

MEMORANDUM  
APRIL 18<sup>TH</sup>, 2007

TO: Luis A. Reyes  
Executive Director for Operations

FROM: Alexander P. Murray, Senior Chemical Process Engineer  
MOX Branch  
Special Projects  
And Technical Support Directorate  
Division of Fuel Cycle Safety  
and Safeguards (FCSS)  
Office of Nuclear Material Safety  
and Safeguards (NMSS)

SUBJECT: 1. APPEAL ON DIFFERING PROFESSIONAL OPINION (DPO) DPO-2005-002 ENTITLED, "DIFFERING PROFESSIONAL OPINION ON RED OIL EVENTS AT THE PROPOSED MIXED OXIDE (MOX) FUEL FABRICATION FACILITY (DOCKET NUMBER: 070-03098)," SUBMITTED JANUARY 14<sup>TH</sup>, 2005  
2. UNRESOLVED SAFETY QUESTION ON RED OIL

*Alex*

I had previously provided comments on the subject DPO several times, most recently in an E-mail dated March 28<sup>th</sup>, 2007 (4:28 p.m.).

I received a copy of a "Final Decision" memorandum on the subject DPO on March 28<sup>th</sup> - the memorandum itself is dated March 23<sup>rd</sup>, 2007. There is no DPO Panel Report attached to the "Final Decision" memorandum; per E-mail of March 28<sup>th</sup> from Renee Pedersen, I have been told that the DPO Panel Report is the same one I provided comments on (i.e., dated February 21<sup>st</sup>, 2007, transmitted by a cover letter dated March 5<sup>th</sup>, 2007).

None of my previous comments have been addressed. Consequently, my main concerns remain. In addition, the management system in the part of the NRC I work in inappropriately commented on the DPO and its safety concerns during the DPO review, thus creating a prejudicial bias against the DPO. Consequently, I am requesting an appeal of the DPO decision. A copy of my comments and the DPO Appeal form are attached.

The Office Director's Decision, the DPO Panel Chairman's cover letter, and the DPO Panel Report represent an outrageous farce; their recommendations of inaction or limited action do not comport with the findings and conclusions in the report which, in short, agree with the safety concerns raised by the DPO. Phrases like "significant technical questions remain unanswered," "unclear technical bases," "it is unclear how the design bases will provide adequate protection," "safety margin ... is not supported ... may not be adequate," "proposed safety controls ... may

not be available and reliable upon demand," "high consequences," and "... not unlikely, high consequence event" are not phrases that seem compatible with NRC regulations and acceptance, even at the construction stage. Unanimity between the DPO submitter, FCSS staff, the ACRS, the contractor report (CNWRA), and the DPO Panel that significant technical questions remain unanswered is extremely significant. Inaction or limited action on identified safety concerns is neither in alignment with the Part 70 regulations nor with the NRC Strategic Plan goals of ensuring safety, openness, effectiveness, and management excellence.

In addition to the requests in the DPO, I demand that::

- the DPO Panel Report recommendations of inaction/limited action are corrected to reflect proactive steps to resolve the safety concerns of the DPO and the DPO Panel Report findings and conclusions. Such proactive steps might include reopening the safety issue, making it an action item, and adding it to a tracking system.
- the contractor report is made fully publicly available (it is currently categorized as Official Use Only - the DPO Panel was informed the designation would be removed once the Panel Report was finalized). This report is very critical of the applicant's approach and its non-public categorization gives the appearance of a cover-up.
- the letter from FCSS management to NMSS prejudicially commenting against the DPO and the safety issues (circa late 2005) - and any other letters, E-mails, communications, and interactions between NMSS and FCSS management and the DPO Panel - is (are) made fully publicly available (see attached E-mails from September 15<sup>th</sup> and December 14<sup>th</sup>, 2005). I also note that this letter and associated communications violate the scope given to the DPO Panel by the NMSS Office Director.
- the DPO Panel Report acknowledge the fact that the DPO was submitted by the Lead Chemical Safety Reviewer for MOX, who has now been redirected by management to work on non-MOX activities.

