22, 3-23, 4-11, 4-16 through 4-22, 4-89 and 4-90). Table 3.3 presents data from a number of monitors including urban monitors that are not representative of the more rural conditions around SRS, the area for which air quality impacts are being assessed. For example, the Cayce monitor in Lexington, SC, used for PM_{10} and the annual $PM_{2.5}$ is an urban monitor. But the Colleton, SC monitor, may be more representative of the area around SRS since it is a suburban or rural monitor. The Cayce monitor is located near downtown Columbia, SC with a setting classified by SCDHEC as "commercial, urban-city center."

Air monitoring data for particulate matter (PM_{10} and $PM_{2.5}$) reported in Table 3.3 suggest that local air quality is in noncompliance with ambient standards for both the 24-hour and annual averaging periods in each pollutant category. Most of these data are attributed to the Cayce, Lexington County, SC monitoring site. In contrast, PM_{10} monitors near the SRS boundary in Jackson and Barnwell report results for 2001 that are about half or less of the values observed at Cayce. For the $PM_{2.5}$ 24-hour standard, Table 3.3 reports a value of 71 g/m^3 from Colleton County. A further inspection of the data from Colleton County shows this value was the absolute maximum recorded in the year 2001; however, the 98th percentile value (the value that should be used to evaluate compliance with the air standard) for this monitor was 27 g/m^3. The 24-hour standard is 65 g/m^3. Table 3.3 cites data from the Cayce monitor for the annual $PM_{2.5}$ category (21.5 g/m^3). In contrast, the annual average for the Colleton County monitor was 12.7 g/m^3 for 2001, below the $PM_{2.5}$ standard of 15 g/m^3.

89-11

As part of the discussion of environmental consequences in Chapter 4 of the DEIS, Tables 4.6 and 4.8 use a more reasonable set of data for the existing 'background' air quality, except for the $PM_{2.5}$ annual average. Again, the Cayce monitoring data (21.5 $\mu g/m^3$) is used to support the unwarranted conclusion (page 4-11, lines 28-31 and page 4-18, lines 30-32) that "measured levels of $PM_{2.5}$ in the vicinity of the SRS already exceed the annual standard." This conclusion is also repeated several more times in Section 4.7. The DEIS should be revised throughout to present conclusions regarding $PM_{2.5}$ that are based on more representative data. In addition, Tables 3.3, 4.6 and 4.8 should be revised to present consistent information where possible.

V. Decontamination and Decommissioning

The DEIS discusses decommissioning of the MOX facility on pages 1-4, line 38; 1-7, line 2; 4-47 through 4-52 (Section 4.3.6); 5-6, line 34; 5-8, line 1; 5-9, line 15; 5-10, line 31; 5-11, line 32; 5-13, line 5. The current contract calls for DCS to deactivate the facility and return it to

89-12

DOE for decommissioning or reuse. As a result, final disposition of the facility will be within the purview of DOE. The DEIS should be revised to indicate that the MOX facility will not be decommissioned under its NRC license. Further, any analyses or discussions relative to decommissioning, such as license termination and regulatory requirements should be revised as necessary to reflect the appropriate end state for the operating license.

89-12 Cont.

VI. Excessive Mitigation Measures

DOE believes that the mitigation measures discussed in Chapter 5 and presented in Table 5.1 with NRC as the proponent are in general excessive relative to the postulated impacts. DCS has proposed to implement a number of mitigation measures to address those resource areas that could potentially be impacted more than is desirable. However, in aggregate, the mitigation measures ascribed to NRC are excessive and may not be necessary. Therefore, DOE recommends that these proposed mitigation measures be reconsidered.

89-13

VII. Discussion of the Waste Solidification Building

The DEIS discusses the waste solidification building as if it were a third major facility, equal in stature to the MOX facility or PDCF. This occurs, for example, on page 1-7, lines 33–40: *Two new DOE facilities (the PDCF and the Waste Solidification Building [WSB]) are needed to support the proposed MOX facility.* In fact, the waste solidification building is part of the PDCF complex, and should be discussed as such. Both the MOX facility and the PDCF, although spoken of as a single "facility," comprise a major production building and several smaller associated buildings. Similar wastes from the pit disassembly and conversion and MOX fuel fabrication processes that would have been processed separately in each of these facilities will now be processed in the waste solidification building, thereby reducing the amount of space and equipment needed for both the MOX facility and the PDCF. The DEIS should be revised so as to not give the impression that the waste solidification building is a major, stand-alone facility.

89-14

ATTACHMENT 2

Department of Energy's Specific Comments

Review of NUREG-1767
Draft Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina

DEIS Section	Page/Line	Comment	
ES 1.2.1	Page xvii, line 29 Page 1-4, line 24	The DEIS is inconsistent regarding the designed maximum throughput of the MOX facility. The MOX facility is designed to process 3.5 MT of plutonium per year, not 3.5 MT of plutonium oxide, as stated several places in the DEIS including those identified in this comment.	89-15
ES	Page xvii, line 35	Please update the DEIS to reflect that the General Electric facility in Wilmington is now called Global Nuclear Fuel-Americas, LLC.	89-16
ES	Page xx, line 9	"distrusted" should be "distrusts."	89-17
1.1.2	Page 1-3, lines 11–15	Suggest rewriting the statement "although the DOE has prepared previous EISs that cover impacts of the proposed MOX facility on a programmatic level, those EISs are not considered sufficient to meet NRC needs under NEPA, because DCS has since submitted additional site-specific information, and the proposed MOX facility design has been revised since the DOE's EISs were issued." to remove the judgmental determination that the DOE EIS is "not considered sufficient to meet NRC's needs under NEPA." Suggest stating instead (and more appropriately) that NRC has prepared the DEIS to incorporate additional site-specific information and design detail, and to satisfy the requirements of 10 CFR 51.	89-18
1.2.2	Page 1-9, line 1	The first sentence as written could imply that fresh fuel is different from unirradiated fuel. Suggest changing the sentence to read "fresh, unirradiated," or edit it another way so that it doesn't say "fresh or unirradiated."	89-19
1.2.2	Page 1-9, Note c to Table 1.1	This table indicates that there is 0.1 MT at LLNL, and the table note indicates that the LLNL total may increase to 1.7 MT of Pu because some RFETS material was shipped to LLNL. The table note references DOE 1996. DOE 1999 indicates that there will be approximately 1.7 MT of Pu from LLNL, including processing/recovery of the RFETS material (footnote 7, pg 1-2).	89-20

DEIS Section	Page/Line	Comment	
2.2.2	Pages 2-3–2-5	This section is taken nearly verbatim from DOE 1999, and no citation is provided. However, footnote 1 on page 2-2 indicates that "except as noted, the descriptions provided in this section are based on information from DCS (2000, 2001, and 2002)." PDCF information used in preparation of this DEIS was taken from DOE 1999, and is not provided in DCS documents. This section should be properly attributed.	89-21
2.2.4.2	Page 2-15, line 10	It would be useful to include a diagram of the WSB processes in this section.	89-22
2.2.5	Page 2-19, lines 2–3	The correct terminology is fire ***areas*** not fire ***zones***. Please correct.	89-23
2.3.5	Page 2-25, line 36	Revise as follows: "…was manufactured at the DOE's Los Alamos National Laboratory (LANL) *and at the Bochvar Institute in Moscow, Russia.*"	89-24
2.4	Page 2-29, lines 12–14	Need to label these as "nonhazardous waste" as done on lines 32 and 34.	89-25
2.4	Page 2-30, lines 23 and 24	The statement "No wetlands or endangered/threatened species would be impacted" is too broad and not entirely consistent with what is presented in Appendix H, pages H-7 through H-9. Based on what is presented, it is difficult to state that no impacts would occur. Rather, it appears that it would be more appropriate for lines 23 and 24 of page 2-30 to state "*Negligible* impacts to wetlands, aquatic habitat, and threatened/endangered species would be expected." Specifically, that discussion does identify certain potential impacts: **For aquatic habitat** - "Construction of the facilities would eliminate a small storm-water basin...This basin is shallow with little vegetation...providing minimal value to wildlife (H-8/20-22)...Indirect aquatic impacts could occur if unprotected soils eroded into the unnamed tributary of Upper Three Runs Creek..."(H-8/27) **For wetlands** - "Negligible direct impacts...to wetlands would occur from facility construction. Indirect impacts could occur if unprotected soils eroded into wetlands adjacent to the construction site and adversely affected hydrological and ecological conditions there." (H-8/39-41) **For protected species** - "Indirect impacts could occur to listed wildlife species from disturbance...Also, clearing would eliminate habitat that could provide support to some of the species." (H-9/5-7)	89-26
2.4	Page 2-30, lines 26 and 27	The woodland habitat loss description under the proposed action column is awkward. Suggest it be reworded for clarity as follows: "*Up to* 14.7 ha (36.4 ac) of woodlands would be *cleared for the proposed facilities. This would represent* <1 % of the annual timber harvest at SRS."	89-27

DEIS Section	Page/Line	Comment	
2.4	Page 2-31, line 21	Percent of electric power capacity for operation (38.5%) does not agree with the percentage presented in section H.6.2 (p. H-13/ 6), 36.4%.	89-28
2.4	Page 2-34, lines 2–4	The statement "No impacts would occur to endangered or threatened species, wetlands, or aquatic or terrestrial habitats at the SRS and the F-Area vicinity" needs to be corrected to reflect the two previous comments for page 2-30, lines 23–24 and 26–27. In addition, the loss of 14.7 ha (36.4 ac) of woodland habitat should probably be characterized as a "minor," rather than "negligible," impact.	89-29
2.4	Page 2-34, line 19	"distrusted" should be "distrusts."	89-30
3.2	Page 3-1, line 32	The statement that "Prime farmland is protected by the U.S. Department of Agriculture" is an oversimplification and technically inaccurate. Although it is a moot point at SRS, the Farmland Protection Policy Act offers no absolute protection to important farmlands (i.e., prime, unique, or other statewide or locally important farmlands). Suggest restating as follows: "Certain soils are classified by the U.S. Department of Agriculture, Natural Resources Conservation Service as prime farmland or other important farmlands. The Farmland Protection Policy Act (7 U.S.C. 4201 et seq.) and its implementing regulations (7 CFR 658) requires Federal agencies as part of the NEPA process to consider the extent to which Federal projects and programs contribute to the unnecessary conversion of important farmlands to nonagricultural uses."	89-31
3.2.2	Page 3-4, line 22	Suggest providing a citation for the estimated PGA produced at SRS from the Charleston earthquake. If the citation for the information in the preceding paragraph is USGS 2001, then this citation should be included at the end of the paragraph.	89-32
3.2.2	Page 3-5, line 1	The sentence referencing the UBC should be deleted, as this Code was rendered obsolete with regard to seismic design provisions with publication of the *International Building Code* in 2000. The IBC replaces all national model building codes previously is use. Instead of seismic zone designations, the IBC's seismic design provisions are based on the USGS' National Earthquake Hazard Reduction Program maps that depict maximum considered earthquake ground motions for the United States based on spectral response acceleration.	89-33
3.3.1	Page 3-7, line 24	The correct spelling is ***Hardeeville*** (South Carolina), not ***Hardeville***.	89-34
3.5.4	Page 3-33, line 18	The bat species *Myotis lucifugus* and *Myotis austroriparius* are discussed in this section but are not included in the companion list of protected species presented in Appendix A, Table A.1. Please reconcile this inconsistency. Also, to be consistent with the balance of the Ecology discussion, the	89-35

DEIS Section	Page/Line	Comment	
		common name of these two species of bats should be presented in the text, followed by the Latin name in parentheses.	
3.5.4	Page 3-33, lines 20–27	The common ground dove, loggerhead shrike, and American sandburrowing mayfly are presented in this discussion of protected species but are not included in the companion list of protected species presented in Appendix A, Table A.1. Please reconcile this inconsistency.	89-36
3.54	Page 3-33, line 40 and Page 3-34, line 9	The majority of plant species discussed here are either not listed in Appendix A, Table A.1, or are listed under a different common name. Please reconcile this inconsistency.	89-37
3.7.1	Page 3-37, lines 1–3	Provide general location of site 38AK546/547 (as done for sites 38AK757, 38AK330, and 38AK548).	89-38
3.10.5	Page 3-56, lines 1–8	The DEIS states that a rate of 3.3 fatalities/1000 FTEs and 4.6 injuries/100 FTEs is used based on Bureau of Labor Statistics/National Safety Council data. National safety statistics are not appropriate to represent baseline risks for estimating SRS operations. There have been no fatalities for over 200,000 FTEs of operations or construction since 1989. The lost workday injury rate for SRS operations during the past 6 years (1997–2002) has averaged 0.38 cases per 200,000 hours (100 FTEs), less than 10% of the value cited in the DEIS.	89-39
3.11.4	Page 3-58, line 38	Text states housing units are expected to reach 35,400 in 2001. However, this is not consistent with Table 3.16 on page 3-60, which states this estimate is for 2002.	89-40
3.11.4	Page 3-59, lines 33 and 35	These two sentences refer to housing units in the "county" when it should be housing units in the "ROI."	89-42
3.11.4	Page 3-60	The 2002 column of the table does not have a source footnoted (as do the 1990 and 2000 columns).	89-43
3.11.6	Page 3-61, line 18	State Route 781 is not shown in either Figure 3.1 or 3.8, as indicated in the text. Also, the text refers to State Routes (SRs), while the Figure 3.8 refers to "SC."	89-44
4.3.1.1.1	Page 4-8, line 37	The number of facility workers at MOX FFF should be stated as done for the PDCF and WSB.	89-45
4.3.1.2.2	Page 4-13, line 15	Mixing and blanketing are not the same. A blanket of nitrogen above the hydrazine does not mix with the liquid hydrazine that is forwarded to the process.	89-46
4.3.1.2.2	Page 4-13, line 24	The reference should be to plutonium oxide, not just plutonium	89-46
4.3.4.2	Page 4-29, line 2	The text states: *"....produce a solid TRU waste matrix similar to that accepted for disposal at WIPP."* The waste will need to be acceptable for disposal at WIPP, i.e., meet WIPP waste acceptance criteria, not be similar to that accepted. The EIS should state that the waste will be acceptable for disposal at WIPP.	89-47
4.3.5.2	Page 4-38, Table 4.13	It appears that the heading for the sixth column should be "Number of LCFs," not "Chance of LCF."	89-48

DEIS Section	Page/Line	Comment	
4.3.5.3	Page 4-45, Table 4.16, line 8	Hydrazine hydrate –This material has been identified as hydrazine monohydrate (Chemical Consequences for Potential Chemical Hazard Events DCS01-KKJ-DS-CAL-H-35604-B, Table 6-8), for which TEELs-1, -2, and -3 are 0.0075, 0.06, and 50 mg/m^3, respectively.	89-49
4.3.5.3	Page 4-45, Table 4.16, line 29	It is not appropriate to assume in the DEIS that 240 gal of chlorine would be stored at the PDCF since the SPD EIS indicates that the quantities of hazardous chemicals are generally small, and does not indicate that chlorine is an exception to that statement. The SPD EIS, Table E-7 indicates that chlorine will be used in the pit conversion facility, and the discussion of the accident analysis on Page K-7 indicates that "On an industrial scale, the quantities of hazardous chemicals are generally small – No substantial hazardous chemical releases are expected."	89-50
4.4.1.2.1	Page 4-63, lines 31+	The values in the paragraph don't agree with the values presented in Table 4.20. Please reconcile the inconsistency.	89-51
4.4.1.3	Page 4-66, line 12	Suggest that the phrase "from the PDCF" be added after "recovered HEU" (so as not to confuse it with waste U from the MFFF).	89-52
4.5.1.1	Page 4-79, lines 13–14	The table provides no way to judge the significance of these numbers – the portion of the total cumulative impact attributable to the MOX action isn't really pertinent to judging whether the totals are significant – it would be helpful to reader to include capacities of treatment facilities.	89-53
4.5.1.2	Page 4-82, line 13	It does not seem reasonable to assume such high LCFs from 'general transportation' when the historical results are so low. The DEIS references the Yucca Mountain EIS for these numbers, but we have been unable to find them in the referenced EIS. Please verify the numbers used.	89-54
4.5.2	Page 4-82, line 16	Presuming the MOX shipments in line 16 of Table 4.27 are supposed to be the same as the totals presented in Table 4.20, the numbers for the population dose do not agree. If the information is supposed to be the same, it is suggested that the category be relabeled to more accurately reflect the nature of the information (e.g., All shipments for the MOX program).	89-55
4.6.1	Page 4-82, line 32	The sentence states that the benefits to national security are substantial but not quantifiable. The costs associated with continued storage of this material are quantifiable; avoiding these costs should be mentioned as a benefit here. Also, see comment Page 4-83, line 23 for adding these avoided costs to Section 4.6.2.	89-56
4.6.2	Page 4-83	Section 4.6.3.2 discusses regional benefits in terms of money entering the local economy for labor associated with the construction and operation of the proposed facilities, and the multiplier effect this money has on the regional economy. The same is true for the national economy but no mention is made of these effects in this section.	89-57
4.6.2	Page 4-83	The discount rate used to normalize the costs to 2001 dollars should be specified in the DEIS.	89-58

DEIS Section	Page/Line	Comment	
4.6.2	Page 4-83, line 23	The statement is made that the costs and benefits of continued storage of plutonium are discussed in the SPD EIS. Monetary costs were not included in the SPD EIS. However, according to the MOX ER, NNSA 2002 estimated the costs associated with continued storage to be approximately $246 million/year for as long as the material continued to be stored. One of the national benefits associated with this program should be these avoided safeguard and storage costs. If the no action alternative were to store the plutonium for 50 years, the estimated storage costs would exceed $12 billion while the cost of disposition is estimated to be $3.85 billion as discussed in this section.	89-59
4.6.3.2	Page 4-87, line 36	It is not clear from the reference where in the SPD EIS the data that is being referred to came from. For the MOX facility, employment estimates would most likely have come from the MOX ER since this included more recent information.	89-60
4.7.1	Pages 4-89–4-94	This section reads as a summary of potential unavoidable impacts, many of which are then dismissed if mitigation or good engineering practices implemented. Recommend that discussion be limited to only those areas where unavoidable adverse impacts are certain to occur.	89-61
4.7.1	Page 4-94, lines 10 and 11	Statement regarding proportionate increase in amount of TRU waste (9%) is inconsistent with Section 4.5.1.2 (24%) – see previous comment on page 4-76, line 23.	89-62
5.2	Pages 5-2–5-6, Table 5.1	The table identifies the proponent of each mitigation measure but does not specify who is responsible for taking action or assuring that action is taken. Clarifying language should precede the table, or additional columns should be added to the table, to indicate which entity is responsible for 1) implementation and 2) verification of completion, of the mitigation.	89-63
5.2	Page 5-4, lines 21-22	Not consistent with Section 5.2.7. Table 5-1 says that no mitigation measures are required but Section 5.2.7 describes mitigation measures for each waste type.	89-64
5.2.2	Page 5-8, lines 7–9	Suggest rewording as follows for clarity: "Direct impacts to groundwater could occur if there were a failure in the underground pipeline carrying the liquid high-alpha activity waste stream from the proposed MOX facility's …"	89-65
5.2.7	Pages 5-10, 5-11	Text states: *"Impacts of hazardous wastes would be mitigated by managing them in accordance with the hazardous waste management practices in place at the SRS."* This is not the proper use of the term "mitigated." Doing what is required by law or common practice is not mitigation. Mitigation occurs when, if there are significant impacts, an action is taken to lower those impacts to a more acceptable level. By this definition, (as described in Table 5-1) no mitigation measures are required for waste management.	89-66

DEIS Section	Page/Line	Comment	
5.2	Page 5-5, lines 6–10 (bullet 2)	It is not clear that this measure is within the jurisdiction of the NRC.	89-67
Appendix D.3	Page D-7, line 26	A reference should be provided for U.S. Census Bureau data used in calculations in Appendix D, as well as for the sources provided in the appendix tables.	89-68
Appendix F	Page F-11, line 10	Typo? Should "1900" be "1990?"	89-69
Appendix H.7.1	Page H-15, lines 7 and 8	The text states that four additional local public service employees would be required, while Table H.1 (p H-14) shows five additional employees. Please reconcile this inconsistency.	89-70

00090

From: Rachel Western [rachelw@foe.co.uk]
Sent: Wednesday, May 14, 2003 10:59 AM
To: teh@nrc.gov
Subject: MOX

Dear Mr Harris,

I would like to object to the MOX proposal and provide some brief comments for the MOX Construction Draft EIS. 90-1

Plutonium should be treated to minimise the risk that it presents and seen in this light the MOX option is counter-productive.