I also note there appears to be an evolution in the FCSS conclusions on the red oil issue. In the FSER (NUREG-1821), page 8-51, it states in part:

- "... the staff concludes the applicant provided sufficient defense-in-depth provisions ..."
- "... the applicant provided sufficient controls and margin ..."
- "The applicant's proposed aqueous injection system extends beyond the safety requirements at DOE facilities and the operating French MOX facility."

Yet, based upon the aforementioned unanimity found by the DPO Panel, the FCSS staff now has significant, unanswered technical questions. This is also a significant change.

There have also been changes in the applicant's safety strategy; a settler/decanter has been added as safety equipment. However, the applicant previously informed the NRC that this equipment would fail at least annually based upon French and other industry experience. In

addition, the CNWRA contractor report identified the inadvertent transfer of organic materials to concentrated nitric acid solutions as an expected event. Thus, there is no improvement in safety. There is no additional information provided in the License Application and ISA Summary to support the effectiveness of the red oil safety strategy. Commitments are not mentioned in the Construction Permit or the revised license application, thus raising questions about commitment effectiveness and the nexus to NRC enforcement.

A review of a recent report by Brookhaven National Laboratory ("Risk Assessment of Red Oil Excursions in the MOX Facility," BNL-MOX-2007-001) indicates the proposed safety strategies are not likely to meet the highly unlikely criterion for high consequence events. This report did not review the adequacy of the design bases and principal structures, systems, and components to address the red oil hazard (it assumed they were correct); it only analyzed likelihoods.

The DPO Panel Report implies a concern about the Part 70 regulation (see Comment 3 in the Attachment). This concern needs resolution, perhaps by a rulemaking.

An Unresolved Safety Question (USQ) means a situation where:

1. The probability of the occurrences or the consequences of an accident or the malfunction of equipment important to safety previously evaluated in the documented safety analysis could be increased;
2. The possibility of an accident or a malfunction of a different type than any evaluated previously in the documented safety analysis could be created;
3. A margin of safety could be reduced; or
4. The documented safety analysis may not be bounding or may be otherwise inadequate.

The DPO Panel and CNWRA contractor reports raise many questions about the applicant's proposed safety strategy for red oil, including safety margins, reliabilities, event scenarios etc. Thus, a USQ likely exists and needs a schedule with timely resolution.

Finally, as I have stated previously to you, I have been directed by my management to primarily work on other programs and issues, and not on MOX, and, obviously, not be the Lead Chemical Safety Reviewer for MOX. I am concerned that my reassignment gives the appearance of retaliation for raising safety issues on MOX and writing DPOs.

My comments are attached. I encourage you to read the DPO Panel and Contractor Reports. Please contact me if you have any questions.

Attachments:

General and Specific Comments on the DPO Panel Report  
E-mail from Renee Pedersen, March 28<sup>th</sup>, 2007, 4:28 p.m.  
DPO Appeal Form  
E-mail from Alex Murray, December 14<sup>th</sup>, 2005, 5:15 p.m.  
E-mail from Alex Murray, September 15<sup>th</sup>, 2005, 6:11 p.m.

cc:

Renee Pedersen  
Sheryl Burrows  
Larry Pittiglio  
Dale Yeilding

### General Comments on the DPO Panel Report:

1. The cover letter to the NMSS Director is a generic cover letter of inaction that makes no mention of the general consensus that there are safety issues. These safety issues should be reflected in the cover letter.
2. The report is better written than most DPO Panel reports. However, there still is a prevailing partiality of accepting the existing management position and inaction. In addition, citations are weak. There are no citations for comments made by the contacts (basically, who said what) even though statements made by the DPO submitter are attributed as such - this is both inaccurate and unfair. Such citations should be included. Also, any OGC statements or considerations should be identified.
3. The DPO Panel Report seems to be hinting there is an issue with the regulation, 70.23(b), and SECY-188 (the original Statement of Considerations). If this is the case (for example, 70.23(b) uses may instead of shall in its last sentence), then it should be highlighted by the DPO Panel Report and a recommendation made to correct the regulation (e.g., by a rulemaking) as other Part 70 applications are possible or even likely in the near future.
4. The DPO Panel Report states in several places the ACRS concluded sufficient information had been received from the applicant for sufficient assurance to proceed with construction. However, this is a mischaracterization. Management requested a short, one paragraph letter of endorsement for approving the CAR. Instead, the ACRS provided five pages of comments and noted several areas of concern, including the red oil issue, for which the ACRS stated the applicant's technical bases are not clear. The meeting transcripts are even more critical and imply the ACRS acquiesced rather than endorsed the construction approval. This context should be clearly stated. In addition, the CNWRA report should be provided to the ACRS for their feedback. Note that a finding of unclear technical basis does not meet the regulation (70.23(b)).
5. In several places, the DPO Panel Report states significant costs are not associated with backfits for red oil issues. The bases for these statements are not clear and should be stated. Per the Nuclear Fuel dated March 12, 2007 (page 3), the proposed MOX facility has quintupled in cost. Other recent articles suggest facility costs in excess of \$3 Billion. Changes to an as built facility involving more cells and piping could be very expensive and could approach tens or even hundreds of millions of dollars. The NRC sometimes uses 10% of the total cost as a metric - if this is being used by the report, it should be stated. However, absolute values of many millions of dollars would hardly seem insignificant and would be of great interest - and concern - to DOE, Congress, and the public.

6. In several places, the DPO Panel Report and Package indicate significant technical questions remain unanswered. There is no nexus provided to link "significant unanswered technical questions" to meeting regulatory requirements and NRC acceptance. In short, you can't have it both ways - significant questions and regulatory acceptance.
7. In several places, the DPO Panel Report and Package justify inaction based upon the applicant knowingly accepting the risk. From a quick look, I could not find a statement in the FSER, FEIS, or Construction Permit stating as such for the red oil phenomena. The report should provide such references.