Nuclear reactors present an intrinsic risk of accident and the use of plutonium in the fuel only serves to increase this risk. 90-2

In addition the processing of plutonium through the manufacture of MOX fuel is very messy and creates plutonium contaminated wastes that are problematic to handle, as well as causing radiation risks. 90-3

Yours sincerely,

Dr Rachel Western BA(Oxon) PhD
Nuclear Researcher
Friends of the Earth England, Wales and Northern Ireland
26-28 Underwood St
London
N1 7JQ

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May 14, 2003

00091

Chief, Rules Review and Directives Branch
U.S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, DC 20555-0001

Comments on Environmental Impact Statement for MOX Facility at SRS

Dear Sir:

The limited alternatives presented and evaluated in the Draft EIS result in misleading conclusions, and are structured in an artificially truncated way. As set forth in the DEIS, the only two alternatives are the MOX processing 'project' and the no-project alternative, in which enormous amount of water would be required to store plutonium at the SRS site. By failing to include a third alternative, namely stabilization of plutonium in a ceramic medium, known as "immobilization," the approach reduces the assessment to an undesirable choice between two fundamentally flawed options. Structuring the assessment in this way is little more than a veiled leap from preconceived notions to foregone conclusions. The lengthy technical analysis of MOX in the DEIS clouds the essence of more elementary questions, which are both unasked and unanswered, or if addressed, done so in an incomplete way. 91-1

- According to the DEIS, MOX processing would use far less water in the process itself. But by producing radioactive fuel for continued production of electricity at nuclear power plants, the project would extend use of water-intensive and toxic technology that imposes major long-term social, environmental, and economic costs. 91-2
- Furthermore, nuclear power plants consume huge volumes of water in cooling processes. Nearby Plant Hatch on the Altamaha River withdraws 57 million gallons a day and returns only 24 million gallons a day. The difference, 33 million gallons daily, is not returned to the river, presumably due to losses to steam. With ever-rising demands for water supply in this rapidly growing state, particularly during extended drought, such water-intensive practices are increasingly unjustifiable, imposing avoidable burdens on many other sectors. 91-3
- Fresh water flow in Georgia's five coastal rivers is essential to highly productive inter-tidal estuaries. Though Georgia's Atlantic coastline is relatively small (~ 100 miles), one-third of the remaining tidal marshes on the nation's eastern seaboard are within this state. Relative to our shoreline, Georgia has six times the area of tidal marsh compared the average ratio in the Atlantic states. These marshes are vital habitat for a diverse variety of species that compose the food web for marine ecosystems, so much so that the National Marine Fisheries Service designated Georgia's estuaries as Essential Fish Habitat under federal law. Biologists estimate that at least 75% of marine species depend on this ecosystem. Processing nuclear fuels seriously threatens these vital resources, yet assessments such as this DEIS undervalue these risks and their potential irreversibility. 91-4
- Further loss of fresh water, or contamination of it, could have devastating adverse impacts on remaining ecosystem functions in the lower reaches of Georgia's five coastal rivers and the vast estuaries and nature-based economy they support. The latter includes some 40,000 jobs in coastal Georgia alone, about one out of five jobs here, generating more than $1 billion a year in revenue annually. Risks such as those linked to nuclear fuel processing, storage, handlings, transport, use, and conversion to electricity, each of which pose serious threats to these resources and the businesses they support. 91-5
- Further, nuclear fuel itself presents an elevated risk due to terrorism, as well as the 'conventional' risks of transport, handling, and storage, each of which introduce unjustifiable threats to largely unwitting third parties (namely, the public). While the DEIS acknowledges the potential for risk, the basis for concluding that this risk is acceptable is derived from highly subjective assessment of the probability of accidental or subversive (terrorist) events that could cause major threats to public health and the natural environment, both short-term and long-term. Even if it is assumed that assessment of accident probability is reasonably accurate, recent simulations of terrorist attacks strongly suggest that conventional methods for defending nuclear facilities are inadequate, and therefore it is reasonable to conclude that risk assessment strategies are woefully insufficient as a basis for making decisions such as those inherent to the proposed MOX facility. 91-6

For the above reasons, the Center for a Sustainable Coast opposes the proposed MOX facility at SRS, in large part because we believe that the DEIS is flawed in both its assumptions and in various critical aspects of analysis. Unless assessment of plutonium immobilization is considered as a legitimate alternative to the project, we feel strongly that the whole approach is fundamentally flawed and fiscally irresponsible. With this finding, we conclude that the MOX facility assessment to date in the DEIS is unacceptable, and certainly insufficient to support a decision having such enormous federal financing burdens and long-term implications for the public welfare. 91-7

Sincerely,

David Kyler, Executive Director

Cc:
Senator Saxby Chambliss
Senator Zell Miller
Congressmen Jack Kingston
Congressman Max Burns
Congressman Nathan Deal
Congressman Charlie Norwood
Congressman John Lewis
Congressman James Clyburn
Congressman Sanford Bishop, Jr.
Governor Sonny Perdue
Governor Mark Sanford

CENTER FOR A SUSTAINABLE COAST
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From: Glenn Carroll [atom.girl@mindspring.com]
Sent: Wednesday, May 14, 2003 3:09 PM
To: Tim Harris
Subject: GANE Comments on Draft MOX EIS

Hi Tim,

I'm faxing you GANE's comments on the MOX EIS and embedding the text below.

Glenn

*
--
Glenn Carroll
Coordinator
GANE - Georgians Against Nuclear Energy
P.O. Box 8574
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May 14, 2003

Michael T. Lesar, Chief
Rules and Directives Branch
Division of Administrative Services
Office of Administration
Mail Stop T-6D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr. Lesar,

GANE's comments on the Nuclear Regulatory Commission Draft Environmental Impact Statement (DEIS) for MOX follow:

1. The most profound flaw of the NRC's DEIS process is that it splits the MOX application into two parts ‹ construction and operation ‹ but the operations data is not subject to review. Environmental aspects of both must be considered. Most alarmingly, the NRC plans to sign off on its environmental review before operational plans are developed to safeguard 34 tons of plutonium during MOX processing. To separate construction and operation, and to not review critical design aspects of the basic program premise to contain the highly dangerous plutonium, is irresponsible and blatantly wrong. 92-1

2. The DEIS fails to address the reasonable alternative to MOX ‹ plutonium immobilization. Immobilization would effectively achieve the MOX program's stated goal to safeguard weapons-grade plutonium. Continued storage, which the NRC analyzed instead of immobilization, is, conversely, an acknowledged security risk. The immobilization alternative compares favorably with MOX in other ways: large number of jobs provided; effective management for existing waste stocks at SRS; negligible waste stream as compared to MOX; cheaper than MOX. The public demands to see the in-depth comparison between MOX and immobilization which is required to satisfy the National Environmental Policy Act (NEPA). 92-2

3. The DEIS fails to analyze weaknesses in Catawba and McGuire's ice condenser-type reactors, currently proposed to use the MOX fuel. The ice condenser design has a thin containment which is more likely to rupture in the case of a severe accident. Additionally, severe accidents are more likely with MOX fuel use. The DEIS must address these reactor-related MOX risks in its analysis. 92-3

4. The DEIS fails to acknowledge the possibility of insufficient reactors in the MOX program to keep pace with the proposed MOX production rate. Two or three additional reactors would be required to process the proposed volume of MOX fuel. The DEIS must state the environmental risks from failure to process plutonium to MOX, or conversely, excessive inventory of fresh MOX fuel containing weapons-grade plutonium, an extra security risk. 92-4

5. The DEIS analysis of the large volume of liquid radioactive wastes to be generated in the MOX program is incomplete. The NRC's estimates are baseless and therefore not verifiable. The public must be shown how the NRC arrives at its waste estimates. 92-5

6. The DEIS assumes a 10-year MOX program but DCS plans to apply for a 20-year license. The DEIS must analyze MOX production over 20-year duration 92-6

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May 13, 2003

Michael T. Lesar, Chief Rules and Directives Branch
Division of Administrative Services
Office of Administration
Mail Stop T-6D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555

**Comments of Nuclear Information and Resource Service (NIRS)
on the Nuclear Regulatory Commission (NRC)
Draft Environmental Impact Statement (DEIS) for the
MOX Construction Authorization Request**

Comments are not in order of importance.

A. NIRS agrees with Georgians Against Nuclear Energy on the wrong-headed and contradictory process that NRC has offered DCS and DOE in the two-part license, but one-part NEPA (National Environmental Policy Act) process. We submit their text verbatim:

> 1. The most profound flaw of the NRC's DEIS process is that it splits the MOX application into two parts ‹ construction and operation ‹ but the operations data is not subject to review. Environmental aspects of both must be considered. Most alarmingly, the NRC plans to sign off on its environmental review before operational plans are developed to safeguard 34 tons of plutonium during MOX processing. To separate construction and operation, and to not review critical design aspects of the basic program premise to contain the highly dangerous plutonium, is irresponsible and blatantly wrong (and is being legally challenged by GANE).

93-1

We add to this the point of view that the DEIS assumes throughout the analysis that the new MOX factory will not be subject to any of the problems seen at other plutonium handling facilities in the United States, with no apparent justification for this assumption.

93-2

At Rocky Flats where this same plutonium was handled to make the plutonium pits that will be disassembled and converted to MOX at SRS there was significant problems with materials accounting. Indeed, plutonium scrap was so concentrated in some parts of the facility (via airborne an other vectors) that spontaneous plutonium combustion occurred. Since NRC gives no basis for their assumption that this sort of event will not happen at the new MOX Fuel Factory (MFF) we find it impossible to accept the idea that the current document can encompass all the environmental impacts of the MOX factory.

93-2 Cont.

B. We further reflect in reading this document that it will provide a substrate for any future MOX fuel factory that NRC might license. As such, it is important to note that the plutonium under consideration is from dismantled warheads that were once from reprocessed irradiated fuel. The current proposal is not representative of any other MOX fuel factory that might be licensed in the future under Part 70 where waste reprocessing would be an integral part of the proposal and need to be considered. In this case, the Pit Disassembly and Conversion radiation doses and other impacts must be considered a part of the current process.

93-3

C. NIRS also finds that the entire NEPA and plutonium disposition process are flawed by the specious claim that MOX is the only alternative that would meet the specious Russian demand that the plutonium be isotopically degraded. This claim must be seen as specious since the agreements signed in the 1990's allow for immobilization of plutonium as an acceptable mode of disposition without qualification. Secondly, any isotopic degradation is will only persist for a relatively short time in the long time that plutonium will have to be safeguarded. The fact is that as time goes on a higher and higher percentage of plutonium will meet the definition of "weapon grade" which is: less than 7 % plutonium 240 with its 14.4 year half life. In little more than 140 years of any isotopic "degradation" the stuff will be weapons grade again!

93-4

The proposal to reduce nuclear dangers by doubling the humanicidal properties of a nuclear reactor completely abrogates the legal responsibility of the NRC to protect public health, safety and the environment. The fact that NRC finds the risks associated with plutonium transport, processing, fuel fabrication and fuel use to be "acceptable" suggests that once again NRC is dismissing real danger in favor of reliance on computer simulation. In an era when we are told by major media sources that US reactor diagrams were found in alleged terrorist caves in Afghanistan leads this organization to ask NRC which bed it is hiding under.

93-5

NIRS humbly suggests to NRC that should reply to DCS and DOE that the Precautionary Principle dictates that no further nuclear activities should be undertaken at the Savannah River site due to the fact that it already meets or exceeds safety limits on a number of important parameters, and all federal activity should be devoted to clean-up, restoration, mitigation, free health and preventative care.

93-6

D. MIX not MOX -- NRC could further point out to DOE that it could facilitate the isotopic degradation with no reactor use and also reduce a proliferation threat by acquiring reactor grade plutonium from other countries and mix US and Russian surplus plutonium with these stocks. At that point it would be possible to immobilize or make off-spec MOX with this plutonium. Irradiated fuel could be used as the radiation barrier for this waste form.

93-7

E. NRC's DEIS does not problem solve. Instead it invokes a mandate from the State Department about what is diplomatic with the Russians. This means that environmental protection in the United States is being dictated by Moscow. This is not acceptable. If the plutonium disposition

93-8

process had been conducted "above boards" and in an open manner, instead of in secret meetings of US and Russian technocrats at Harvard hosted by John Holdren, there might have been some hope of a real solution. These secret meetings may have prevented the matter from being elevated to the level of concern it deserved within both the Clinton and Putin Administrations. Had this plutonium received the attention it deserved, it might have served as a real initiation into substantial nuclear disarmament. Instead this process has been used by the same career technocrats in the US as a cover for their real objective: a return to nuclear weapons production. 93-8 Cont.

On what basis does NRC assume that there WILL be ANY surplus plutonium?

If MOX is, instead the waste management method for new nuclear weapons production should not the NEPA process include both these actions? 93-9

If production of new, usable nuclear weapons is the real outcome of the plutonium processing at the PCDF and the waste solidification building also serves this process, is it not necessary under NEPA to consider the environmental impacts of USING the usable nuclear weapons?

F. At this point in time it is somewhat likely that the current DEIS may be the only EIS for MOX use in reactors, unless the NRC is forced to do an environmental impact statement for the use of MOX in Duke reactors by intervenors. As such, the reference reactor approach is completely unacceptable. For one thing, the Duke reactors were already under a signed DOE / DCS contract at the time that the CAR was submitted to NRC. There is no basis for not considering the specifics of the Duke reactors, including the unique features and lack of features in the Ice Condenser design.

Further, it is vital that the intersection of reactor aging and MOX use be fully analyzed, including the environmental impacts of large component replacement post MOX use.

Thermal impacts of MOX must also be assessed, and should be done so in the context of the Duke reactors specifically since persistent drought has already jeopardized the capacity of Lake Wylie to cool Catawba 1 & 2. MOX fuel may boost the thermal requirements of the reactor and thermal discharges to Lake Wylie high enough to puncture this envelope, causing Catawba to be taken off-line until Catawba River water levels rise and Lake Wylie water temperatures fall. 93-10

NIRS protests the fact that NRC has decided to exclude nuclear security issues from the NEPA process for the MFF and other nuclear licensing decisions. From our perspective, this is evidence that the NRC assumes that the decision to license is "yes" unless someone can stop them, and then systematically colludes with industry to remove all handles that might constitute a means to stop them. In other words there is no external decision-making. The United States is a Nuclear State and there is no recourse except in the courts, where NRC is unfairly given the advantage of large staffs, large federal budgets and the high ground of being the "accredited technical expert."

These are only some of NIRS concerns about the environmental impacts of nuclear reactor use of MOX fuel. We offer them as examples of the types of issues that cannot be addressed in a generic analysis, but which must be addressed. We sincerely hope that NRC will do a full environmental impact statement on the use of MOX in Catawba 1 & 2 and McGuire 1 & 2 and any other nuclear power stations that apply to use this fuel elsewhere or in the future. 93-10 Cont.

G. It is not acceptable to sign off on the environmental impacts of construction of the MFF without a more detailed explication of the impact of bull dozer activity on this contaminated site. The movement of soil that is contaminated will have an impact not only on workers, but also those off site as particulate in lofted into the atmosphere. NRC states on page 4-8 of the DEIS that any doses to workers from such contamination would be assessed. By whom? Why no assessment of off-site folks? 93-11

NRC also states that water would be used to limit the amount of fugitive dust (page 4-18). This water will however interact with any radionuclides or other contamination in the soil and contribute to the already acknowledged plume of contamination under the site (page 4-7). No characterization of this plume is provided. How will it be possible to determine in the future whether or not the MFF has contributed to this problem unless the current analysis includes a detailed characterization of what is currently in the soil, in the vadose zone, in the ground water, in the plume, and the direction and speed of this plume's movement. 93-12

Further, since the movement of contaminated particulate off-site and movement of contamination from soil into ground water are both cumulative, and construction of all three facilities will result in one or both of these events, it is not correct to assume that MFF and WSB construction are "bounding." It is necessary to assess the impacts of all three and look at them cumulatively, even though the PCDF construction may lag behind the other two. 93-13

H. NRC fails to consider radiological impacts on children, elders, women and anyone else who is not the "Standard Man." This is inexcusable in the 21st century. What percentage of NRC employees have had difficulty conceiving a child? How many NRC parents have children with cancer? The general public is having an epidemic. Shame on NRC for not considering these factors when moving to approve a facility that is inherently a hazard to public health and safety. 93-14

I. It is not clear which entity is responsible for plutonium security. 93-15

J. NIRS agrees with GANE's analysis of NRC's nonsensically disappearing waste inventory:

> 5. (GANE) The DEIS analysis of the large volume of liquid radioactive wastes to be generated in the MOX program is incomplete. The NRC's estimates are baseless and therefore not verifiable. The public must be shown how the NRC arrives at its waste estimates.

Further, the assumption that simply transferring this waste to SRS and the Department of Energy is an end-point when it comes to environmental impact is specious. For instance, stating that the MFF associated "low-level" wastes is some percentage of the SRS "low-level" waste implies to the unschooled reader that in fact MFF is cleaning up SRS. ANY incremental addition to the radioactive burden on the banks of the Savannah River is an unacceptable impact for the future generations that will, hopefully persist during the interminable period of hazard that plutonium 93-16

poses. The claim that this program will reduce nuclear dangers does not apply to the workers and the people of the area surrounding Savannah River Site.

93-16 Cont.

K. Environmental Justice and Mitigation. The very fact that NRC has found that there will be a disproportionate impact from an accident – and we believe from routine operations at Savannah River Site as well -- on low income and minority populations is a reason to deny DCS and DOE the privilege of poisoning or irradiating one more person of any color or any income!

The very fact that mitigation is being offered is admission that there is an adverse environmental impact. We do not care how many people NRC projects will suffer from an accident since we question NRC's basis for calculating radiological impact. The fact that one individual is projected to die and that mitigation is being suggested is the reason to deny this license.

In terms of mitigation, NRC falls short of anything that could possibly off-set the destructive impact of plutonium jobs and potential accidents on the present and future of these communities.

This writer finds it somewhat puzzling that page 7-18 gives as part of the glossary the following definition:

> **mitigation:** a series of actions implemented to ensure that projected impacts will result in no net loss of habitat value or wildlife populations. The purpose of mitigative actions is to avoid, minimize, rectify or otherwise compensate for any adverse environmental impact.

If we construe the words "habitat value" to mean the homes and public areas of the communities that would be most impacted by operations and accidents at the MFF, then clearly we can see that the best mitigation is to avoid the hazard and the risk. Deny the license.

93-17

It is not possible to rectify or compensate for loss of functioning health, loss of life, loss of ability to procreate, loss of healthy normal children. The only cure is prevention.

That NRC staff are advocating an information campaign is not only not enough, it is mildly offensive. We are going to let them threaten your home with the leftovers of weapons of mass destruction, but all we are going to offer you is the information that you should use some of the money you need for your children's shoes and education or your own prescriptions for duct tape! This is not acceptable. Nor is it plausible. This program is projected to last 1 – 2 decades. Will the information officers go out and re-instruct people periodically. Remind them that they are in the path of such danger, paid for by their own hard earned tax dollars? We think not. What about the environmental impact of cutting down all those trees for that one-time "mitigation" with its glossy pictures? THIS is supposed to "rectify" the deaths that would come from a plutonium accident? Not good enough!

We in no way suggest that the following are mitigations – but any dangerous operation should at the very least provide clean water for everyone in the area – there is currently tritium in the rain that falls within 25 miles of SRS, and there will be more due to the new programs that have been sited there, in part due to the MOX program.

The folks who are being disproportionately placed at risk and who are already daily subjected to hazard from living near SRS should have free health care, including education about ways to reduce the inventory of radioactivity and other "badies" that their bodies are exposed to thanks to living near SRS.

There should be sirens that sound when any event occurs at SRS that warrants either sheltering or evacuation and the sound of the siren should signal which action is recommended.

There should be funding for summer programs for children to leave the area for months when they are out of school and this should favor low income and minority individuals. They should be sent to places, such as there are, where the food and water are less likely to contain radioactivity.

93-17 Cont.

All of these things should be done now. None of them justify further nuclear production at Savannah River Site.

This writer challenges NRC to at the very least define the term "mitigation" in terms of the human populations they claim to be considering. If, however this is all the agency sees fit to do in the face of admitting that the MFF has the potential to sever families and lives in irreparable and immitigable ways, this will be one more example for the public of just how devalued our safety and health are when compared to the billions of dollars that Duke, COGEMA, Stone and DOE will see, not to mention the money NRC will get to "regulate" this killer. Prevention is the only cure. Now is the time to end this proposal and save the tax dollars so they can still be used to address the plutonium problem in a safer way.

L. NIRS affirms the following points made by GANE:

> 6. The DEIS assumes a 10-year MOX program but DCS plans to apply for a 20-year license. The DEIS must analyze MOX production over 20-year duration.

93-18

> 7. Sabotage and terrorism have become increasingly common in recent years. The DEIS must analyze environmental risks from sabotage, malevolent acts, or terrorist attacks to: the MOX facility; reactors using MOX; transports of fresh fuel to reactors; or transports of plutonium to SRS. MOX, by involving weapons-grade plutonium, is an intrinsic security risk, and must be considered to have a strong attraction to terrorists. Absence of analysis of this environmental risk hampers efforts of public health authorities to respond to emergencies posed by potential security breaches.