**Specific Comments on the DPO Panel Report:**

8. Panel Report, page 2, last paragraph: This incorrectly states the construction authorization review was to preclude backfitting. No such guidance was given to the staff. It should cite the OGC approved, regulatory statements at the beginning and end of Chapter 8 (Chemical Safety, where the red oil issue is discussed) in the MOX FSER.
9. Panel Report, page 2 - bottom, and page 3, first paragraph: This is an incorrect statement - the DPO Submitter did not object to the applicant's approach. Instead, the DPO submitter noted the applicant was not following the RAGAGEP approach and concluded the applicant had not provided sufficient information to meet the requirements of Part 70 (namely, 70.23(b), 70.61, 70.62, and 70.64) for a construction permit. The DPO Submitter also concluded the staff position accepting the applicant's approach was incongruent with the regulations and the high risk of the potential event. Please correct.
10. Panel Report, page 3, paragraphs 1 through 4: This states the applicant accepted the risk by relying on future research. This seems like a disingenuous and obfuscating argument, as a clear statement of accepting risk does not appear to have been made to nor acknowledged by the applicant. The DPO Submitter has stated concerns that potential backfits or exemptions could result in a lower level of safety than addressing the issue forthrightly at the construction permit stage. Such statements clearly stating risk acceptance by the applicant should be referenced and summarized. In addition, the report notes a consensus that significant technical questions remain unanswered and a red oil event explosion could have high consequences. Yet, the recommendations are largely long-term, programmatic responses that will result in little or no action (the "inertia of inaction"). The non-sequitur should be explained.
11. Panel Report, page 3 - bottom, and page 4, top: this should note that several parts of the Part 70 regulations were used for the construction authorization review (see Comment 9).
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12. Panel Report, page 4, paragraph 3: the ACRS recommendation is taken out of context and is mischaracterized (see Comment 4). The DPO Panel Report should explain why an issue that the ACRS stated had unclear technical bases was found to be acceptable. Fundamentally, if there was a desire by the NRC to proceed forward, why weren't license conditions applied to address the "unclear technical bases?"
13. Panel Report, page 4, last paragraph: this states the red oil caused explosion could have high consequences for worker and public safety, and the environment. The report should state this is also a high risk event unless adequate safety controls/strategies are applied.
14. Panel Report, page 5, top paragraph: This states the applicant's safety strategy. For clarity and accuracy, it should follow the approach outlined in the staff FSER. In addition, it mentions a non-safety diluent washing system to preclude the transfer of organics to heated equipment. The report implies this to be an additional safety feature but this is incorrect. The system is far less effective than the systems used by DOE and, in discussions, the applicant has informed the NRC several times that this system would likely fail on an annual basis. Thus, it offers neither additional safety margin nor defense-in-depth. This should be acknowledged by the report.
15. Panel Report, page 5, bottom: this should factually state that the DPO Submitter was the Lead Chemical Safety Reviewer for MOX and has since been reassigned by management to non-MOX programs (N.B. this looks like apparent retaliation).
16. Panel Report, page 6, bottom half of page: this should be clarified as the terminology is mixed and confusing. In addition, the diluent washing system should be noted as providing neither safety nor defense-in-depth, based on statements by the applicant and its inadequacy as compared to DOE designs.
17. Panel Report, pages 7 and page 8 (top): the DPO Panel Report should clearly acknowledge that these statements by the CNWRA support the safety issues raised by the DPO. In addition, the report should note that most of these statements apply at the construction approval stage (i.e., pertain to design bases and safety strategies).
18. Panel Report, page 8, first paragraph: The NRC has stated that the DOE/DNFSB approach would be acceptable at the construction stage because it is RAGAGEP and process safety information (including ISA-like analyses) is available. The Panel Report should reflect this fact.
19. Panel Report, page 8, last half of page: As noted previously, staff reviewing the MOX construction application were not given direction pertaining to backfitting nor were they directed to consider it. Also, as noted previously, findings related to other sections of Part 70 were also made. There are no explicit statements in the CAR or Permit that identify the risk and the applicant's acknowledgement of the red oil risk. This should be reflected in the Panel Report. In addition, the conclusion of an appropriate issuance of the construction application does not follow from the issues raised.

20. Panel Report, page 9 et seq: The Panel Report uses the Panel's interpretation of the concerns/issues and not the DPO concerns. These are sometimes different, particularly when taken out of context. The Panel Report should state the concerns as originally presented in the DPO, and then the DPO Panel's interpretation of each one.
21. Panel Report, page 9, Concern 2: This should state the CNWRA finding that the applicant's design bases were inadequate - i.e., repeat the first bullet from page 7.
22. Panel Report, page 9, Concern 3: The Panel Response should include additional findings from the CNWRA report related to pressure, such as sharp and fast pressure spikes, and steep increases in pressure and temperature caused by the inadequate (choked) vent.
23. Panel Report, pages 9-10, Concerns 4-6: Specific statements from the CNWRA's report should be added.
24. Panel Report, pages 10-11, Concern 7: The Panel Finding contains errors and does injustice to the concerns. There are safety culture issues. There are several documents that identify staff concerns with the safety review process in this part of the NRC, with multiple authors. These should be acknowledged, discussed, and referenced. In addition, the "system" would truncate safety discussions on the subject and not follow the normal consensus process - the Panel Report should acknowledge and reference that there is still an ongoing process trying to resolve these staff concerns and define consensus, and roles and responsibilities. The Panel Report erroneously states the DPO submitter was afforded the opportunity to discuss the concerns before the ACRS - instead, it should accurately reflect that the ACRS agenda/presentation specifics were developed by management while the DPO submitter was leading a seven-day workshop in Russia, that the DPO submitter was denied participation in the ACRS presentation by management, and that the DPO submitter requested a separate session to present the concerns before the ACRS. The ACRS put the two sessions together. In short, it is a great fallacy to state the DPO submitter was offered the opportunities before the ACRS, and this should be reflected in the Panel Report. Finally, the Panel Report should acknowledge the stigmas associated with submitting a DPO - it is not a normal process - the staff's negative perception of the DPV/DPO process (as evidenced by most surveys), and the DPO submitter filing grievances because of retaliation for his raising safety issues and writing DPOs.