93-19

Respectfully Submitted (via e-mail 05-14-03, hard copy in the mail)

----signed-----

Mary Fox Olson
Director, Southeast Office

NUCLEAR ENERGY INSTITUTE

Ralph L. Andersen
CHIEF HEALTH PHYSICIST
PLANT SUPPORT
NUCLEAR GENERATION DIVISION

May 14, 2003

Mr. Michael T. Lesar, Chief
Rules & Directives Branch
Division of Administrative Services
Office of Administration, Mail Stop T-6D59
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: U.S. NRC Request for Public Comments on the *Draft Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina* (68 Fed. Reg. 9728, February 28, 2003)

Dear Mr. Lesar:

This letter provides comments of the Nuclear Energy Institute (NEI) on the subject Draft Environmental Impact Statement (DEIS). These comments are focused on the DEIS analysis of radiological consequences for postulated accidents and its application in regard to the Nuclear Regulatory Commission (NRC) policy on environmental justice.

The DEIS does not provide an assessment of reasonably foreseeable impacts as required by the National Environmental policy act. The DEIS only provides a bounding analysis of accident consequences and associated potential impacts. NRC implies that the analysis represents a "worst-case" assessment, which is contrary to NEPA requirements.

The bounding analysis provided in the DEIS is unnecessarily conservative, employs unreasonable assumptions, and applies inconsistent and inappropriate methodology.

94-1

1. The analysis utilizes the GENII computer code, rather than the MACCS2 code that was used in the applicant's environmental statement (ES) and is consistently utilized by the NRC in other accident consequence analyses. The NRC does not offer a rationale for the selection and use of this atypical model in this application. This is of particular concern because the GENII model has been found to be not appropriate for application to accident analysis, specifically in regard to the types of accidents, releases, and population dose assessments considered in the DEIS.[1]

2. The DEIS accident consequence analysis consistently employs the most conservative assumptions, in some cases to the extent that the assumptions are not reasonable. For example, the assumption is made that following a postulated accident and radiological release, no protective actions would be taken by authorities over the next year to quarantine contaminated food supplies.

3. In calculating latent cancer fatalities that hypothetically might occur as a result of the analyzed accident consequences, the DEIS multiplies the collective radiation doses (determined using ICRP 26/30 dose methodology) by the Federal Guidance Report (FGR) 13 health risk conversion factor (roughly determined using ICRP 60 dose methodology). The two dose methodologies are not compatible. Further, the NRC provides no rationale for the *ad hoc* use of the FGR 13 health risk conversion factor that is not consistent with the scientific basis underlying current NRC guidance and regulation.

94-1 cont.

Finally, the DEIS inappropriately applies these results under the rubric of environmental justice. As NEI brought to the Commission's attention in a letter dated December 20, 2002, the NRC's evaluation of environmental impacts in licensing actions are not consistent with the terms of Executive Order 12898. By letter dated February 10, 2003, the Commission advised NEI that it intended to reconsider its policy concerning the application of Executive Order 12898.

94-2

In summary, we are concerned that the DEIS approach to assessing environmental impacts sets an undesirable and inappropriate precedent that does not conform to NEPA requirements or NRC policy.

[1] See, for example, the Review of the ORIA's Use and Adaptation of the GENII Version 2 Environmental Radiation System by the EPA Science Advisory Board, EPA-SAB-RAC-ADV-01-002, dated June 26, 2001.

We would like to discuss our comments and generic concerns with NRC staff responsible for conducting environmental impact assessments. In that regard, please contact me at (202) 739-8111.

Sincerely,

Ralph L. Andersen

From: Tom Mott [wspartners@earthlink.net]
Sent: Wednesday, May 14, 2003 7:51 PM
To: teh@nrc.gov
Subject: Comments about the MOX proposal at Savannah River Site

(Note: I would appreciate it if this note could be forwarded by the NRC to the appropriate official(s) in the Department of Energy, inasmuch as some of the issues are more logically in their sphere)

Today is the due date for registering concerns with the NRC over the controversial, dangerous plutonium bomb fuel (MOX) experiment that is slated for our upstream neighbor, the Dept. of Energy's Savannah River Site nuclear facility.

I have attended meetings in Savannah where NRC's role was discussed, and their impact statement drafts reviewed. Throughout, I have had these reactions: (1) The NRC representatives seemed eager to get community input and were sincere in their attempts to deal with questions and concerns; (2) The meetings were sparsely attended and not particularly well covered in the local media; (3) A good many of the issues raised by citizens were essentially outside the purview of the NRC --- these related to the wisdom of the selection of Savannah River Site (which comes with a legacy of nightmarish environmental and public safety problems), and the even larger issue of why this is a good public policy proposal at all, no matter where it is done.

I will defer to others having stronger technical backgrounds to challenge the environment impact work done by the NRC. Frankly, as well intentioned as the review meetings were, a great deal of the content in the report proper is hard for a layman to form impressions about. But people whose judgement and expertise I trust are not satisfied the research is adequate
--- and there seems enough uncertainty (and changed direction) about what the actual process, parameters, and scope will be, that the NRC analysis might need to be redone as future decisions unfold if the report is to be fully responsive to the proposed actions. 95-1

Frankly, I believe public hearings would have been more useful if conducted by the DOE and those private consortiums working with the DOE on the plutonium conversion proposals. In such a venue, the frustrated concerned citizens (and most were definitely that) could have presented the questions that are in their hearts and at the heart of the matter. It seemed like were debating the cart, and not being able to evaluate the horse pulling it.

Important questions the NRC is not in a position to answer include: Why is this process a good idea? --- and, what are the alternatives and why did this emerge as the preferred one? Further, are we being targeted for this development because there are some political and/or socioeconomic and demographic characteristics of our area? Why is it that one of the collaborators in this is a French campany with a very shaky record on environmental matters in Europe -- couldn't we do better that that? And, finally: why would anyone be so presumptuous and have such blinders on as to choose the Savannah River Site for this work without simultaneously addressing the question of why that particular site has been neglected in terms of cleaning up the mess we already have there? 95-2

IF it is to be that we will have a MOX plant at Savannah River Site, like it or not (and right now I have no reason to feel I should like it), then is this not the time to hold "feet to the fire" about making that facility "squeaky clean" in all respects. The NRC can say, with some justification, "that's not what we are charged to study and rule on." But that doesn't change the fact that we have a radioactive time bomb as our neighbor, and we don't see any urgency about addressing THAT very very nasty fact. 95-3

I urge the NRC to use its influence on others in policy-making roles to look carefully at what is being proposed, and redirect it in a way that addresses the legitimate concerns, and indeed fears, of those of us living downstream from the Savannah River nuclear site. Thank you.

Sincerely,

Thomas R. Mott
522 E. Bryan St.
Savannah, GA 31401-2803

To: The Nuclear Regulatory Commission
From: Citizens For Environmental Justice
Date: May 14, 2003

Re: Report No. NUREG-1767

Comments to the Nuclear Regulatory Commission on the Draft Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site South Carolina.

This letter represents a collective response by African American communities and residents living in South Carolina and Georgia to the Draft Report for Comment Environmental Impact Statement on Proposed MOX Nuclear Facility issued February 2003. The comments, concerns and recommendations were gathered at four community meetings held in Aiken and Blackville, South Carolina and Augusta and Savannah, Georgia. Citizens For Environmental Justice (CFEJ) is serving as the lead organization working with these Environmental Justice communities in providing formal public comment to the Nuclear Regulatory Commission (NRC) and Department of Energy (DOE). The enclosed letter was sent to Secretary of Energy, Mr. Spencer Abraham on April 3, 2003. We have not received a response to date.

We, the environmental justice communities do not support the construction and operation of a MOX facility at Savannah River Site (SRS). We believe this mission is highly inappropriate, particularly because of the current legacy of waste at SRS. 96-1

Comments

- While we certainly applaud the inclusion of the Environmental Justice Analysis contained in the Draft Environmental Impact Statement (DEIS), we feel it is inadequate and did not provide sufficient details and explanation. 96-2

- We are appalled at the mistakes published in the DEIS and feel it was unfair to ask communities to respond to inaccurate data. The new information regarding the number of latent cancers that could be expected has still not reached our communities and no mechanism has been provided to make comment on this new information. 96-3

- According to the Executive Order 12898 on Environmental Justice extra measures must be taken to inform Environmental Justice Communities of proposed Federal actions. Although there were public meetings held, there was no outreach made to disadvantaged or vulunerble communities. 96-4

- The mitigation measures section addressing the disproportionate impact to minority communities is totally unacceptable. The proposal measures place yet another unfair burden on communities and local government. Education will not address impacts described in the Draft Environmental Impact Statement. Local governments and citizens should not bear the responsibility of emergency preparedness and associated costs. 96-5

- The Draft EIS does not provide opportunity for stakeholders to comment on immobilization as a viable and cost effective option 96-6

- Operation of the MOX facility at SRS will in our opinion generate more and new radioactive waste – and enough waste is being handled at the site already 96-7

- The length and complexity of language and science in the DEIS precludes many residents and Environmental Justice stakeholders from reading and commenting on the document. The comment period is too short and resources must be given to communities to develop their capacity to respond to such documents 96-8

- There is a clear violation of the National Environmental Policy Act (NEPA) requirements 96-9

- Because of the Native American's position on the final repository issue, debate must continue that includes all communities, particularly those on transportation routes 96-10

Major Concerns

- Potential health impacts to the Environmental Justice community as a result of an accident 96-11

- Lack of Emergency Preparedness of local government, health, fire and police departments 96-12

- Environmental Justice communities lack of understanding of the proposed actions 96-13

- Lack of respect for Environmental Justice communities involvement and input 96-14

- Lack of Duke Cogema Stone and Webster's willingness to meet with Environmental Justice stakeholders for dialogue and collaborative problem solving 96-15

- Generation of new radioactive waste by the MOX facility and funds to address this waste management 96-16

- Computer errors miscalculating the number of deaths in low income, African American communities as a result of a severe MOX accident 96-17

- No public announcement on how communities will comment on new data that has been corrected – N. Augusta in South Carolina and Augusta in Georgia should have every opportunity to make comment because they will be highly affected by the proposed MOX activity | 96-18
- The environmental risks associated with insufficient reactors in the MOX program to keep up with the proposed MOX production rate | 96-19
- Adding to SRS materials that are attractive as targets for sabotage or attack | 96-20
- Security risk of weapons grade plutonium at SRS | 96-21
- Another plutonium mission for SRS: a new plutonium pit dissembly facility | 96-22

Recommendations

1. Place a moratorium on the proposed MOX activity until environmental justice stakeholders can be integrated into the decision making process | 96-23
2. NRC must insure that the input from environmental justice communities is heard, considered and factored in the final record of decision | 96-24
3. Resources must be provided by Duke Cogema, Stone and Webster to local communities infrastructure for emergency preparation | 96-25
4. Duke Cogema, Stone and Webster must work collaboratively with environmental justice communities in planning and implementing mitigation strategies. New mitigation measures must be developed with the involvement of communities and integrated into the EIS | 96-26
5. Immobilization must be presented to potentially impacted communities as a possible option for plutonium disposition | 96-27
6. Improved and enhanced communication with environmental communities must be instituted | 96-28
7. Documents must not be published for comment by the public with incorrect calculations – when this occurs the process for commenting must be extended | 96-29
8. Duke Cogema, Stone and Webster must be made to work with potentially impacted communities | 96-30
9. Provide a "community user friendly" document that clearly tells people what is proposed, why and potential real impacts on the environment, health, economy and ecology of the operation of the MOX facility | 96-31
10. DOE must conduct a supplemental Environmental Impact Statement (EIS) on the immobilization option | 96-32
11. A programmatic EIS must be conducted that considers and addresses all parts of the MOX program of activity which includes the current EIS on the MOX fuel facility, supplemental EIS for the license renewal for the 4 Duke nuclear power reactors, Lead Test Assembly, MOX use in reactors and new plutonium processing | 96-33
12. The disproportionate impact on minority and disadvantaged communities must be addressed and mitigated | 96-34
13. There must be no acceptance of any number of potential deaths | 96-35
14. DCS must provide an off site emergency plan for a critical accident in the MOX facility | 96-36

Supplemental Recommendations

- Encourage authors and agencies developing the EIS to refer to the NEPA for opportunities to implement comprehensive review and analysis of all new policy proposals, rule revisions, permit applications and construction projects
- Improve NRC's (and other developers of the EIS) capacity to analyze and address environmental justice issues
- Establish better environmental justice guidelines for analysis and mitigation measures (involve the community in the development process)
- Ensure that NRC and its staff understand that "meaningful involvement" of all people (including Environmental Justice advocates and communities) in government processes is at the very center of addressing many of the issues brought forth by the environmental justice community
- Address the cumulative impacts of the proposed actions. The cumulative impacts should be evaluated with respect to increasing or decreasing existing inequities

96-37

If in planning for an environment action, NRC and DOE find that such action will place an unequitable burden on groups, individuals or communities, and further find that they are unable to avoid placing such a burden, then consideration should be given to providing compensation or incentives

96-38

Environmental Justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

This proposed federal action must ensure the Environmental Justice in minority and low income communities as it relates to the MOX Fuel Fabrication Facility at SRS.

96-38 cont.

In conclusion, we the members of the environmental justice communities in the South Carolina and Georgia call for a reversal of the Department of Energy's decision to construct and operate a MOX facility at Savannah River Site. Questions from community meetings are available upon request.

96-39

Working for Environmental Justice,

Dr. Mildred McClain
Executive Director

Enclosures: Letter to DOE Secretary
Community Questions

April 3, 2003

Mr. Spencer Abraham, Secretary
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Dear Secretary Abraham:

This is a letter to formally call your attention to a grave concern of African American residents living near the Savannah River Site. On Monday, March 3, 2003 we received the Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina. In the Environmental Impact Statement (EIS) an environmental justice analysis was conducted and the results are quite disturbing. The findings report that if an accident or explosion occurred the greatest impact would be to minority communities because of their geographical proximity to the site. The EIS states under Section 4.3.7.3.3 Accidents:

"A tritium release at the proposed PDCF facility has the potential for causing up to 400 latent cancer fatalities in the area surrounding SRS. However, it is highly unlikely that such an accident would occur. There, the risk to any population, including low-income and minority communities, is considered to be low. In the unlikely event of a tritium release at the PDCF or an explosion at the proposed MOX facility, the communities most likely affected would be minority and low income, given the demographics within 80 km (50 mi) of the proposed MOX facility." (Pg. 4-57)

The Mitigation Measures Section we feel is very weak, lacks sufficient details, and puts an unfair burden on minority communities to prepare themselves for any emergency or accident. (Section 5 Pg.5-6)

This raises several major concerns because of the already existing vulnerabilities within this population. Current DOE policy and the Executive Order 12989 on Environmental Justice require that measures be put in place to address any disproportionate impact relating to communities of color.

Our major concerns fall into five categories:

1) Emergency response preparedness for communities and local officials (with community involvement)
2) Information dissemination
3) Monitoring
4) Long term strategic planning to address potential impacts in collaboration with communities
5) Role of Duke/Cogema relating to community involvement and preparedness

We are asking for your assistance in having our concerns addressed. We want our communities involved in all the contractor's activities including planning and training related to insuring the safety and protection of the health of our people.

Working for Environmental Justice,

Dr. Mildred McClain
Executive Director

24305 Clematis Drive,
Gaithersburg, MD 20882,
May 13th, 2003.

Tim Harris,
TWFN 7F-21,
U.S. Nuclear Regulatory Commission,
Washington, DC 20555-0001,
Telephone: (301) 415-6613,
E-mail: TEH@nrc.gov.

Subject: Comments on the Draft Report, Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility (MFFF) at the Savannah River Site, South Carolina, NUREG-1767, dated February 2003.

Dear Mr. Harris,

Thank-you for the opportunity to read and comment on the subject Draft Environmental Impact Statement (DEIS). I have read the DEIS and associated public documents, such as the NRC staff Draft Safety Evaluation Report (DSER - April 2002), with great interest. Personally, I am impartial towards the proposed action in the DEIS - I am neither for nor against the construction of the proposed facility (MFFF). From the information in the DEIS and DSER, I understand that the proposed MFFF is part of a national strategy and international agreements related to the disposition of excess plutonium. Thus, I conclude it is very important that this disposition is performed correctly, with appropriate NRC regulatory oversight and reasonable assurances of safety. Consequently, I have taken the time to briefly review the DEIS and provide you with feedback that I hope your agency will consider and use to improve the DEIS and safety at the proposed facility.

As noted under Item 5 below, the DEIS is one of several documents in the MOX review at the NRC, and a revised DSER is due out shortly. I recommend that the DEIS comment period is extended to allow the public to compare the DEIS and revised DSER together, and comment appropriately. 97-1

I have the following overall comments and recommendations on the DEIS:

1. **Adequate Assurances of Safety:** I am concerned about adequate safety and protection of the workers, the public, and the environment. As written, the DEIS indicates the proposed action (to build and operate the MFFF) has some impacts - it pushes the proverbial "envelope" in a number of areas - but the conclusion of acceptability is the same. This comes across as a non-sequitur. The DEIS should be extremely firm in its conclusions on the requirement of adequate safety and protection, as this is the primary mission of the Nuclear Regulatory Commission (NRC). For example, Table ES-1 of the DEIS should explicitly acknowledge which mitigation measures are required by the NRC, 97-2

with clear and objective criteria. The DEIS should explain how DCS can add revisions to the SRS Emergency Response Plan (DCS does not run the SRS) to address NRC concerns, and the process by which NRC would review and approve a plan that is essentially outside its regulatory jurisdiction (radiological safety at the SRS is regulated by the U.S. Department of Energy [DOE]). Also, per the DSER, the plant is not yet designed. However, as the DEIS is written, it is not clear if reasonable conservatism has been incorporated into the analyses due to the lack of design information or if ALARA (As Low As Reasonably Achievable) considerations are included. 97-2 cont.

2. **Inadequate Mitigation or Prevention of Impacts and Events:** The DEIS indicates there are a large number of potential hazards and potential events at the proposed facility, particularly from chemicals. However, the DEIS appears to focus on programmatic and administrative controls for many of these hazards and concerns, with mitigation by evacuation or other worker actions. Some of the potential events would seem to have the capability of producing numerous serious injuries and/or fatalities with relatively high likelihoods. This appears to be less than adequate and potentially inconsistent with NRC regulations, which, for example, endorse passive controls as preferred to active controls, and engineered controls as preferred to administrative controls. In addition, the DEIS does not appear to emphasize actual mitigation and/or prevention of the hazardous phenomena itself. Also, there is a brief discussion on sand and HEPA filters that reaches a conclusion of no difference - but the conclusion does not seem to be supported by the discussion, which implies better performance from sand filters, particularly during accidents. It is recommended that approaches more consistent with NRC and nuclear industry practices in these areas, with reasonable mitigation, prevention, and/or conservatism, are endorsed by the DEIS. 97-3 97-18

3. **Uncertainty and Sensitivity:** The analyses in the DEIS do not appear to address uncertainties - including uncertainties in design, uncertainties and inaccuracies in models, uncertainties in input parameters, and excluded or overlooked effects. In addition, the sensitivity of the results to changes in assumptions and parameters is unclear. It is recommended that uncertainty and sensitivity are addressed and included in the DEIS. 97-4

4. **NRC Risk Goals:** The NRC has risk goals and metrics regarding the safety of regulated facilities. The DEIS does not indicate if the proposed facility meets these risk goals. It is recommended that the DEIS does include such a risk comparison and indicate if they are met or indicate the requirements the NRC will impose on the proposed facility in order to meet these goals. 97-5

5. **Congruence and Compatibility of the DEIS with Other MOX Documents:** There are several other documents on the MOX program, including the MOX DSER and public meeting summaries. There appear to be some disconnects between the DEIS and the licensing documents, such as the applicant's Construction Authorization Request (CAR) and the revised CAR, and the NRC licensing documents (e.g., the DSER). I understand that a revised DSER will be issued shortly to the public by the NRC. It is important that this revised DSER, other licensing documents, and the DEIS are consistent. The public should be given the opportunity to compare the DEIS and the revised DSER together, 97-6

and comment on both. Consequently, the DEIS should be compared to the planned revised DSER and the public should be allowed a 30-day or so overlapping period for comparing the documents.

6. **Quality Assurance and Control (QA/QC):** The NRC letter of March 6, 2003 on this DEIS identified a concern with one of the computer codes used in the analyses. This concern was caught and corrected. However, it is not clear if the DEIS and supporting information have been adequately reviewed for other potential errors. Also, it is not clear if the assumptions and bases used for the calculations and conclusions, such as material at risk, release fractions, applicable computer codes and requirements etc., have been adequately reviewed for applicability, appropriateness, and validity. Such QA/QC should be explicitly done and/or acknowledged, using NRC guidance and requirements on QA/QC (including software quality) and such industry standards as NQA-1.. 97-7

In addition, I have the following specific comments from my brief review:

7. **Use of TEELs:** Section 4.3.5.3 on page 4-42 et seq discusses the potential effects from chemical releases and accidents. The DEIS uses temporary emergency exposure limits (TEELs) which are adopted by the DOE Subcommittee on Consequence Assessment and Protective Action (SCAPA). These are not values used in NRC regulations or regulatory guidance and are explicitly identified as not to be used when values exist from regulatory agencies, such as AEGLs, IDLHs, and NIOSH/OSHA ceiling values. TEEL values also change frequently. The use of TEELs may underestimate potential concerns and required mitigative or preventative methods. It is recommended that more conservative and regulator-endorsed values are used. This may involve a methodology to select the lowest values from AEGLs, IDLHs, MAGs, and NIOSH/OSHA. 97-8

8. **Ambient Temperatures:** A temperature of 25.8 C (78.5 F) is stated as an average. This is not a reasonable average nor does it provide any margin. Temperatures in excess of this would be anticipated to occur many times each year (i.e., an anticipated, annual event). Usually the SRS area experiences at least once every year a heat wave with temperatures of around 100 F or more. There is another NRC licensed facility in the area that uses 106 F as the design basis for maximum ambient temperature (i.e., in the shade). In addition, solar heating effects on the structure (the Reagent Storage Building is a metal structure), other buildings and storage areas, and during deliveries could push local ambient temperatures in excess of 120 F. Thus, the assumed average temperature does not address anticipated conditions that occur annually nor do they provide any margin or conservatism. A higher temperature should be used for vapor pressures and release calculations. 97-9

9. **Process Temperatures:** The chemicals are used in processes within the facility. Process temperatures will likely exceed ambient temperatures considerably. For example, solvent extraction processes routinely can exceed 50 C, while evaporators can exceed 100 C. These higher temperatures should be used as appropriate for modeling the evaporation of process spills and may necessitate the use of other models (e.g., flashing and bulk convection) for estimating release rates. 97-10

10. **Uranium Dioxide:** The basis for uranium dioxide release estimates in Table 4.16 of the DEIS needs to be explained. The NRC staff's DSER of April 2002 identified this as an open issue and implied higher potential concentrations. 97-11

11. **Nitrogen Tetroxide (Nitrogen Tetraoxide):** This is a chemical that requires great care during handling and use, as found out from the space and missile programs. It boils at near ambient conditions and significantly dissociates into nitrogen dioxide at temperatures slightly above ambient, which greatly increases the effect of releases. It can also cause common mode failures. In the space/missile programs, it is usually cooled below its boiling point during storage and a large water quench is maintained ready for use - are these features planned for this facility, and, if not, is that acceptable? In addition, the tetraoxide would be pressurized with instrument air (say, 50-100 psig) in the proposed facility - has this been accounted for in the analyses? The DEIS indicates an estimated concentration of 1,600 mg/m^3 at 100 meters - this is a potentially lethal concentration and would likely result in large numbers of serious injuries and fatalities if the release occurred at the proposed facility, and could negatively impact adequate safeguarding of nuclear materials. The DEIS does not discuss adequate mitigation and/or prevention of such events. The DEIS should acknowledge and address these concerns. 97-12

12. **Consideration of Likelihoods versus Averages:** The DEIS appears to use averages. Frequencies and likelihoods do not appear to be incorporated. This DEIS pertains to a proposed facility that would be licensed under 10 CFR 70, which includes consequence and likelihood bins (e.g., see the CAR and DSER). The DEIS should explicitly consider consequences and likelihoods. 97-13

13. **Inventories and Quantities of Materials Released:** The DEIS appears to use single tank or container quantities for a large number of analyses. This does not seem reasonably prudent and conservative given that the facility is still being designed and common mode failures cannot be discounted (e.g., multiple tanks failed by the same event or leaks via common piping and valves). It is recommended that larger inventories (up to and including the site inventory, as necessary) are used for releases of chemicals from fluids. 97-14

14. **Use of Computer Codes:** It is not clear if the computer codes are endorsed by NRC regulations and/or guidance, and if they meet NRC QA requirements, including verification and validation for the specific site and application. This should be explicitly verified, stated, and referenced. 97-15

15. **Waste Management:** The DEIS discusses waste management in a top-level manner. Most of the waste will be transported to the DOE/SRS and dispositioned using existing or planned facilities. The DEIS does not provide assurance that this can and will occur in a reasonable manner due to available and planned capacity, utilization, obligations, priorities, and acceptance criteria. It is recommended that such assurance is provided, particularly for planned facilities that do not currently exist and do not appear to have 97-16

sufficient design information, acceptance criteria, or programmatic commitment published for public review.

16. **HEPA and Sand Filters:** The DEIS briefly discusses the relative attributes of sand and HEPA filters (e.g., Section 4.3.8). This section concludes the use of sand filters would not clearly result in lower net environmental impacts as compared to the use of HEPA filters at the proposed facility. This seems counter-intuitive and may include potential reliance on administrative controls. However, the preceding text mentions periodic HEPA filter replacement and damage to the HEPA filters during potential accidents (fires and explosions) that would increase or potentially significantly increase the impacts from HEPA filter use. In contrast, sand filters would maintain their efficiency during these accident scenarios. The text further states that DCS is committed to making explosions highly unlikely and to mitigate potential effects of fires, thus allowing the HEPA filters to continue functioning. Fundamentally, is a commitment good enough or should actual controls be discussed? It is recommended that more references and supporting information are included in this section as to what the DCS measures actually are, as it is currently insufficient to support the DEIS conclusion, appears inconsistent with DOE practices and experiences at SRS (most of the SRS facilities have sand filters), and, given the DOE Rocky Flats experience, appears less than adequate. Also, the text mentions that neither HEPA nor sand filters mitigate chemicals. The text should note, however, that HEPA filters are impacted by chemical emissions and releases that lead to premature and unanticipated failures (part of the DOE Rocky Flats experience). Sand filters are essentially unaffected by chemical releases and continue to function. The DEIS should include this type of discussion and the measures that DCS is using to protect the HEPAs from chemical events. 97-17

Once again, I thank-you for the opportunity to comment on this DEIS.

Sincerely,

Alex Murray

Alexander P. Murray,
Engineer and Private Citizen.

00098

Southern Alliance for Clean Energy

Michael T. Lesar
Chief, Rules & Directives Branch
Division of Administrative Services, Office of Administration
Mail Stop T-6D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555

May 14, 2003

RE: NUREG-1767, Draft Environmental Impact Statement of the Mixed Oxide Fuel Fabrication Facility at the Savannah River Site Nuclear Facility

Mr. Lesar:

These comments are in addition to oral comments presented by Southern Alliance for Clean Energy (SACE) at the Savannah, GA public meeting on March 25, 2003. The oral comments were also submitted in hard copy form since the 5-minute speaking allotment was not sufficient to cover what we had prepared. If those comments have not been entered to the record in their entirety, we have attached them again to this document.

We are disappointed that an additional extension to the public comment period was not granted, as we had formally requested in our oral comments. SACE again requests an extension. We are also concerned that many of the important objections to the plutonium bomb fuel, or mixed-oxide fuel "MOX," program have been entirely dismissed by the U.S. Nuclear Regulatory Commission (NRC).

Plutonium Disposition Program General Concerns

Southern Alliance for Clean Energy believes that the NRC has only one option that would truly protect the public health: deny the license application request for the MOX fuel fabrication facility (or plutonium fuel factory) at the Department of Energy's Savannah River Site nuclear facility (SRS). We urge that the pursuit of developing a plutonium fuel economy be ceased in all sectors of government and private enterprise, as it will allow plutonium, a dangerous material, to enter civilian commerce and the international marketplace. 98-1

We thoroughly disagree with the NRC staff's preliminary decision in this report that the "overall benefits of the proposed MOX facility outweigh its disadvantages and costs." The NRC states on P. 2-37 four main points of consideration that brought them to this flawed decision and we will again touch upon several of them.

Significant Changes in Plutonium Disposition Program

At the public meeting in Savannah this March, the audience was told that "the national policy decision between Russia and the US to reduce surplus weapons plutonium" was a leading reason for the NRC staff's initial support of this plutonium bomb fuel program. This was used as a reason why the immobilization alternative, which is generally preferred as a cheaper, safer option that will result in less nuclear waste and potentially less impacts to the community, was not considered as an option to study 98-2

by the NRC. Yet, in the Department of Energy's Amended Record of Decision regarding the Surplus Plutonium Disposition Program that was released on April 17, 2003 [6450-01-P], *AFTER the public meetings on the plutonium fuel factory were OVER*, they state that the cancellation of the immobilization program was due to "budget constraints" – not conflicts with Russian/US policy. 98-2 cont.

The DOE statement goes on to say that the "program will dispose of 34 metric tons (MT) of surplus plutonium, including approximately 6.5 MT of the 17 MT of surplus plutonium originally intended for immobilization." This leaves us logically wondering, what will happen to the rest of the plutonium? Apparently it is destined for SRS but for what purpose and what assurances can the NRC provide that those many extra tons of plutonium will be safely stored, given that there are currently only plans to refurbish existing, old nuclear reactors to store one of the most highly sought after materials for use in modern nuclear weapons, a material with a hazardous radioactive life of over 240,000 years? We urge the NRC to demand that the DOE do a thorough supplemental environmental impact statement of this major change in policy BEFORE the NRC issues a final EIS on the plutonium fuel factory. The 13-page amended record of decision by the DOE is insufficient and the NRC deems to be obligated to protect the public interest, not another federal agency, nor domestic and foreign contractors. 98-3

Attached is a brochure from a recent event in Savannah, where staff from SRS addressed business leaders on various future missions, including the "Modern Pit Facility," which is essentially a new nuclear bomb factory. SRS is believed to be the preferred site for this plutonium trigger plant that will cost billions of dollars. Yet budgetary constraints within DOE were cited for canceling immobilization? The draft EIS on this new bomb –making facility is scheduled to be due out within the next month. Given this pursuit of a mission in complete contrast to our nation's supposed "disposition" of surplus weapons plutonium in a supposed parallel venture with Russia to reduce our nuclear weapons stockpiles, we question why the NRC cannot state the conflict within national policy and request that the issue be resolved prior to issuing a determination on the MOX plant? Also, the "unaccounted" plutonium that is coming to SRS but will not be used for MOX could very easily become feed material for the new Modern Pit Facility. The NRC needs to take this into account. SACE also requests the NRC to delay issuing a decision until the Modern Pit Facility draft EIS is issued and commented on—there is likely to be much overlap in the programs, along with several policy conflicts. 98-4

SACE still has not received answers to our concerns raised over the DOE's February 2002 *Report to Congress: Disposition of Surplus Defense Plutonium at Savannah River Site*, that essentially recommends the need to add at least two additional, unnamed nuclear reactors for plutonium bomb fuel (MOX) use. Our nearby Southern Nuclear Plant Vogtle expressed interest in the plutonium fuel program back in 1996 and we are concerned about the implications of the need for more nuclear reactors. How will the NRC address this need for more nuclear power plants in the final EIS for the MOX fuel facility? 98-5

Water Concerns

The NRC concluded that there are minimal environmental impacts if plutonium fuel is produced at SRS. We disagree and will highlight our water concerns, which were raised in our oral comments. Water resources are limited and debates on how this precious resource should be protected is under heated debate currently in the Southeast. The link between energy and water resources is profound. At the national level, the electric industry follows closely on the heels of irrigation as the largest water user in the U.S. Yet, there is no discussion in the draft EIS on the impacts of nuclear power production, which the MOX program will support the possible advancement of, on the region's water supply. 98-6

Nor does the draft EIS clearly account for how much ground and surface waters will be used additionally by the MOX plant. Currently, SRS requires enormous amounts of surface and ground water, in the tens of billions of gallons, *just to support currently established operations*. The draft EIS was nearly impossible to decipher what the rates of consumption (actual water loss) are now on site for various operations and in the future, for the MOX plant. This accounting needs to occur before deciding that water impacts by the proposed facilities are "negligible." 98-7

Accidents

The original draft included significant errors in the calculation of latent cancer fatalities if there were an explosion at the MOX facility—estimating nearly 400 deaths; the new calculations result in less fatalities, but we still consider 100 deaths to be significant and important enough to warrant denying approval. 98-8

Summary

Southern Alliance for Clean Energy believes that the NRC must address the full impacts of the plutonium bomb fuel program—how this scheme is likely contributing to the eventual production of nuclear weapons components at SRS and the use of the site for permanent nuclear waste burial. A full accounting of what and how much plutonium is coming from where and being used for what project when it arrives should be done and made public. 98-9

We have included copies of petitions SACE recently collected and would like to at least alert people to the fact that many people do not want this project and though they may not be capable of making formal, written comments, that their opposition should be noticed and considered. Though the NRC staff said that general comments and claims of basic opposition are not helpful to them, we believe that these names are helpful to policy makers, who ultimately have the power to make a positive difference by working to protect the region, and these very citizens, from further exploitation.

We suggest that after the NRC has reviewed all of the comments on the draft and does more research, they should deny the license request or at least recommend that the "no action alternative" is more advantageous to health and safety than the MOX program. Instead, other programs that appear to be more environmentally sound, safer to workers, less expensive, and could prevent the circulation of nuclear weapons materials, such as immobilization of surplus plutonium, should be funded and supported through further research and development. Though not a perfect technology, it is far cheaper than other options and appears to have less risks overall than the currently encouraged technologies. 98-10

Sincerely,

Sara Barczak
Safe Energy Director, Southern Alliance for Clean Energy
3025 Bull Street, Suite 101
Savannah, GA 31405
(912) 201-0354

cc: U.S. NRC Commissioners, Governor Sonny Perdue, Governor Mark Sanford, U.S. Senator Zell Miller, U.S. Senator Saxby Chambliss, U.S. Rep. Max Burns, U.S. Rep. Jack Kingston, U.S. Rep. Sanford Bishop, Jr., U.S. Rep. James C. Clyburn, GA Senator Regina Thomas, GA Rep. Nan Orrock

00099

From: Bev Baker [cosmicbluedolphin@yahoo.com]
Sent: Friday, May 16, 2003 4:02 PM
To: teh@nrc.gov
Subject: Just Please Read the Most Important EMail of your Life Just SAY YES TO READING MY EMAIL

May, 2003

Dear NRC:

Just say yes to life and solar and wind energy.!!!!

Just say no to Mox and all things nuclear...In fact..I think we should also ban microwave ovens and all nuclear weapons and power plants while we are at it.... 99-1

I am the great-great granddaughter of a Cherokee Indian....She married one of the first European settlers of the North Georgia Mountains...So in respect for Native American tradition Let us Love Mother Earth and Father Sky. One of the primary ways we can Love and Respect Mother Earth and Father Sky is to develop solar wind and geothermal technologies...It can be done....Visit Hopland California at the Solar Energy Center and the geothermal energy produced naturally for the town of Pagosa Springs Colorado. Also, if some men and women have to fight, lets go back to the days of the bow and arrow and tomahawk...At least the entire sacred environment wont be wiped out when the world gets a testerone surge every now and then.....

Also, every action we take as an individual or as a government must be done so that present and future generations of people, plants, animals and also inanimate objects will have their health and environment protected. Lets look out for the Seventh Generation as Chief Seattle would want us to do...

We still have yet to do clean up of all the stuff produced during the Cold War and World War II and Vietnam.....So lets not produce any more of this toxic stuff...seems the best way to handle stuff is absolute containment (Environmentalists, Inc c/o Ruth Thomas of Columbia SC and Blue Ridge Environmental Defense League www.bredl.org have the documents about this..its so dangerous for this stuff from Rocky Flats and possible elsewhere to be travelling down our highways...the new Trail of Tears?)

I will forward these documents on containment and dangers of nuke transportation on to you as soon as I am able....I am on vacation in Southwestern United States and this is first day I have had access to computer....Spending nights in Apache National Forests in Central Arizona near Mt Baldy...

Also, what on earth do we want a French Company like Duke COGEMA and Stone Webster dealing with our most dangerous stuff? A little bit of common sense would be much appreciated. One of the largest and most beautiful aquifers in North America is located around SRS and that part of Georgia and South Carolina....So lets not produce anymore toxic stuff there...clean up in accord with recommendations from NRDC and IEER and NCI and Physicians for Social Responsibility is what is needed. That will provide plenty of jobs in a positive way. 99-2 99-3

I am trying to make this short and sweet as possible....I will send more stuff I have to you as soon as I

regroup and reorganize...I am on vacation so I dont want to think about anything nuclear....Also the uranium and coal mining is devastating the health and environment of the Navajo and Hopi Nations. So this is where the devastating cycle of nuclear industry begins in beautiful Southwest...hope to the great Dine and sacred Hopis, the People of Peace.

Solar and Wind are the Answer My Friend...Please visit Solar Energy Center in Hopland California ASAP.....

Love and Peace and Solar is Clean and Forever

Bev Baker,
Earth Hugger Extraordaire
65 Heritage Drive Condo 5
Cleveland, GA 30528
email: cosmicbluedolphin@yahoo.com

00100

From: Meira Warshauer [meira28@sc.rr.com]
Sent: Friday, May 16, 2003 7:06 PM
To: teh@nrc.gov
Subject: MOX Construction Draft EIS comments

Dear Tim,
I hope you are still accepting comments re the MOX Construction Draft EIS.

The EIS does not sufficiently address the need for absolute containment of plutonium throughout the process and how that will be achieved.

Respectfully submitted,

Meira M. Warshauer
3526 Boundbrook Lane
Columbia, SC 29206

00101

TO: Mr. Lawrence E. Kokaijko, Acting Chief May 12, 2003
Env. and Performance Assessment Branch
Division of Waste Management
Office of Nuclear Material Safety and Safeguards
Attention: Tim Harris

Gentlemen:

With 2 computer errors admitted so early in the project how can I possibly feel safe with MOX fuel energy at all? These mistakes may seem insignificant, but, what if a more serious error had occurred and lives were in jeopardy? 101-1

This entire idea of MOX fuel is too risky, and I am afraid of it. You need to figure out how to neutralize the spent substance in a safe way, and not experiment with nuclear materials.

The fact that "cumulative collective dose to workers at the SRS would increase approximately 11% as a result of MOX, PDCJ and WSB facility operations" is 101-2
significant, not to mention the groundwater contamination increase. 101-3

Sorry, but this project is entirely ludicrous. Go back to the drawing board.

Sincerely,

Judy Ponder
214 Charlie Mountain Road
Clayton GA 30525
706/782-2380

00102

U.S.NUCLEAR REGULATORY COMMISSION 5/14/03
Mr. Lawrence E. Kokaijko , Acting Chief
Mr. Tim Harris 301/415-6613

Dear Sirs:

As members of the OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS, you must be shocked at the 2 computer errors in need of correction, and how these 2 errors ripple through the many pages of the document accompanying your letter of April 8, 2003. A computer error when MOX is in full manufacture would be disastrous, deadly, and perhaps even irreversible where nuclear fission is involved. You must not approve any further progress toward the MOX fuel program until such time as the spent fuel rods can be safely neutralized.

The fact that an 11% increase in the cumulative and collective dose to workers at SRS as a result of MOX, PDCH and WSB facility operations, is alarming. 11% is huge!. You must stop thes kinds of projects now, before it's too late.

Sincerely,

Bart Patton
214 Charlie Mountain Drive
Clayton GA 30525
706/782-2380

00103

Michael T. Lesar
Chief, Rules & Directives Branch
Division of Administrative Services, Office of Administration
Mail Stop T-6D59, U.S. Nuclear Regulatory Commission
Washington, DC 20555

Re: NUREG 1767

Dear Mr. Lesar,

I am writing in response to the Nuclear Regulatory Commission's Draft Environmental Impact Statement (DEIS) on the proposed plutonium fuel factory (MOX) at the Department of Energy's Savannah River Site nuclear facility. There are several areas in which I think the DEIS is inadequate:

The DEIS only addresses the construction of the MOX facility and not the operation of the facility. Environmental aspects of both must be considered. 103-1

The DEIS must address the reasonable alternative to MOX -plutonium immobilization. Immobilization would effectively achieve the MOX program's stated goal to safeguard weapons-grad plutonium. The DEIS only provided continued storage, as an alternative to the construction of the MOX factory for disposition of the plutonium. This would be an unacceptable security risk. Like the MOX factory, immobilization would also provide a large number of jobs. Its waste stream is negligible compared to MOX, and it is cheaper than MOX. The DEIS should have addressed ALL alternatives, including immobilization. 103-2

The DEIS should produce verifiable projections of waste volumes as well as discuss the environmental risks and consequences of DOE failure to implement MOX waste management. 103-3

The issue of a possible terrorist attack on the proposed MOX factory was not at all adequately addressed. We know that since September 11, 2001, what used to be unlikely incidents are more likely than ever. The environmental and public health impacts of an attack on this facility are unacceptable to the people of the Southeast. 103-4

Please address these problems with the DEIS.

Sincerely,

(Signature) (Date) 5-13-2003

(Print Name)

(Address)

Michael T. Lesar
Chief, Rules & Directives Branch
Division of Administrative Services, Office of Administration
Mail Stop T-6D59, U.S. Nuclear Regulatory Commission
Washington, DC 20555

Re: NUREG 1767

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The DEIS only addresses the construction of the MOX facility and not the operation of the facility. Environmental aspects of both must be considered.

The DEIS must address the reasonable alternative to MOX-plutonium immobilization. Immobilization would effectively achieve the MOX program's stated goal to safeguard weapons-grad plutonium. The DEIS only provided continued storage, as an alternative to the construction of the MOX factory for disposition of the plutonium. This would be an unacceptable security risk. Like the MOX factory, immobilization would also provide a large number of jobs. Its waste stream is negligible compared to MOIX, and it is cheaper than MOX. The DEIS should have addressed ALL alternatives, including immobilization.

The DEIS should produce verifiable projections of waste volumes as well as discuss the environmental risks and consequences of DOE failure to implement MOX waste management.

The issue of a possible terrorist attack on the proposed MOX factory was not at all adequately addressed. We know that since September 11, 2001, what used to be unlikely incidents are more likely than ever. The environmental and public health impacts of an attack on this facility are unacceptable to the people of the Southeast.

Please address these problems with the DEIS.

Sincerely,

Sweet 5/13/03
(Signature) (Date)

Marguerite Sweet
(Print Name)

220 Elizabeth St NW Atlanta, GA 30307
(Address)

109 Fawn Run
Alto, GA 30510
May 8, 2003

Michael T. Lesar, Chief
Rules & Directives Branch
Div. of Administrative Services, Off. of Administration
Mail Stop T-6D59 U.S. Nuclear Regulatory Commission
Washington, DC 20555

Re: NUREG 1767

Dear Mr. Lesar:

I'm writing in response to the NRC's Draft Environmental Impact Statement on the proposed plutonium fuel factory (MOX) at the Dept. of Energy's Savannah River Site nuclear facility.

The DEIS addresses only the construction of the MOX facility and not the operation of the facility. Environmental aspects of both should be considered.

The DEIS must address the reasonable alternative to MOX-plutonium immobilization. Immobilization would effectively achieve the MOX program's stated goal to safeguard weapons-grade plutonium. The DEIS provided only continued storage as an alternative to construction of the MOX factory for disposition of the plutonium. This would be a security risk. Like the MOX factory, immobilization would also provide a large number of jobs. Its waste stream would be negligible compared to MOX, and it would be cheaper than MOX. The DEIS should consider ALL alternatives, including immobilization.

The DEIS should produce verifiable projections of waste volumes as well as discuss the environmental risks and consequences of DOE failure to implement MOX waste management.

The issue of a possible terrorist attack on the proposed MOX FACTORY was not adequately addressed. We know that, since the attack on the World Trade Center, what used to be unlikely incidents are real possibilities. The environmental and public health effects of an attack on this facility are unacceptable to the people of the Southeast.

Please address these problems with the DEIS.

Sincerely,
Emily B. Calhoun
Emily B. Calhoun

Michael T. Lesar
Chief, Rules & Directives Branch
Division of Administrative Services, Office of Administration
Mail Stop T-6D59, U.S. Nuclear Regulatory Commission
Washington, DC 20555

Re: NUREG 1767

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I am writing in response to the Nuclear Regulatory Commission's Draft Environmental Impact Statement (DEIS) on the proposed plutonium fuel factory (MOX) at the Department of Energy's Savannah River Site nuclear facility. There are several areas in which I think the DEIS is inadequate:

The DEIS only addresses the construction of the MOX facility and not the operation of the facility. Environmental aspects of both must be considered.

The DEIS must address the reasonable alternative to MOX: plutonium immobilization. Immobilization would effectively achieve the MOX program's stated goal to safeguard weapons-grad plutonium. The DEIS only provided continued storage as an alternative to the construction of the MOX factory for disposition of the plutonium. This would be an unacceptable security risk. Like the MOX factory, immobilization would also provide a large number of jobs. Its waste stream is negligible compared to MOX, and it is cheaper than MOX. The DEIS should have addressed ALL alternatives, including immobilization.

The DEIS should produce verifiable projections of waste volumes as well as discuss the environmental risks and consequences of DOE failure to implement MOX waste management.

The issue of a possible terrorist attack on the proposed MOX factory was not at all adequately addressed. We know that since September 11, 2001, what used to be unlikely incidents are more likely than ever. The environmental and public health impacts of an attack on this facility are unacceptable to the people of the Southeast.

Please address these problems with the DEIS.

Sincerely,

Elaine B. Richardson
755 Park Lane
Decatur, Ga. 30032

Michael T. Lesar
Chief, Rules & Directives Branch
Division of Administrative Services, Office of Administration
Mail Stop T-6D59, U.S. Nuclear Regulatory Commission
Washington, DC 20555

Re: NUREG 1767

Dear Mr. Lesar,

I am writing in response to the Nuclear Regulatory Commission's Draft Environmental Impact Statement (DEIS) on the proposed plutonium fuel factory (MOX) at the Department of Energy's Savannah River Site nuclear facility. There are several areas in which I think the DEIS is inadequate:

The DEIS only addresses the construction of the MOX facility and not the operation of the facility. Environmental aspects of both must be considered.

The DEIS must address the reasonable alternative to MOX: plutonium immobilization. Immobilization would effectively achieve the MOX program's stated goal to safeguard weapons-grad plutonium. The DEIS only provided continued storage, as an alternative to the construction of the MOX factory for disposition of the plutonium. This would be an unacceptable security risk. Like the MOX factory, immobilization would also provide a large number of jobs. Its waste stream is negligible compared to MOIX, and it is cheaper than MOX. The DEIS should have addressed ALL alternatives, including immobilization.

The DEIS should produce verifiable projections of waste volumes as well as discuss the environmental risks and consequences of DOE failure to implement MOX waste management.

The issue of a possible terrorist attack on the proposed MOX factory was not at all adequately addressed. We know that since September 11, 2001, what used to be unlikely incidents are more likely than ever. The environmental and public health impacts of an attack on this facility are unacceptable to the people of the Southeast.

Please address these problems with the DEIS.

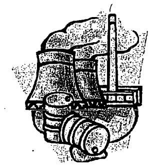
Sincerely,

Faye McKay-Clegg
1324 Weatherstone Way
Atlanta GA 30324

May 14 03 04:43p SHCE 912-201-0354 p.12

00104

DON'T brand the Southeast "PLUTONIUM ALLEY"! We don't want plutonium fuel!



Chairman Richard Meserve
United States Nuclear Regulatory Commission
Washington, D.C. 2055

Dear Chairman Meserve:

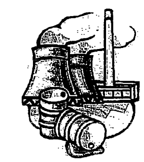
The proposed plutonium bomb fuel factory puts our nation, and especially this region at great risk. From the transport of plutonium across the country to the need to safely secure it upon arrival, we are also burdened with an unacceptable scheme that will increase contamination at the already extremely polluted Savannah River Nuclear Site. This proposal, also known as "MOX," is not safe, affordable, or sustainable. We again urge the Nuclear Regulatory Commission to deny the license request. 104-1

Sincerely,

Name	Address	Zip Code
Rowland Huddleston	419 Woodland St Nashville TN	37206 [illegible]@AOL.com
Adele Kushner	319 [illegible] Lake Circle [illegible] GA	30510 adelek@[illegible].net
DrLinda Trout	382 Montford Asheville NC	28804
Vijaya Chopdia	UCC Pinnacle point Asheville NC	28805
Ryan Adkins	235 S. Limestone Lexington, Ky	40508
Zivanna Elc'Anfmel	120 Elm Dr Asheville NC	28805
Amandawomac	909 Shingle Chattanooga TN	37409
Dave Jacobs	POB 7664 Asheville NC	28802
Ruth Clark	266 Merrimon Av. Asheville NC	28801
Anna Gaffney	11400 White Bluff Rd (3) Savannah, GA	31419
Cristina Negrea	704 E 44th St Savannah GA	31405
Jane Mill	114 Hopecrest ave dow. Ga	31406
Ernestine Daugherty	4604 Springhill Rd Sav. Ga	31409
Ann P. Connerf	1907 Brogdon St. Sav. GA.	31406
Harriet C. Gaudry	Bacon Park Dr., Sav. GA.	31406

May 14 03 04:43p SHCE 912-201-0354 p.13

DON'T brand the Southeast "PLUTONIUM ALLEY"! We DON'T want plutonium fuel!



United States Nuclear Regulatory Commission
Honorable Commissioners
Washington, D.C. 2055
Re: NUREG-1767

Dear Commissioners:

The proposed plutonium bomb fuel factory puts our nation, and especially this region, at great risk. From the transport of plutonium across the country to the need to safely secure it upon arrival, we are also burdened with an unacceptable scheme that will increase nuclear waste at the already extremely polluted Savannah River Site nuclear facility. This proposal, also known as "MOX," is not safe, affordable, or sustainable. We urge the Nuclear Regulatory Commission to deny the license request in order to protect our communities.

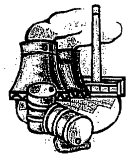
Sincerely,

Name	Address	Zip Code
Laurice Jackson	1406 East 53rd st	Sav, GA 31404
[illegible] M Hall	313 W. Hall St. Apt B	31401 Savannah, GA
Jeremy Ballard	509 East Duffy	Savannah Georgia 31401
Zephren Turner	217 E 37th St	31401 Savannah, GA
Rachel [illegible]	126 E. Liberty St.	31401 Savannah, GA
Adam Jacobs	225 E. Taylor St. Apt. C	Sav, GA 31401
Zachary Laub	415 E. Jones St.	31401
[illegible]	410 Kentucky Ave.	Savannah, GA. 31404
Mary Cooper	103 Decker Dr.	Greenwood SC 29646
[illegible]	608 [illegible]	Sav GA 31410
[illegible]	608 [illegible]	Sav GA 31410
[illegible]	C.O.B. Park W.	Sav GA 31410
[illegible]	521 E. Park Ave	31401
[illegible]	711 E 40th	31401

May 14 03 04:44p SACE 912-201-0354 p.14

DON'T brand the Southeast "PLUTONIUM ALLEY"! We DON'T want plutonium fuel!

United States Nuclear Regulatory Commission
Honorable Commissioners
Washington, D.C. 2055
Re: NUREG-1767



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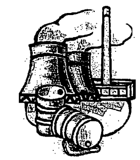
Sincerely,

Name	Address	Zip Code
ELLEN AXLEN	104 MONTGOMERY ST. #1 SAVANNAH GA.	31401
[illegible]	[illegible] Waters Ave #15 Sav. GA	31406
Louis Claus	655 E Henry St " "	31401
Brian Crowe	63 Volkswagen Hollow Ln. Clayton Ga.	30525
[illegible]	22100 Ridge [illegible] Mi.	48[illegible]
[illegible]	108 [illegible] Sav'h GA	31410
[illegible]	3 [illegible] SAV Ga	31410
[illegible]	[illegible] Hwy 80 W Apt D10 Bloomingdale GA	31408
Mildred M[illegible]	720 [illegible] Ave Sav, GA	31401
ROBERT [illegible]	341 AURICA BLVD Bloomingdale GA	31302
Teri Schell	14 Bright St Tybee Island, GA	31328
[illegible]	[illegible] Way Sav. GA	31410
[illegible]	[illegible]	[illegible]

May 14 03 04:44p SACE 912-201-0354 p.15

DON'T brand the Southeast "PLUTONIUM ALLEY"! We DON'T want plutonium fuel!

United States Nuclear Regulatory Commission
Honorable Commissioners
Washington, D.C. 2055
Re: NUREG-1767



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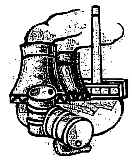
Sincerely,

Name	Address	Zip Code
E. VICTOR MERESKI	1132 MERIDIAN DRIVE, SAV, GA	31406
RANA BISHARA	317 #B W. Park Ave	31401
Whitney Erin Lamb	408 W. Duffy St. Sav. GA	31401
[illegible] Paul	227 Elizabeth St NE Atl.	30307
Kelli Pearson	723 E Maupas Ave	31401
Heather Flagle	2008 Whitaker St.	31401
Katie Vosler	524B E. 31st SAV, GA	31401
MATTHEW AKERS	[illegible] GODLEY Rd. St. Helena Is, SC	29920
CHARLES E. POWELL	P.O. BOX 1804 TYBEE ISLAND, GA.	31328
Melinda Powell	PO BOX 1804 Tybee Island GA	31328
LORIE J CORBUS	723 East Henry St. Savannah, GA	31401
Gregory M Geller	723 East Henry St Savannah, GA	31401
Kelli [illegible]	549 E Huntingdon St, Sav GA	31401

May 14 03 04:45p SACE 912-201-0354 p.16

DON'T brand the Southeast "PLUTONIUM ALLEY"! We DON'T want plutonium fuel!



United States Nuclear Regulatory Commission
Honorable Commissioners
Washington, D.C. 2055
Re: NUREG-1767

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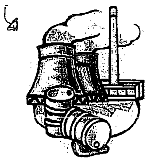
Sincerely,

Name	Address	Zip Code
Tom Holtman	309 E. Henry St. Savannah, GA	31401
[illegible]	306 E. Henry St. Sav. GA	31401
[illegible]	102 S. Mulberry St. Statesboro, GA.	30458
Clay Beardsley	27. W 50th St Savannah, GA	31405
Gary Smith	408 E 66th St Sav GA	31405
Scott Justice	400 Exley Rd. Rincon	31326
B.H. Bowers	POB 1002, Savh GA	31402-1002
Pamela Mundy	102 E Liberty St # 705 Sav GA	31401
Kane Bean	606 E Park lane Savannah GA	31401
MR. JAMES STYRON	415 hummingLN Springfield GA	31329

May 14 03 04:45p SACE 912-201-0354 p.17

DON'T brand the Southeast "PLUTONIUM ALLEY"! We DON'T want plutonium fuel!



United States Nuclear Regulatory Commission
Honorable Commissioners
Washington, D.C. 2055
Re: NUREG-1767

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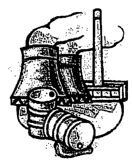
Sincerely,

Name	Address	Zip Code
Laurie Faubus	8 Lightenstone Ct Sav GA	31411
Whitney Lamb	408 W. Duffy	Sav Ga 31401
Traci Conchia	203 W Hall	SAV 31401
Melvin Williams	936 Trafford Ln	Sav 31410
Andrea Murrell	118 E. 51st St	Sav GA 31405
Randy Lewandowski	128 E. 51st ST	Savannah GA 31405
ALI KREBS	418 E. JONES ST	" 31401
Joni Saxon-Giusti	222 E. Gwinnett	Sav 31401
[illegible]	15 E. Jones St	Sav GA 31401
Jennifer Bruner	508 E 58th	Sav 31405
Brian Kiser	201 W. Oglethorpe #223	Sav 31401
Shawn Hicks	311 W. Waldburg	Sav 31401
Veronica [illegible]	416 E. Gwinnett	Sav 31401
Kenny Willis	14 East 39th	Sav 31401
Alex Spinney	110½ W Duffy St	SAV GA 31401

DON'T brand the Southeast "PLUTONIUM ALLEY"! We DON'T want plutonium fuel!



United States Nuclear Regulatory Commission
Honorable Commissioners
Washington, D.C. 2055
Re: NUREG-1767

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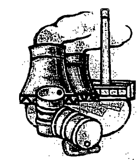
Sincerely,

Name	Address	Zip Code
Cynthia Plasschaert	385 Lakeside Dr Roselle IL	60172
Kathryn Grillo	275 W Ridgewood Ave Ridgewood NJ	07450
Paul Schwartzkopf	201 W. Oglethorpe Ave. Rm 638	31401
Andre Entermann	111 Bordeaux Ln SAV, GA	31419
Stephanie Wood	1321 Jefferson St	31401
Brendan Brulan	3910 Fauquier Av Richmond VA	23227
Nicole Cormican	129 W Gaston SAV GA	31401
Rebecca Salzman	201 West O-Houst SAV	31401
Larry Williams	617 E. 40th St. SAVH, GA.	31401
[illegible]	320 W. Park Ave SAV. GA	31407
Barbara Harrison	6 W Back St SAV GA	31419
Meghan Maylone	1513 E. 54th St. Sav-GA-	31404
J. Calwitz	111 E. Gwinnett Gcu. GA	31401
Joshua Gabriel	PO BOX 1496 Brunswick GA	31521 "
KOA Luni Porch	"	"
Eric Woodell "		

DON'T brand the Southeast "PLUTONIUM ALLEY"! We DON'T want plutonium fuel!



United States Nuclear Regulatory Commission
Honorable Commissioners
Washington, D.C. 2055
Re: NUREG-1767

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Sincerely,

Name	Address	Zip Code
Alex Spinney	11½ W. DUFFY St.	31401
Abby Schomaker	17 B. West Duffy st.	31401
Tiffany Johnson	409 B E. Waldburg St	31401
DAVID ZALESKI	515 E. HARRIS ST.	31401
H.M. Aldridge	PO BOX 9622 CLT NC	28299
[redacted]	[redacted]	[redacted]
A.M.J. Sarabia	109 E. Park Ave. Apt C	31401
BRIDGIT YINGER	440 Bull	31401

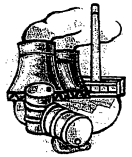
positive feedback loop occurs leading to rapid reactor disassembly. The literature also says that reactor grade plutonium, due to Pu-240, is less of a concern. Thus, this is an instance where European MOX fuel experience doesn't apply. I request that the NRC reveal its' analysis of this important safety concern in the final EIS, with, if possible, prompt and delayed coefficients, graphed, formulas and explanations and countermeasures.

While few citizens might understand such an analysis, it is important to us to know for sure that you have looked at this very carefully. To further underscore my concern on this point, I must take us back to the Chernobyl accident, at 1:23 AM on April 26, 1986.

Grigori Medvedev in his book, "The Truth About Chernobyl", 1989, page 59, "...the RBMK reactor, which has a positive reactivity void coefficient of 2 beta and a positive reactivity temperature coefficient..." and page 70, "However...3 factors inimical to the reactor core all came together at the same time." Those three were the positive void coefficient which caused an increase in power when water became steam creating voids, a positive reactivity temperature coefficient, and the tips of the control rods which when the scram button was pushed actually added reactivity to the core momentarily. In addition, Medvedev mentions that the core was near the end of its burnup, which meant that the concentration of plutonium had reached its maximum amount, adding to the positive coefficients.

Those three factors look suspiciously similar to the three I have just mentioned, namely fewer delayed neutrons, reduced control rod worth and positive moderator temperature coefficient of reactivity.

DON'T brand the Southeast "PLUTONIUM ALLEY"! We DON'T want plutonium fuel!



United States Nuclear Regulatory Commission
Honorable Commissioners
Washington, D.C. 2055
Re: NUREG-1767

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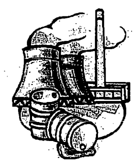
Sincerely,

Name	Address	Zip Code
Martie Kaufman	Bloomingdale GA	31302
Jim Eades	Tybee Island Ga	31328
Laurinda Abernathy	Savannah, GA	31405
Michelle Thrasell (14 years old)	Savannah GA	31405

Mar 14 03 04:47p SACE 912-201-0354 p.22

DON'T brand the Southeast "PLUTONIUM ALLEY"! We DON'T want plutonium fuel!



United States Nuclear Regulatory Commission
Honorable Commissioners
Washington, D.C. 2055
Re: NUREG-1767

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Sincerely,

Name	Address	Zip Code
Anna Bliss	538 E 60th St	1405
[illegible]		
Andrew Schroeder	637 Suncrest Blvd.	31410
S. Bowe	304 Manor Dr	31406
Nicole Giannattasio	231 E. 52nd St.	31405

3/28/03
68 FR 9728
(38)

00105

RECEIVED
9 May 2003
2003 MAY 13 AM 8:46
Rules and Directives Branch USNRC

Dear Nuclear Regulatory Commissioners,

Concerning: NUREG 1767, MOX Fuel Fabrication Facility, PDCF and WSF.

I formally request that you deny the construction and operating license for the mixed oxide fuel fabrication facility and its' supporting facilities, that has been requested by the Duke-Cogema-Stone & Webster Consortium. I request this action for the following five enumerated reasons which can be summarized as Cost, Safety, Speed, Nuclear Proliferation and NEPA Intellectual Honesty. 105-1

Reason # 1. Cost. If there is a cheaper disposition method, should you not choose it? American taxpayers want to know why:

Immobilization $ 2.1 Billion

MOX Fuel $ 3.8 Billion (after fuel rebates)

DOE admitted to greater cost certainty in the immobilization plan, because it was a simpler and more straightforward plan.

$$\frac{\text{MOX Plan } \$ 3.8 \text{ Billion approx.}}{100 \text{ Million U.S. Taxpayers approx.}} = \$38. \text{ Per taxpayer}$$

By the above calculations, the average taxpayer will shell out an average approximate thirty-eight dollars for the MOX fuel program. If you Nuclear Regulatory Commissioners went into a store and bought an item for $ 38., would you not examine that item to make sure you were getting your moneys worth? Of course you would. 105-2

Actually (page 2-25, line 8 of the DEIS) the cost is $ 48. Per taxpayer with a mail in rebate from DCS coming later. Actually that $ 4.8 Billion is just an estimate, which is way too low. DOE has never brought in any project for less that twice the initial estimate. The REAL REASON immobilization was killed; DCS and DOE needed to set

Template = ADM-013

E-RIDS = ADM-03
Call = T. Harris (TEH)
A. Lester (ACL1)

1

the hook on Uncle Sam's wallet. Immobilization provided Uncle Sam a means of slipping that hook if costs went stratospheric. So immobilization was killed off, for the laughable reason that they couldn't afford it (page 1-2, line 22).

Ultimately it all comes down to money. Russia is blamed for killing immobilization, which is unfair because they just want the money. The lack of isotopic degradation is not credible because the plutonium could have been mixed with a.) spent nuclear fuel, b.) reactor grade plutonium, c.) mixed nuclear waste, or d.) all of the above, and the result would have been immobilization with isotopic degradation and a radioactive proliferation resistant barrier. What is the difference if we end up with plutonium in glass (or ceramic) logs or in spent fuel rods? Billions $. Nobody cares about the poor U.S. taxpayer. Please note that the cost-benefit analysis totally ignores those taxpayers!

The Russians would have accepted immobilization if we had stuck to our convictions. Instead we offered them a choice: $ 2 Billion for immobilization or $ 5 Billion for MOX fuel. The Russians don't care about U.S. taxpayers, they chose the choice with the more money. They aren't stupid.

There is a cost versus safety trade-off. The $ 4.8 Billion estimate is the minimum estimated to accomplish the task. For $ 10 Billion we could have gotten robotic glove-boxes instead of manual and three foot thick concrete walls throughout instead of the metal shacks described on page 2-7, line 40. Cost is a safety issue. More money can buy better equipment, facilities and personnel. More money can also strongly motivate greed.

Nuclear Regulatory Commissioners, presumably well paid enough to be above this greed, should say NO right now. This MOX plan will end up costing not less than $ 20 Billion (my estimate) by the time decommissioning is completed, and that assumes no

105-2 cont.

major accidents. Please save U.S. taxpayers those billions and many sleepless nights worrying about loose plutonium processing, and reject the license now.

105-2 cont.

Reason # 2. Safety. On page 2-36, line 39, NRC staff say, "…unless safety issues mandate otherwise," they recommend approval for the license. Please understand how difficult it is to say something is unsafe when plans are still changing (sand filters, silver recycling, etc.), much of the information needed to prove the unsafeness is classified and unavailable, and the facility is a one of a kind with no precedent for guidance.

You probably already know this, but repetition can't hurt. Blair and Thompson induced cancer in beagle dogs with plutonium inhalers, to estimate what the toxicity of plutonium really is. At .049 micrograms per gram of lung tissue, the smallest amount tested, all the dogs got cancer and died.

.049 micrograms = 20 million lethal doses per gram = 600 million lethal doses/ounce

105-3

The exact number could be argued, but really the true toxicity is not known because we've never done controlled tests on humans. Very small amounts, when inhaled, are lethal, which is an honest description of what we know. Safety in dealing with this stuff is imperative!

NRC staff recommends approving the license unless it can be proven that the proposed action is not safe. I ask, can you prove it will be safe? This is not the first plant in the U.S. to try to make plutonium fuel. There have been four others, and that track record does not give me any confidence that it can be done safely by anyone at any price.

Karen Silkwood worked at the Kerr-McGee plant near Cimarron, Oklahoma. Shall we rehash those events? Plutonium was found in her refrigerator at her home. Gloves in the glove boxes were tearing. Detectors were turned off because they kept going off.

Nuclear Fuel Services in West Valley, New York operated from 1966 to 1975. It reprocessed 625 tons of spent fuel to make plutonium fuel. There were leaks and spills, including into Cattaraugus Creek, which threatened Buffalo's water supply. The laundry room was a mess, with numerous incidents and even the employee lunchroom had contamination (11 June 1968). The owners cut and ran, leaving a mess of nuclear waste behind for the taxpayers to clean up.

There was also the Midwest Fuel Recovery Plant near Morris, Illinois that never opened due to cost overruns. Then there was the Allied General Nuclear Services plant at the Savannah River Site (called Agnes). After $ 300 million spent, it fell apart after Jimmy Carter ordered a halt to U.S. reprocessing.

The U.S. nuclear industry has tried reprocessing and plutonium fuel, and their track record is not encouraging. So, instead of using one of the U.S. experiences as a comparable example, DCS uses the MELOX plant near Marcoule, France (page E-16, line 30). Neither LaHague nor Sellafield can be used, because their track records are terrible too. The record of these facilities is awful, yet DCS claims a ridiculously small chance of accident and/or contamination to workers and public. A real and true assessment of the risk from this proposed project would include every facility worldwide that has processed plutonium, instead of the cherry-picked best.

105-3 cont.

The radiation exposure pathways fail to identify the Homer Simpson pathway (page 3-46 & 47). In the TV show The Simpson's, Homer works at the local nuclear facility. The show opens with his apparently working with some lime-green radioactive material in a glove box. The end of shift whistle blows and Homer drops what he is doing and yells "Yoo-Hoo". The radioactive chunk bounces out of the glove box and lands on

Homers' back/shoulder. Homer is next seen driving home with the glowing radioactive chunk on his back/shoulder. He brushes off his shoulder knocking the material out of his car window, where it bounces and lands on Bart Simpson skateboard as he rides home from school. What happens to it next is unclear. What is clear, is that workers with radioactive materials on their shoes, clothing, hair or skin can take it with them when they leave work, thus contaminating bars, restaurants, stores, cars and homes.

The Homer Simpson pathway is the dominant means of public exposure during routine operations. I therefore must insist that showers be specified in both MOX FFF and PDCF as they are not mentioned in the DEIS (page 2-4, lines 6-11 and 2-7, lines 1&2). This is a standard safety precaution. Why is it not mentioned in the DEIS?

105-3 cont.

As I already mentioned, plutonium was found in Karen Silkwood's refrigerator. Please specify that the necessary precautions are being taken to prevent a public relation disaster reoccurrence.

Cancer is not the only risk from radiation and plutonium. (page 3-51, line 36) Birth defects and mental retardation (genetic damages) are more prevalent than cancer, but because they occur in the children of the workers they are often overlooked. Please correct this oversight.

105-4

The radiation from plutonium is rather low due to long half life (24,600 years) and it being primarily an alpha emitter. Thus, when we compare radiation from plutonium with expected latent cancer fatalities (pages 4-7 to 4-11) we end up with .00002 annual LCF at the MOX FFF (page 4-10, line 45). However, a lethal dose to your lung is about a millionth of an ounce, which is a speck of dust floating around in the air so small you can't see it. Considering that you are planning to process 38 tons, which must be:

105-5

a.) weighed b.) inspected c.) hydrated d.) nitrided e.) oxidated f.) welded (caution!) g.) Leak-tested h.) weighed again i.) dissolved in nitric acid with silver catalyst j.) electrified k.) organic solvent separated l.) nitric acid washed m.) hydroxylamine nitrated n.) hydrazine nitrated o.) uranium separation stripping column p.) nitrous fumed in columns q.) reacted with oxalate acid r.) collected on filters s.) Calciner-dried t.) blended u.) stored v.) master blended w.) mixed with depleted uranium x.) ground y.) mixed again z.) homogenized and lubricated aa.) pressed bb.) sintered at 3100 F cc.) ground again dd.) loaded into rods ee.) welded again and ff.) finally inspected, and that you expect one latent cancer fatality every 50,000 years (.00002) from an amount so small you can't see it when you are dealing with some 38 tons total, which all stretches credibility a bit.

105-5 cont.

I only mention these 30+ process steps, many of which involve high temperatures, dangerous acids, grinding producing many small particles, powders which are dangerously pyrophoric and can become explosively supercritical around neutron reflectors and in confined spaces, because I don't believe it can be done as safely as you describe doing it in this DEIS.

Plutonium is not the same as uranium. No mention in this DEIS is made for control of humidity, despite plutonium being much more reactive in a humid environment. Plutonium metal is also a concern in the PDCF. From 6-1.3 of the Plutonium Handbook, "When a container is opened spontaneous ignition may then occur, usually resulting in destruction of the container and the scattering of metallic oxide (Pu) through the glove-box train and the exhaust system." The DEIS mentions no precautions to prevent this.

105-15

DOE has sworn up and down that when the weapons plutonium disposition mission is completed, that the MOX FFF will be decommissioned. This promise is easily broken fifteen years from now. Then, proximity to the recently refurbished H canyon reprocessing facility will be convenient for the nuclear industry. The MOX FFF will then be perfect for making reactor grade plutonium fuel from reprocessed spent nuclear fuel. I ask what guarantees the public has that this is not true?

DOE promised the citizens of Amarillo and of Panhandle County that the storage bunkers holding most of this weapons grade plutonium would be upgraded from the decrepit old unsafe facilities they are now in. I see (page 4-2, line 27) that the promise has been broken. How can we trust your word when you break your promises so often?

105-6

It is no secret that the nuclear industry has wanted to implement the same reprocessing that has been going on in Britain and France, here in the U.S. The weapons plutonium disposition program is a means to that end, and has been part of their plan all along. They want to overturn Jimmy Carter's ban on fuel reprocessing. President Carter, being a navy nuke like myself, banned reprocessing for good reasons, including cost, reducing nuclear waste production, and lessening nuclear proliferation pressures.

There are those who believe that plutonium fuel use is more risky (pages 4-67 to 69). The DEIS glosses over the problems, so please allow me to explain why MOX use is not safe.

a.) Delayed neutron fraction of plutonium is .2% compared to .65% for uranium. Delayed neutrons are necessary, and the value of the reactivity "dollar" is determined by the difference between exactly critical and prompt critical. By reducing the fraction of delayed neutrons, the distance the control rods must move

105-7

to reach prompt critical is reduced. This is a significant safety reduction, totally unmentioned in the DEIS, and a valid reason to reject the whole MOX idea, in my opinion. Even with a 40% MOX core, the average delayed neutron fraction starts out around .45% and declines from there as uranium in the regular (non-MOX) rods is converted to plutonium through capture. This is a 30% reduction. Please explain in the final EIS why this is not of concern to you.

b.) Control rod effectiveness is reduced as the average neutron speed is increased. The higher capture cross section of plutonium, 269 barns, of the thermal neutrons leaves faster neutrons in the core. The control rods are best at absorbing neutrons at the slower energy. I have heard that there is a plan to add more control rods to the MOX use reactors, however this should be stated and specified in the EIS, and it isn't. These faster average neutrons have other attributes. Faster neutrons go through more shielding, causing slightly higher neutron embitterment and worker exposures. Faster neutrons also mean more generations per second, which can increase the slope and severity in power transients. Again, the literature is clear about this, and it should be incumbent on you to explain to us why these are not safety concerns. Put another way, I shouldn't have to point these facts out to you. Please explain your analysis and planned countermeasures.

c.) Moderator (delayed) Temperature Coefficient of Reactivity is positive, as stated in Nuclear Reactor Engineering, Gladstone & Sesonske, section 5.103. It gives a large positive change in fission per change in temperature. NRC rules specifically state that no reactor can operate with a combined positive temperature coefficient. The risk is clear. If a rise in temperature causes more reactivity (fissions) then a

105-7 cont.

positive feedback loop occurs leading to rapid reactor disassembly. The literature also says that reactor grade plutonium, due to Pu-240, is less of a concern. Thus, this is an instance where European MOX fuel experience doesn't apply. I request that the NRC reveal its' analysis of this important safety concern in the final EIS, with, if possible, prompt and delayed coefficients, graphed, formulas and explanations and countermeasures.

While few citizens might understand such an analysis, it is important to us to know for sure that you have looked at this very carefully. To further underscore my concern on this point, I must take us back to the Chernobyl accident, at 1:23 AM on April 26, 1986.

Grigori Medvedev in his book, "The Truth About Chernobyl", 1989, page 59, "...the RBMK reactor, which has a positive reactivity void coefficient of 2 beta and a positive reactivity temperature coefficient..." and page 70, "However...3 factors inimical to the reactor core all came together at the same time." Those three were the positive void coefficient which caused an increase in power when water became steam creating voids, a positive reactivity temperature coefficient, and the tips of the control rods which when the scram button was pushed actually added reactivity to the core momentarily. In addition, Medvedev mentions that the core was near the end of its burnup, which meant that the concentration of plutonium had reached its maximum amount, adding to the positive coefficients.

Those three factors look suspiciously similar to the three I have just mentioned, namely fewer delayed neutrons, reduced control rod worth and positive moderator temperature coefficient of reactivity.

105-7 cont.

d.) The synergy between the three just mentioned factors significantly reduces safety of the nuclear power plant operation, to a degree such that the Nuclear Regulatory Commissioners have just cause to reject the application for construction and operation of the MOX fuel Fabrication facility and its' attendant support facilities. Isn't it up to you guys to prove this is not true?

e.) Plutonium fission increases fission product gas production threatening fuel rod ruptures and increased radioactive gas releases to the environment, including twice the level of tritium production when compared to uranium.

f.) Plutonium fuel melts at a lower temperature, reducing safety margins.

g.) Reactor cores will not be homogenous threatening to create dangerous hot spots in the core or seriously complicating core-loading strategies.

105-7 cont.

Reason # 3 Speed of Disposition is greater compared to Immobilization

Faster disposition leaves less time for diversions, thefts or accidents. DOE did mention this as being an advantage for immobilization as compared to MOX fuel.

However, immobilization is no longer a choice. Left on the table are only MOX fuel and No Action. As such, MOX fuel is faster than doing nothing! I still say MOX is not safe, and favor immobilization as being faster, safer and cheaper.

105-8

If I were given the choice (as a Nuclear Regulatory Commissioner) between No Action and MOX fuel, I would have to choose No Action. Contaminating people and land with plutonium, as I believe MOX will do, is not worth the disposition benefits.

105-9

Reason # 4 Nuclear Proliferation risk is greater with MOX fuel.

Britain, France, Russia, India, Japan and North Korea all have reprocessing programs. The current issue of Bulletin of the Atomic Scientists details Iran's current attempts to join the club. The U.S. MOX program will a.) set an example for civilian plutonium use b.) advance the technology and c.) undercut arguments against reprocessing. The current trend is towards a future with many countries separating plutonium and using it for fuel, weapons or both.

Such a future is dangerous due to terrorism, diversions, accidents and nuclear weapons brinksmanship. At the same time, there is an alternative for this plutonium, which is faster, safer and cheaper which does not promote proliferation and plutonium use. That the United States has not chosen this alternative sends a strong signal to other countries and can only be attributed to greed among the nuclear industry. The Russians, U.S. nuclear industry, DOE, nuclear scientists and others are all competing for money.

105-10

Who is going to stand up and speak some common sense? I ask the Nuclear Regulatory Commissioners to be that somebody, and say no to the construction and operating license for the MOX FFF, PDCF and WSF, please.

Reason # 5 Dishonest NEPA Analysis

On page 4-83, line 30 & 31, of the MOX DEIS it is stated that, "Therefore, continued storage would result in higher annual impacts." Storing the plutonium in hardened bunkers without touching or processing it would result in MORE damage than all that plutonium transportation, processing, reactor use and removal to Yucca Mountain? This is not intellectually honest, a farce really.

105-11

On page 1-2, lines 12 & 13 and lines 21 & 22 the DOE stated the purpose of the stated action, "To better insure that weapons usable material does not fall into the hands of rogue states or terrorist groups." And the reason for killing immobilization, "The DOE determined that in order to make progress with available funds, that only one approach could be supported." Another intellectually dishonest bait and switch routine. Not only would immobilization have accomplished the goal faster, safer and cheaper without promoting nuclear proliferation, but their blame the Russians reason vanishes when you realize that it would have been fine for the U.S. to immobilize its' plutonium while the Russians did MOX with theirs. There is no valid reason both countries must use the same path towards plutonium disposition. These statements fail to accurately and honestly fulfill NEPA requirements. 105-12

On page 4-8, lines 44 & 45 DCS uses data from the MELOX plant in Marcoule, France to estimate worker radiation dose at .009 LCF per year. Besides the cherry picking of sites to use, there is no way to confirm the data. Cogema promised to make the relevant data available when I attended the scooping hearing in Charlotte, N.C. back in 2001. They broke their promise. People who oppose the proposed action have no resort to substantiate their claims. The reading room near Pantex was stripped of all relevant documents, as were other sources nationwide following the events of September 11, 2001. The .009 estimated latent cancer fatality rate is dishonest, but opponents have been unfairly denied the means to prove it. 105-13

Those who are concerned (alarmed!) by the proposed actions are supposed to be protected by an impartial, unbiased and fair assessment performed by our government protectors (DOE, NRC, etc.). That this DEIS fails to do so in many more ways than I can 105-14

briefly mention is very clear. There is clear bias in favor of the proposed action at every turn. This is illegal, and fails the spirit of the laws meant to protect the citizens of this United States of America. In my opinion, the Nuclear Regulatory Commissioners have good reasons to reject the requested license. 104-14 cont.

Sincerely,

Robert B. Mills IVth (aka Robin Mills)

Maplerock Box 80

Rio, West Virginia 26755

Robinmills4@yahoo.com

9 May 2003

Disclaimer: I am employed by no organization, entity or persons who have or will compensate me for this DEIS response. The above stated opinions are my own and may be plagiarized by anyone who wishes to copy them.

5/1/03
68 FR 9708
(37)

Dear Chief,

RECEIVED
2003 MAY 13 PM 3:09
Rules and Directives
Branch
USNRC

I am deeply concerned about the possibility of a plutonium MOX fuel factory at the Savannah River site nuclear facility. As a resident of the general area (Georgia) I am concerned about the safety of this factory, particularly in light of possible terrorist actions at the sight. Also, I'm concerned about the safety of transportation of plutonium to the site and wastes from the site. I urge you to consider safer and cheaper options and not allow this dangerous scheme to go forth. I would certainly not travel to the area and would consider moving out of Georgia if it is implemented. Thank you for consideration of my concerns.

106-1

Sincerely,
Diane F. Matesic

Diane F. Matesic
2493 Willow Wood Ct
Atlanta, GA 30345

RECEIVED
2003 MAY 13 PM 3:09
Rules and Directives
Branch
USNRC

Template=ADM-013 — E-RIDS=ADM-03 add=T. Harris (TEH) A. Lester (AQL2)

106-1

00107

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

RECEIVED
2003 MAY 20 AM 9:20
Rules and Directives Branch
USNRC

May 14, 2003

2/28/03
68 FR 9728
(53)

Chief, Rules Review and Directives Branch
U.S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, D.C. 20555-0001

RE: EPA Review and Comments on
Construction and Operation of a Mixed Oxide Fuel Fabrication (MOX) Facility
NUREG-1767, at the Savannah River Site, South Carolina
Draft Supplemental General Management Plan and
Draft Environmental Impact Statement (DEIS)
CEQ No. 030070

Dear Chief:

The U.S. Environmental Protection Agency (EPA) reviewed the subject *Draft Environmental Impact Statement* (DEIS), Pursuant to Section 102(2)(C) of the National Environmental Policy Act (NEPA), and Section 309 of the Clean Air Act. The document provides information to educate the public regarding general and project-specific environmental impacts and analysis procedures, and follows the public review and disclosure aspects of the NEPA process. The purpose of this letter is to inform you of the results of our review.

The stated goal of the project is to ensure that plutonium produced for nuclear weapons and declared excess to national security is converted to proliferation-resistant forms. DOE proposes to design, construct, and operate a proposed Mixed Oxide (MOX) Fuel Fabrication Facility that would convert depleted uranium and surplus weapons-grade plutonium into MOX fuel. The proposed MOX facility would be located at the Savannah River Site in South Carolina, and would be part of DOE's surplus plutonium disposition program. Because Congress gave the NRC licensing and related regulatory authority over the proposed MOX facility, its construction and operation will require NRC approvals, issued pursuant to the *Code of Federal Regulations,* Title 10, Part 70 (10 CFR Part 70).

Support facilities are part of the proposed action: an associated Pit Disassembly and Conversion Facility (PDCF) would be constructed, along with a Waste Solidification Building (WSB). The PDCF would provide for the recovery of plutonium from disassembled weapons, converting it to plutonium dioxide powder for feedstock. The WSB would be used for processing liquid waste streams and converting them to solid transuranic waste (TRU) or low-level waste (LLW). A pipeline would also be constructed between the support facilities and the MOX facility.

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E-RIDS= ADM-03
Add= T. Harris (TEH)
A. Lester (ACL2)

Overall, the DEIS is well-written and clearly explains the proposed action and the alternatives. We particularly appreciate the discussion of mitigation plans which was included in the DEIS. Based on EPA's review of the document, the document recieved an "EC-1" rating; that is, environmental concerns exist regarding some aspects of the proposed project. Specifically, hazardous and radioactive wastes generated from the proposed facility will require specialized waste management procedures, as well as safety and emergency response plans, in order to prevent impacts.

Transuranic (TRU), low-level radioactive waste (LLW), and hazardous and non-hazardous (both liquid and solid) wastes are expected to be generated during operation of the proposed facility, and will require specialized handling, storage, transportation and disposition measures in order to safeguard human health and the environment.

Exhausts from the proposed facility will be treated to remove radioactive materials before the exhaust is discharged to the atmosphere. Monitoring is planned during the operation and decommissioning phases of the project. Groundwater quality impacts are not anticipated, since there would be no discharges to underlying aquifers; regular monitoring of the double-walled liquid high-alpha waste pipeline is planned.

Thank you for the opportunity to comment on this DEIS. If you have any questions or require technical assistance, you may contact Ramona McConney of my staff at (404) 562-9615.

Sincerely,

Heinz J. Mueller, Chief
Office of Environmental Assessment

Attachment

EPA Review and Comments on
Construction and Operation of a Mixed Oxide Fuel Fabrication (MOX) Facility
NUREG-1767, at the Savannah River Site, South Carolina
Draft Supplemental General Management Plan and
Draft Environmental Impact Statement (DEIS)

General: The DEIS clearly describes the proposed action and the anticipated environmental impacts of the project. We appreciate the tables which summarize the data in the DEIS.

Endangered Species: The DEIS discusses the presence of endangered species in the vicinity of the Savannah River Site. The document states that the facility construction and operation would have no effect on threatened and endangered species under USFWS and SCDNR jurisdictions.

Air Quality: The DEIS states that transuranic, (TRU), and low-level radioactive wastes, (LLW), will be generated during operation of the proposed facility. Exhausts from the proposed facility will be treated to remove radioactive materials before the exhaust is discharged to the atmosphere. Please provide further information in the FEIS regarding frequency and duration of air quality monitoring measures and monitoring of the facility's emissions to the atmosphere. 107-1

The DEIS discusses the need to demonstrate that the offgas treatment system will limit hydrazene, (listed as a hazardous air pollutant under the Clean Air Act), to very low levels. The DEIS states that these levels would not cause adverse health impacts to members of the public or employees. Information about plans for monitoring the offgas treatment system for hydrazene should be included in the FEIS. 104-2

Radiological Impacts: The DEIS states that annual radiological impacts to SRS employees and the public from exposure to radioactive air pollutants are expected to be small. The DEIS also cites plans for emergency preparedness. Plans for regular monitoring of the double-walled liquid high-alpha waste pipeline are discussed in the document.

Hazardous Waste Management: Hazardous waste from the proposed MOX facility would be shipped off-site to commercial RCRA permitted facilities. Estimated volumes for TRU, low-level, and hazardous waste would represent approximately 3% and 20% of Waste Isolation Pilot Plant (WIPP) and SRS storage capacities.

2/28/03
68 FR 9728
(50)

Monday, 12 May 2003
3265 Marlborough Dr.
Tucker, GA 30084

Mr. Lesar,

Having attended the public hearing in Savannah, GA, in March, I was totally unconvinced that the situation had been careful in considering all the aspects of the processing of MOX materials. The highly radioactive slurry that would be produced was pretty much not addressed as an issue. As a member of the public in this general area, I am angry that such a serious issue should not address the entire life of the nuclear waste. 108-1

A secondary issue is the cost of the process. The federal government thinks there is a endless source of tax income, but as a taxpayer, I am outraged at how our tax money is spent. 108-2

Nuclear waste should be immobilized not processed in the MOX. 108-3

Sincerely,
Carolyn Clair

Template=ADM-013
E-RIDS=ADM-03
Cc=T. Harris (TTH)
A. Lester (AWL1)

2/28/03
68 FR 9728
(57)

April 12, 2003

Michael T. Lesar
Chief, Rules & Directives Branch
Division of Administrative Services
Office of Administration
Mail Stop T-6D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555

RE: NUREG-1767

Dear Michael T. Lesar:

I am writing to express my concerns about using plutonium bomb fuel as an energy source. Currently, I strongly believe this is a dangerous idea that should not come to fruition. It is imperative to not only protect, but also enhance the quality of life for the citizens and the environment. Safer and cheaper options need to be investigated before using MOX as an energy source. 109-1

Sincerely,

Jennifer Zanck
Po box 3105
Savannah, GA 31402

Template=ADM-013

E-RIDS=ADM-03
Add=T. Harris (TEH)
A. Lester (AGL1)

2/28/03
68 FR 9728
(52)

April 12, 2003

Michael T. Lesar
Chief, Rules & Directives Branch
Division of Administrative Services
Office of Administration
Mail Stop T-6D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555

RE: NUREG-1767

Dear Mr. Lesar,

I am a 28 years old and quite concerned with the plutonium issue. Simply put, I am concerned with the effects it will have on our environment and the quality of our lives based on the draft report by the US Nuclear Regulatory Commission. 110-1

Please consider that there are options. I want to live to be 128 years old and see my great grandchildren.

Thank you for your time.

Sincerely,

Mai Dang
2430 East 38th Street
Savannah, Georgia 31404

Template=ADM-013

E-RIDS=ADM-03
Add=T. Lester (TEH)
A. Lester (AGL1)

Environmentalists, Inc.

FOUNDED 1972
1339 SINKLER ROAD
COLUMBIA, SC 29206
803-782-3000

May 22, 2003

Tim Harris
US Nuclear Regulatory Commission
Washington, DC 20555
teh@NRC.gov

Dear Mr. Harris:

These comments are being submitted by Environmentalists, Inc. (E.I.) for consideration by the Nuclear Regulatory Commission (NRC) in regard to the Draft Environmental Impact Statement (NUREG-1767, draft) for the MOX Fuel Fabrication Facility (MOXFFF) at Savannah River Site (SRS), one of the alternatives which the Department of Energy (DOE) described in its plan for Surplus Plutonium Disposition (SPD).

Comment No. 1

NUREG-1767, draft, is very clear about the NRC's role as an independent judge of the plan to build and operate a Mixed Oxide Fuel Fabricating Facility in South Carolina. The Department of Energy has chosen this MOX plant and other related activities as a way of addressing the countries excess plutonium problem. It is the NRC's responsibility to decide whether the overall MOX proposal could be carried out in a "safe and environmentally acceptable manner." (Page XVII, Executive Summary)

Comment No. 2

There are numerous process steps in the DOE's MOX plan. Figure 2.2, for example, identifies 13 steps in the Fuel Fabricating Process. The Aqueous Polishing Process has almost as many steps, according to Figure 2.1, however, less than half of them appear to involve plutonium. The PIT Disassembly and Conversion Facility (PDCF) and the Waste Solidification Building (WSB) both have a variety of operations which would take place. Added to all of these processing steps and related activities are those associated with transport between facilities, unloading, loading, and storage as well as the long-distance shipments of uranium and plutonium from seven different locations throughout the country.

It is imperative that a containment chapter be added to NUREG-1767, one which is devoted exclusively to addressing the need for preventing the release of plutonium "under all conceivable conditions."* This new chapter would identify all the containment measures being proposed for maintaining a plutonium management approach of "absolute containment,"* with diagrams and written text explaining where containment design features are located, description of procedures for routine and off-normal conditions of operation, release levels expected under routine and accident situations, back-up systems such as those that are designed to prevent non-routine releases in the event of failure of glove box ventilation, maintenance requirements, frequency at which monitors are checked and read, etc. 111-1

* *Both quotes are from the transcript of the NRC Proceeding, in the matter of Allied General Nuclear Services, Docket No. 50-332 (pages 4277 and 4321) November 4, 1974. (The choice of these is based on both statements being clear and concise.)*

Thank you for the opportunity to comment on this draft EIS, the process provided by the National Environmental Policy Act to insure that all possible alternatives are considered when a proposed facility will impact the environment.

Sincerely,

Ruth Thomas, President
Environmentalists, Inc.

Michael T. Lesar
Chief, Rules and Directives Branch
Division of Administrative Services, Office of Administration
Mail Stop T-6D59 U.S. Nuclear Regulatory Commission
Washington DC 20555
Re: Docket #1767 May 21- 2003

Dear Mr. Lesar

In response to the Nuclear Regulatory Commission's Draft Environmental Impact Statement (DEIS) on the proposed plutonium fuel factory (MOX) at the Dept of Energy's Savannah River site nuclear facility, I must respond strongly that the construction of the MOX facility, and more importantly, the operation of that facility, is environmentally unsound.

The DEIS must address the reasonable alternative to MOX-plutonium immobilization.

Immobilization would achieve the MOX program stated goal "to safeguard weapons-grade plutonium". Continued storage of the weapons grade plutonium is an unacceptable Security risk. The DEIS should produce verifiable projections of waste →

112-1

112-2

112-3

2

volumes as well as discuss the environmental risks and consequences of DOE failure to implement MOX waste management. In addition the possible Environmental and public health impacts of an attack on this facility are unacceptable to the people of the Southeast.

113-3 cont.

113-4

These problems should promptly be addressed with the DEIS.

Thank you for your prompt attention to these concerns.

Sincerely

Ruth Sanford

May 21, 2003

H30 N. Jamestown RD #204

Decatur GA 30033

E-MAIL RUTHSANFORD@HOTMAIL.COM

JUN-13-2003 16:33 P.02/02

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May 30, 2003

2/28/03
68FR9728
(66)

Michael T. Lesar, Chief
Rules and Directives Branch
Division of Administrative Services
Office of Administration
Mail Stop T-6D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Re.: DEIS on MOX

Dear Mr. Lesar:

The following comment is being submitted by The South Carolina Chapter of the Sierra Club for consideration by the Nuclear Regulatory Commission in regard to the Draft Environmental Impact Statement (NUREG-1767, draft) for the MOX Fuel Fabrication Facility at the Savannah River Site, one of the alternatives which the Department of Energy described in its plan for Surplus Plutonium Disposition.

It is imperative that a containment chapter be added to NUREG-1767, one which is devoted exclusively to addressing the need for preventing the release of plutonium under all conceivable conditions. This new chapter would identify all the containment measures being proposed for maintaining a plutonium management approach of "absolute containment," with diagrams and written text explaining where containment design features are located, description of procedures for routine and off-normal conditions of operation, release levels expected under routine and accident situations, back-up systems such as those that are designed to prevent non-routine releases in the event of failure of glove box ventilation, maintenance requirements, and frequency at which monitors are checked and read. 113-1

Thank you for the opportunity to comment on this draft EIS.

Sincerely,

Dell Isham
Dell Isham
Chapter Director
SC Sierra Club

cc: SC Chapter Steering Committee

E-RIDS=ADM-03
Add = T. Harris (TEH)
A. Lester (ACL1)

TOTAL P.02

00114

From: Louis Zeller [BREDL@skybest.com]
Sent: Sunday, June 15, 2003 4:23 AM
To: Tim Harris
Subject: February 2003 Draft EIS for the Mixed Oxide Fuel Fabrication Facility at SRS

BLUE RIDGE ENVIRONMENTAL DEFENSE LEAGUE

www.BREDL.org ~ PO Box 88 Glendale Springs, North Carolina 28629 ~ Phone (336) 982-2691 ~ Fax (336) 982-2954 ~ BREDL@skybest.com

May 14, 2003

US Nuclear Regulatory Commission

Michael T. Lesar, Chief

Rules & Directives Branch

Division of Administrative Services

Office of Administration, Mail Stop T-6D59

Washington, DC 20555-0001

Re: February 2003 Draft EIS for the Mixed Oxide Fuel Fabrication Facility at SRS

Dear Sir:

On behalf of the Board of Directors of the Blue Ridge Environmental Defense League and our members in South Carolina, I write to provide additional comments on the draft *Environmental Impact Statement on the Construction and Operation of a Mixed Oxide Fuel Fabrication Facility at the Savannah River Site, South Carolina prepared by Argonne National Laboratory for the U.S. Nuclear Regulatory Commission* (DEIS).

In accord with the federal *Code of Federal Regulations*, Title 10, Part 70 (10 CFR 70), 10 CFR 51, and 40 CFR 1500, the NRC is to address the direct, indirect, and cumulative impacts related to building, operating, and decommissioning the proposed plutonium fuel (MOX) facility at SRS. However, the DEIS fails to address several major environmental impact at the proposed facility.

According to the DEIS, the purpose of the proposed 41-acre plutonium fuel factory located in the F-Area of SRS would be to convert 37.5 tons of weapons-grade plutonium into a mixed oxide fuel of uranium and plutonium. However, the declaration "surplus plutonium" is not a technical term; it is a political phrase without scientific basis. For example, the January 2000 DOE Record of Decision (ROD) stated 36.4 tons of surplus plutonium would be converted into MOX fuel and another 19 tons was to be immobilized. Total "surplus plutonium" was then 55.4 tons. Nine months later Russia and the United States designated 37.5 tons of weapons-grade plutonium as surplus, a difference of 47% (*Agreement between the Government of the United States of America and the Government of the Russian Federation Concerning the Management and Disposition of Plutonium Designated as No Longer Required for Defense Purposes and Related Cooperation*, September 2000). 114-1

The proposed plant would actually be licensed to handle up to 3.9 tons of plutonium dioxide annually for a period of 20 years. Therefore, the plant envisioned by NRC has the potential to handle a total of 78 tons of plutonium. The DOE is on record stating that it has a stockpile of 123 tons of plutonium (111.4 MT), of which 94 tons (85.1 114-2

06/17/2003

MT) is weapons-grade plutonium (*Plutonium: The First 50 Years*, DOE, 1996). During the next two decades, treaty obligations could conceivably result in 78 tons of "surplus plutonium" being declared. However, the February 2003 draft states, "This DEIS is based on a total of 34 MT (37.5 tons) of surplus plutonium." Notwithstanding this arbitrary and capricious estimate, the potential to emit air pollutants (PTE) for this facility should be based on the maximum annual throughput for the licensing period. This is the standard methodology utilized by federal and state agencies to evaluate major sources of pollution. To be valid, the EIS must be based on the maximum throughput of 78 tons of plutonium in its estimates of both criteria pollutants and hazardous air pollutants, including radionuclides.

114-2 cont.

The DEIS omits a critical component of plutonium disposition. The plutonium-MOX fuel would be fabricated for the sole purpose of irradiating it in nuclear reactors. In order to irradiate all the weapons-grade plutonium produced by the proposed fuel factory as outlined by DOE and NRC, additional and as yet unknown commercial nuclear power reactors must be designated. Originally, DOE had contracted with two electric utilities to provide this service: Duke Energy and Virginia Power. But Virginia Power has withdrawn its reactors from the program, leaving Duke as the sole provider of plutonium irradiation reactors. Duke's Catawba and McGuire reactors cannot provide sufficient capacity to irradiate 37.5 tons of plutonium. The DEIS acknowledges this deficiency but offers no remedy:

114-3

> The DOE had earlier identified Duke Power Company's four reactors at the Catawba and McGuire stations (two at each station) as potential candidates to irradiate MOX fuel. The potential candidate reactors can accommodate up to 25.5 MT (28.2 tons) of surplus plutonium in MOX fuel. The DOE has not yet identified the additional candidate reactors necessary to accommodate the additional MOX fuel (8.5 MT [9.4 tons]) to be irradiated under the amended ROD. [February 2003 DEIS, 1.1.1 Surplus Plutonium Disposition Program]

In order to address the direct, indirect, and cumulative impacts related to the proposed plutonium fuel factory, NRC should include impacts of the maximum throughput to its analysis of impacts on mission reactors including fuel transportation and irradiation, and dumping in a waste repository in DEIS Section 4.4.3.

114-4

The February 2003 draft states, "For purposes of this DEIS, a period of operation of 10 years is assumed to bound impacts." Again, there is no rational basis to delimit environmental impacts to a period less than the expected licensing period. In order to be truly conservative, NRC should utilize a twenty-year basis for all its analyses.

114-2 cont.

Hazardous and radioactive wastes are permitted to be burned in the H-Area Consolidated Incinerator Facility (Unit ID # H-010). Although South Carolina DHEC has stated that the CIF is not currently in operation, it recently granted DOE-Westinghouse Savannah River Company a new permit to operate the waste incinerator. The DEIS states that the Waste Solidification Building will send waste to other facilities at SRS:

> The WSB would process liquid waste streams from the PDCF and proposed MOX facility. Other waste from the proposed MOX facility, not sent to the WSB, would be transferred to and managed by the SRS. . [February 2003 DEIS, Executive Summary]

The CIF is required to comply with 40 CFR 61 Subpart H, *National Emission Standards of Radionuclides Other Than Radon From Department of Energy Facilities.* Although radionuclide emission rates from the stacks of the CIF and other sources are measured, the millirem standard for maximum allowable dosage to the public is an ambient standard, not an emission limit. Without ambient measurements, neither DOE nor Westinghouse Savannah River Company can assure that emissions of radionuclides are below 10 millirem per year to any member of the public. Likewise, the NRC fails to cite any direct ambient measurement a basis for estimates of radioactive dose to the public in the DEIS. The DEIS states:

114-5

> The annual collective dose to members of the public (i.e., those living and working within 80 km [50 mi] of the SRS) produced by routine operation of the proposed MOX facility would be expected to result in a latent cancer fatality (LCF) rate of approximately 0.0004/yr or less. Routine operation of the proposed MOX facility, the PDCF, and the WSB is expected to produce insignificant air quality impacts, and would not cause exceedance of any ambient air quality standards for criteria pollutants at the SRS. However, maximum levels of $PM_{2.5}$ in the vicinity of the SRS already exceed the annual standard of 15 $\mu g/m^3$. Facility construction would contribute temporarily less than 0.1% of this $PM_{2.5}$ standard level, and facility operation would contribute less than 0.01% of this level. [February 2003 DEIS, Executive Summary]

114-5 cont.

About a year ago the DOE jettisoned the immobilization option which had been posited by Secretary O'Leary in 1996. [*Amended Record of Decision for the Surplus Plutonium Disposition Program*,. Federal Register 67:19432, April 19] Secretary Abraham cited cost-savings and pressure from the Russian Federation as reasons for ending the two-track, or hybrid, approach. The February 2003 draft states:

> [I]n April 2002, the DOE issued an amended ROD (DOE 2002), in which it decided not to pursue its hybrid approach. The DOE determined that in order to make progress with available funds that only one approach could be supported. Russia does not consider immobilization alone to be an acceptable approach because immobilization, unlike the irradiation of MOX fuel, fails to degrade the isotopic composition of the plutonium. Russia further contends that the United States could easily retrieve plutonium from the immobilized waste at a later date and reuse that plutonium in nuclear weapons (DOE 2002). Because an immobilization-only approach would jeopardize Russia's continued involvement in the joint effort to reduce supplies of weapons grade plutonium, the DOE decided that if only one disposition approach is to be pursued, the MOX fuel approach is the preferred one. [February 2003 DEIS, 1.1.1 Surplus Plutonium Disposition Program]

But the record reveals quite a different picture. From the beginning both the American and the Russian plutonium programs have been bankrolled by the U. S. Treasury. The decision by the DOE to utilize the more expensive plutonium fuel option was not made in the interest of either the American or the Russian people. Experts in both counties have lambasted the decision. The Washington-based Nuclear Control Institute condemned the amended ROD:

114-6

> Moreover, the Bush Administration continues to cave in to Russia's insistence that plutonium from dismantled warheads be recycled as mixed-oxide ("MOX") fuel for commercial nuclear power plants. "The Energy Department's own studies document that the MOX approach is far more expensive and dangerous than directly disposing of plutonium by immobilizing it as waste," noted Dr. Edwin Lyman, NCI scientific director. "The Bush Administration reportedly pressured President Putin to accept U.S. terms in the draft nuclear arms agreement, but has never been willing to resist Russia's ambitions to pursue a MOX-only plutonium disposal strategy. Russia cannot afford to pursue any plutonium disposition strategy on its own. If the U.S. Government made it a priority, an immobilization approach could be up and running in a relatively short period of time." May 14, 2002 NCI press release, http://www.nci.org,

Ten time zones away Russian experts who support dismantlement of nuclear weapons continually call for abolition of the plutonium fuel program and advocate immobilization of weapons-grade plutonium. Opposition to plutonium fuel programs based on the negative health and safety aspects continues unabated in cities across the Russian Federation. A Russian group's recent press release (Appendix A) stated:

114-7

> "Using plutonium as a fuel for NPPs [nuclear power plants] may lead to nuclear accidents and plutonium pollution of the Russian territories. It also gives the possibility of nuclear material theft and proliferation," said Vladimir Slivyak, Ecodefense co-chair. "Plutonium must be immobilized and never used again", he added. In 2000, Russian and US governments agreed on disposing 68 t of weapon-grade plutonium (34 t each). Cost of Russian part of the program is nearly $2 billion while the US part exceeds $4 billion. According to this approved scheme, weapon-grade plutonium must be mixed with uranium to fabricate MOX fuel (Mixed Oxides of uranium and plutonium) which then would be used in civil nuclear reactors. This plan includes the construction of new facilities in Savannah River Site (US) and Seversk (near Tomsk city, Siberia/Russia) to produce weapons grade MOX and then burning the fuel in civil reactors. In 1993, an explosion at the Seversk facility, where plutonium is extracted out of dissolved spent uranium fuel elements, caused plutonium contamination around facility. Involving plutonium into the civil nuclear industry may lead to new nuclear reactor accidents , plutonium contamination of Russian and US territories, and nuclear proliferation. http://www.antiatom.ru/entext/030528anc.htm Antiatom.ru, May 28, 2003

The NRC has arbitrarily determined that immobilization of plutonium does not require an in-depth evaluation because it is not a "reasonable alternative" and because the agency seeks to avoid foreign policy issues. One of the most dumbfounding statements in the DEIS:

The second reason that immobilization is no longer a reasonable alternative to the proposed action is its connection with the conduct of United States foreign policy. Evaluating the immobilization alternative now would involve the NRC in foreign policy matters that the DOE has been conducting on behalf of the United States. In the NRC's view, an alternative that would block the implementation of an agreement with another country involves foreign policy matters that are outside NEPA's scope. Therefore, the NRC concludes that immobilization is not a reasonable alternative requiring detailed analysis in this DEIS. (February 2003 DEIS, 2.3.3 Immobilization of Surplus Plutonium)

114-7 cont.

Despite numerous requests to evaluate the technical aspects of immobilization by people at public meetings in North Augusta, South Carolina; Savannah, Georgia; and Charlotte, North Carolina, the NRC steadfastly refuses to accede to the wishes of the citizens most directly affected by the proposed plutonium dismantlement operations at SRS. The possibility that environmental impacts may affect policy considerations foreign or domestic most certainly does not negate the requirements of NEPA. The NRC simply cannot recycle the mendacity of the DOE and its contractors. A comprehensive analysis of the impacts of the plutonium-MOX facility must needs include a side-by-side comparison with immobilization.

114-8

Perhaps the most stunning flaw in the DEIS is the failure to even consider possible environmental consequences of terrorist acts on plutonium-MOX fuel fabrication and transportation. The February 2003 draft states:

> Many commenters raised a number of different issues concerning terrorism. The Scoping Summary Report stated that the EIS would not address the impacts of terrorism because these impacts are not considered to be reasonably foreseeable as a result of the proposed action. However, following the events of September 11, 2001, the Commission decided to consider the question of whether NEPA requires the evaluation of such impacts. By order dated December 18, 2002 (CLI-02-24), the Commission ruled that NRC has no obligation under NEPA to consider intentional malevolent acts in conjunction with the licensing of the proposed MOX facility. [February 2003 DEIS, 1.4.1 Scoping Process]

Because the plutonium-MOX fuel plan necessitates shipping nuclear weapons-usable plutonium over enormous distances, it might well increase the likelihood that such material could fall into the hands of terrorists. The U.S. National Academy of Sciences stated that shipments of plutonium fuel will require security measures equivalent to those needed for transport of nuclear weapons. Harvard Law School and the United Kingdom Royal Commission on Environmental Pollution have also raised concerns about the security measures needed for plutonium as an article of commerce.

114-9

A report prepared by a special commission of International Physicians for the Prevention of Nuclear War and the Institute for Energy and Environmental Research states:

> Using plutonium as fuel on a large scale would be difficult to safeguard and would involve a high risk of diversion. In the case of plutonium from weapons, there would be a regular traffic of plutonium oxide from dismantlement and storage sites to fabrication facilities and reactors, with the risk of attack along transportation routes. [International Physicians for the Prevention of Nuclear War and The Institute for Energy and Environmental Research, Plutonium: Deadly Gold of the Nuclear Age, International Physicians Press, Cambridge Massachusetts, 1992, p.133-134]

MOX fuel has a greater quantities of plutonium and other hazardous radioactive isotopes such as Americium 241 and Curium 242--actinide elements which would cause additional harmful radiation exposure to the public.

> Public attention has been drawn to the higher actinide inventories available for release from MOX than from conventional fuels. Significant releases of actinides during reactor accidents would dominate the accident consequences. Models of actinide release now available to the NRC staff indicate very small releases of actinides from conventional fuels under severe accident conditions. (emphasis added) [Letter from Advisory Committee on Reactor Safeguards to Nuclear Regulatory Commission Chairman, May 17, 1999]

114-10

The plutonium oxide fuel would be valuable target. The Department of Energy's program would transport plutonium from Defense Department sites to South Carolina for fuel fabrication. From Savannah River tons of plutonium in mixed oxide fuel would be transported across hundreds of miles of isolated countryside to utility reactors in North Carolina and South Carolina. This overland transport link presents a unique opportunity to those who might intercept and divert the fuel for weapons use. The freshly fabricated fuel rod assemblies would be the most desirable form for groups who would go after the plutonium for unlawful use in their own explosive devices. DOE admits this vulnerability:

> [T]he unirradiated fuel contains large quantities of plutonium and is not sufficiently radioactive to create a self-protecting barrier to deter the material from theft....
>
> Revised Conceptual Designs for the FMDP Fresh MOX Fuel Transport Package, Ludwig et al, ORNL/TM-13574, March 1998

114-11

The risks of deliberate diversion and/or destruction of a fresh nuclear fuel or irradiated waste transport cask are increased by plutonium fuel. Higher actinide inventories increase the public health risks. The strategic value of plutonium oxide for new weapons increases the threat of diversion.

On October 9, 1995, a ten car Amtrak train with 248 passengers and twenty crew was derailed near Hyder, Arizona. Spikes had been removed from the rail bed, a metal bar connecting the rails had been removed, and the missing section wired to circumvent the electronic warning system. A terrorist group, Sons of the Gestapo, left a note at the scene claiming credit and criticizing law enforcement agencies, citing the Waco and Ruby Ridge incidents.

On October 1, 1995 a jury convicted Sheik Omar Abdel Rahman of conspiracy to use diesel-fertilizer bombs which would have been used to blow up United Nations headquarters, the Lincoln and Holland tunnels, the George Washington Bridge, and the New York federal building. The George Washington Bridge has been used for shipments of irradiated fuel and plutonium from Brookhaven National Laboratory to the Savannah River Site.

Incidents of rail and highway sabotage reveal that: 1) terrorist attacks would likely be designed to inflict maximum human injury, 2) electronic warning systems designed to alert officials and prevent accidents can be defeated by technical countermeasures, 3) effective attacks using home made explosives are possible, avoiding the need for exotic military weapons to breach transport containers, and 4) saboteurs have the ability to create damage which exceeds the containment standards of NRC certified shipping containers.

> The willingness of terrorists to kill or injure large numbers of Americans, demonstrated in the World Trade Center and Oklahoma City bombings, compels any current assessment to focus on incidents that are clearly intended to cause, or could cause, radiological sabotage." The FBI's Terrorism in the United States: 1995 reported: "In the past year, the country witnessed the re-emergence of spectacular terrorism with the Oklahoma City bombing. Large-scale attacks designed to inflict mass casualties appear to be a new terrorist method in the United States. [*Nuclear Waste Transportation Security and Safety Issues: The Risk of Terrorism and Sabotage Against Repository Shipments*, Halstead and Ballard, December 1998]

Halstead and Ballard state that risk assessments must consider direct attacks on transport casks using high energy explosive devices with or without capture of the shipments. Capture and control of the cask by terrorist agents would allow the cask to be breached with a variety of devices including commercially available conical shaped charges and cutting charges, or a massive diesel fuel-fertilizer truck bomb. Attackers may use transport personnel as hostages to retain control of the cask for hours. With the timed gained, attackers could increase the effect of explosives by removing barriers and applying them to the most vulnerable part of the cask.

Full scale tests by Sandia National Laboratory published in 1983 utilized a military shaped charge (US Army M3A1) on a GE IF-200 truck cask containing unirradiated fuel. Even this outdated test demonstrated that the cask could be breached and that radioactive materials would be released.

Current weapons, such as the Superdragon anti-tank missile, are more powerful and can penetrate 18 inches of armor plate. This weapon was used by the U.S. in Operation Desert Storm, and is used by at least ten other

nations. The release of even more toxic radioactive elements would cause more fatalities immediately following an accident. Lindsay Audin's analysis of fuel rod behavior during incidents involving sabotage explains how much greater amounts of fine particles and vapors would be released from a conventional irradiated fuel cask.

> An attempt to disperse the fuel would likely involve a high explosive device that must first penetrate a transport cask. Such a device would penetrate one or both sides of the cask, shatter the fuel rods and pellets in its path, and heat the area along that path. The shock and heat involved would...initiate several processes not normally experienced by uranium dioxide and zirconium alloy. At high temperatures in the presence of oxygen, both materials will change form. Uranium dioxide UO2 will "reoxidize" and become U3O8...expanding and forming a very fine power in the process. Zirconium will literally ignite, vaporizing itself.... The fuel pellets may also shatter back to the consistency of the uranium power involved in their manufacture. Ruthenium will vaporize and combine with oxygen to form minute particles, while other elements, such as iodine, will be released as gases. [Analyses of Cask Sabotage Involving Portable Explosives: A Critique, Lindsay Audin, 1989]

Emergency response to rail or highway accidents must be well-prepared and rapid. Delays in response to accidents which involve the release of radioactive material would expose unknown numbers of people to negative health effects. In 1996, a DOE Transport and Safeguards Division Safe Secure Transport (SST) trailer carrying nuclear weapons slid off the road and rolled over in rural Nebraska. Four hours elapsed before DOE headquarters were notified, and it was 20 hours before a Radiological Assistance Program team determined there was no release. A similar delay in response to a plutonium-MOX fuel accident could make effective emergency response dangerous and clean-up impossible. The following comment by the Georgia Environmental Protection Division cites vehicular tests of powdered materials deposited on roadways and takes issue with the DOE's approach to emergency response to accidental plutonium fuel releases. 114-12

> After passage of about 100 cars only a small fraction of the original contamination remained on the road surface. Unless emergency officials promptly close the accident scene to vehicle traffic (an unlikely situation), emergency responders may face an incident scene that is, unknown to them, extremely hazardous due to respirable plutonium. Post emergency actions may also be complicated due to the enhanced spread of contamination by vehicle traffic. [Georgia Environmental Protection Division comments on DOE SPD DEIS]

The NRC must go back to the drawing board and include a full-scale environmental impact analysis of potential terrorist acts on plutonium-MOX fuel shipments. The Commission's order of December 18, 2002 (CLI-02-24) which found that the NRC has no obligation under NEPA to consider intentional malevolent acts in conjunction with the licensing of the proposed MOX facility is so wrong it beggars description. Even if CLI-02-24 does not find an obligation to investigate potential terrorist acts, you have an obligation as Americans in the 21st Century to use due diligence in this matter. 114-13

Respectfully,

Louis Zeller

Southern Anti-plutonium Campaign Director

Cc: Tim Harris

Attachment

06/17/2003

00115

From: Mary Olson <nirs.se@mindspring.com>
To: <teh@nrc.gov>
Date: 6/13/03 6:15PM
Subject: Additional MFFF comment / [Fwd: BREDL's EPA petition on SRS]

Nuclear Information and Resource Service
Southeast Office
PO BOX 7586
Asheville, NC 28802

May 30, 2003

Michael T. Lessar c/o Tim Harris -- via e-mail
US Nuclear Regulatory Commission
Washington, DC 20555

Dear Mr's Lessar and Harris,

I would like to submit the following as an additional comment for Nuclear Information and Resource Service.

We are forwarding the attached (on this message) from Louis Zeller of the Blue Ridge Environmental Defense League which includes 2 documents: their submission to the US Environmental Protection Agency in objection to the Title V permit issued to the DOE for the Savannah River Site, and particularly the second document: their reply to the South Carolina Department of Health and Environmental Control (DHEC) after the permit was awarded. Blue Ridge Environmental Defense League's work, summarized in these submissions to DHEC and EPA, clearly establishes that the Savannah River Site does not currently meet five Title V emission standards with the existing operations at the Site. The addition of the Pit Disassembly and Conversion, waste processing, MOX Fuel Factory, and now, likely because of these plutonium missions, the siting of the Modern Pit Facility may, in fact, cause additional violations. The most troubling non-compliance in terms of these new plutonium factories is the fact that SRS exceeds NESHAPS -- National Emission Standards for Hazardous Air Pollutants standard of 10 millirems to the public under the currently permitted activities. The incinerator is clearly part of what is at issue in this determination, but there is nothing to ensure that it, or a similar operation will not be utilized during the term of operation of the MFFF, since it is included in the currently permitted activities. 115-1

The EIS must show that any ADDITIONAL activities and cumulative and additive activities would not result in exceeding the NESHAP limit when combined with current operations. Further, the NESHAP is written in millirems to individuals off site. There is no current monitoring done by DOE, or reported in the DEIS that can, in fact confirm public doses from all current sources of radiation exposure to the public at SRS.

The Blue Ridge Environmental Defense League (BREDL) documents also include abundant information about the use of HEPA filters that is not included in the DEIS on the MFFF. HEPA filters clearly can contribute to additional radioactive air emissions. 114-2

While BREDL may have submitted this information in their comments on the

JUN-18-2003 10:58 P.03/11

Tim Harris - Additional MFFF comment / [Fwd: BREDL's EFA petition on SRS]

MFFF, the purpose of this submission is to reinforce our own earlier comments about how additional construction, operation and waste generation at SRS might cause the Site to exceed current regulations. We find that the BREDL submission, and the supporting documents referenced offer additional substance to our assertion, and ask that you consider it in detail.

It is clear to us that the accident analysis NRC did for the MFFF and PDCF likely apply to many other accident scenarios --and actual accidents that have occurred -- from current and past operations at SRS. If this is the case, then the environmental justice concerns that apply to any future accident apply to the impacts associated with violating emission limits and other standards. We believe that it is a violation of the principles of equal protection under the law for NRC to grant additional licenses to additional activities at SRS that will exacerbate an existing problem of environmental discrimination and injustice. 115-3

Finally, we would like to bring to the Commission's attention the issues being considered at Erwin, Tennessee's Nuclear Fuel Services (see: http://frwebgate5.access.gpo.gov/cgi-bin/waisgate.cgi?WAISdocID=442311280+10+0+0&WAISaction=retrieve)

NFS is applying for a license amendment to reduce the source term at their site, since they are digging up soil that no longer meets applicable standards, and sending it to Utah. NFS is cleaning up waste burial grounds because they are not licensed to be a nuclear waste dump. NIRS would like to submit to NRC that there is no reason to think that sending waste over the fence line into an unlicensed burial ground at Savannah River Site is any different than Nuclear Fuel Services burying waste on their own site. In both cases it is wrong, it is bad for ground water, surface water, workers, wild life and any other living thing you want to mention. It is a disgrace...and yet, that is the answer that DOE and Duke COGEMA Stone offer us...just dump it next door, out of NRC's regulatory space. This is not adequate or acceptable...and the environmental impacts of doing so should be explicated in detail in this document, not merely stated that the SRS has waste capacity to take it. 115-4

Respectfully Submitted,

Mary Olson
nirs.se@mindspring.com

CC: Lou & Janet Zeller <BREDL@SkyBest.Com>

JUN-18-2003 10:59 P.04/11

00116

DEIS Comments for MOXFFF at SRS

May 14, 2003
from Peter James Atherton

FAX to: 301-415-5398

NRC,
NMSS,

Dear T. Harris:

Please accept these draft comments on the EIS for MOX. I only recently became re-involved with MOX & have had insufficient time to properly review the various ER's, CAR's, DSER's & DEIS to put forth a properly presented set of comments by the latest 5/14/03 deadline.

1. Arbitrary deadlines appear to be the managing force behind the MOX safety review. I suggest that wherever possible, deadlines should take a back seat to safety, so that the public develops confidence that NRC is protecting them. 116-1

2. DEIS, ~~[illegible]~~ chap1; pg 1-18. The NRC commission order of 12/18/2002 (CLI-02-24) ruled that "NRC has no obligation under NEPA to consider intentional malevolent acts in conjunction with the licensing of the proposed MOX facility." I suggest that public health & welfare require NRC to be reasonable and consider malevolent external man-made events as a bounding security issue. The design of the MOXFFF should glean insights from terrorist 116-2

page 1 of 8

acts at the design phase so that important anti-terrorist design features are included in the construction of the facility. The environmental impact of a large fully fueled aircraft loaded with explosives crashing into MOXFFF is necessary so that the public knows about the danger. Plant design features could be a significant preventive/mitigative safety measure if included in facility design before construction begins. I suggest that NRC reconsider the environmental impact of facility destruction by a well planned terrorist act. 116-2 cont.

3. The terrorist act — The U.S.A. is at war. We have color codes (red, orange, yellow, etc) for various security levels of threatened terrorist acts. In any new construction involving potent radioactive materials, threatening terrorist acts require NRC consideration of the necessary preventive/mitigative features to protect public health & safety. It is suggested that NRC review the probabilities of happening of previous "incredible" events — Three Mile Island #2 in 1979; Chernobyl in 1986, the N.Y. City twin towers in 1993 & again in 2001. The probability that these events would 116-3

happen in the manner in which they occurred (before they occurred) is very, very small - incredibly small. Yet, the incredible happened. NRC should awaken to the reality of today's environment & work to vigorously protect public health & safety. Worst case events from incredible happenings require NRC review & consideration in determining nuclear safety. Accordingly, it is suggested that the worst case scenario be evaluated for all possible events and accidents. 116-3 cont.

4. The MOXFFF appears to be an engineering experiment. Usually, prototype models of new designs precede a final design. The MOXFFF as it is proposed has no known predecessor in this country. While there are similar fuel fabrication designs in this country & experience with recycling in other countries, the proposed MOXFFF in this country is a trial with the local population placed at risk. While I am not suggesting that our engineers cannot safety design & operate such a facility, the NRC it is suggested should proceed with caution and not rapid abandon. Caution requires consideration of every measure needed 116-4

to protect public health & safety. Safety should take precedence over arbitrary deadlines. 116-4 cont.

5. The NRC is licensing MOX and is not licensing WSB or PDCF. MOX is generating chemical & radioactive waste, which is then transferred to unlicensed facilities for disposal. I suggest that the polluting history of SRS requires that an independent NRC get involved with the proper disposal of the wastes generated by MOX. Incineration, burial and transport of chemical and radioactive wastes require NRC to become involved through the EIS in a proper outcome. NRC should reconsider the bounds of its EIS. 116-5

6. NRC should alternatively consider a self-sufficient MOXFFF with a WSB & PDCF totally separate & independent of SRS. The necessary design changes should be included and reviewed at this time with a revised EIS. 116-6

7. Natural phenomenon - the earthquake. It is not obvious that the worst case earthquake would not devastate the current MOX design. If PSSC's survive the earthquake, non-PSSC equipment & structures might not

survive and their destruction could have an adverse impact on the PSSC's, assuming the PSSC's themselves survive. So the worst case earthquake could also cause explosions, spills, criticality accidents, fires and leaks of radioactive material. NRC should review this worst case scenario and its environmental impact. 116-7 cont.

8. Why are not accidents also viewed simultaneously with a hurricane, when the winds are fiercest. 116-8

9. Transportation - Did NRC consider both fatal & non-fatal truck accidents? Why are "neutral weather" conditions and not the "worst case" weather conditions considered in an xport accident? What are the transportation risks on site at SRS? 116-9

10. Nuclear accountability - How are MOX pellets accounted for? How many pellets are produced? What is the probability of theft? How are waste streams accounted for? 116-10

11. If there is an emergency response plan at SRS, where is the offsite emergency planning for the public. How is the public made

aware of an incident at SRS? Is emergency evacuation planned & practiced? 116-11 cont.

12. Pipes between facilities — what is the chance of a criticality event in a pipe? Does NRC have complete jurisdiction to review the scenarios to ensure that enriched U & Pu are at safe levels in the pipes? 116-12

13. Why not ensure public protection from fire & smoke by using both sand & HEPA filters? Series or parallel connections could be considered. 116-13

14. DCS plans to use both preventive and mitigative measures in accident evaluations. A more conservative approach is to allow for the accident and mitigate the consequences while simultaneously designing to prevent the accident. Why is not this philosophy applied & the EIS consequences considered? 114-14

15. For airborn releases of radiation, in an accident the MEI is at the north SRS boundary. Yet the 1 year maximum dose is at the S-SW boundary. Why? For most of the year there are no prevailing winds at SRS. It appears there is no real "safe" direction 116-15

to evacuate to in the event of an accident. Emergency planning (EP) takes on a new meaning. 116-15 cont.

16. Is high alpha particle waste currently planned to be treated as HLW, LLW, mixed or what? 116-16

17. I was informed that the ICRP has published a 2003 set of recommendations on health effects of ionizing radiation exposure at low doses for radiation protection purposes. Regulator's Edition: Brussels, Jan. 2003. How does this information compare with what NRC uses? Which is valid? 116-17

18. It would probably help if some standard is used to quantify the terms "unlikely", "highly unlikely" & "incredible". Is NRC planning to associate quantitative criteria with these terms that meets some standard? 116-18

19. I have questions concerning the environmental impact that the worst case H_2 explosion could cause. What is its impact? 116-19

20. Are offsite radiation monitors planned to monitor radiation continually? What about on site? Please identify the capability to actually measure α, β, γ & (n) radiation 116-20

continually in & around SRS. What types of detectors are used; how frequently are they calibrated? Is the system automatic or manual? Where is this info maintained? 116-20 cont.

Mr. Harris, these 20 comments are all I have time for by this date. I hope that this helps "make your day!" Seriously though, there are issues that need NRC attention.

Thanks,

Peter James Atherton
P.O. Box 2337
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Pgr. 202-424-2000
Pjaserv@juno.com

planned copy: UCS, NIRS, GANE, BREDL, Sierra Club of Ga., Greenpeace, Public Citizen