25. Panel Report, page 11, Concern 8: The Panel Response misstates the concern. The Report should comment on the management decision referenced by the DPO which used process efficiency as a criterion for accepting a safety case.
26. Panel Report, page 11, Concern 9: This misstates the concern. Management (NMSS-OD) has provided guidance on other DPO decisions that states staff cannot review issues beyond the PSSCs/Design Bases accepted by the FSER - once approved, it's approved. The Panel Report should state this fact. The statement about the applicant making substantial modifications to its license application is a misstatement - the applicant merely moved information between submitted documents (the LA and the ISA Summary) - this should be reflected in the Panel Report.
27. Panel Report, page 12, Concern 10 and Conclusions: These are inconsistent with the findings of the report and the CNWRA document - they do not follow - they need to be changed to be proactive to address the safety issues. In addition, there seems to be an implied regulatory concern regarding 70.23(b), SECY-188, and backfitting - if so, this should be stated. Furthermore, there is no clear reference to documentation communicating risk acceptance and acknowledgement by the applicant. Such risk acceptance is neither part of the regulation nor the guidance.
28. Attachment 3 lists the persons contacted by the Panel. There is no indication of the type or context of discussions with these contacts, and, with the exception of the DPO submitter, there are no citations in the text. This is a fundamental inequity of these DPO reports - only statement's attributed to the DPO submitter are identified as such. The Panel Report should include citations and identify their sources, including interviews. Also, line management responsible for MOX is conspicuously lacking.
29. Is there a separate Attachment 4 to the Panel Report? If so, it appears to be lacking.

30. The CNWRA report is listed as Attachment 5. Some comments:
- This is listed as Predecisional - OOU. It is no longer predecisional and the OOU designation should be removed. OOU was also an incorrect categorization of the report.
  - Pages 2 and 3 are missing from my copy. Please provide.
  - Pages 5 and 6 indicate even higher consequences than originally estimated. This should be brought forward and mentioned in the Panel Report.
  - Some of the unit operations concerns from pages 6 and 7 should be brought forth. Also, on page 7, the report fails to mention the likely presence of nitrates and adducts in the oxalic precipitation and oxidation unit.
  - Pages 7-12 are much more negative with respect to the proposed safety strategy than discussed in the Panel Report. Some of this should be brought forward to the Panel Report, such as self-heating initiating well below the design basis temperature.
  - Pages 12 and 13 discuss the proposed acceptance of a test plan. The CNWRA report notes that, assuming a perfect research plan, it is not evident how the new knowledge would be incorporated in to the process design to improve the operational safety margin. This is a very important point not mentioned in the Panel Report - it should be brought forward.
  - Pages 13 and 14 mention backfit options and costs. No basis is provided for the conclusions of no extensive retrofits and no significant construction cost implications. This basis needs to be provided. Table 3.1 also indicates cost implications and contains inconsistencies which need explanation. For example, Option 1 states no substantial cost implication but a significant reduction in process efficiency - the latter would seem to imply a significant cost impact.
  - Page 15 lists safety items excluded by the DCS/MOX design philosophy. It also mentions that reliable temperature and pressure controls would help to ensure that a potential detonation does not occur. This point needs to be brought forth to the main part of the DPO Panel Report.
  - Page B-1 reinforces earlier concerns in the CNWRA report about the possibility of a trapped organic phase. Again, this finding should be brought forth to the DPO Panel Report.

**From:** Renee Pedersen  
**To:** Alex Murray  
**Date:** 03/28/2007 4:28:23 PM  
**Subject:** MOX Red Oil DPO Fwd: Re: DPO Extension Request for DPO-2005-002

Alex,

It should be the same report. I haven't seen the decision yet.

Notwithstanding the March 23rd date, per the MD you have 21 calendars (from today) to submit an appeal if you choose. (April 18, 2007)

Renee

>>> Alex Murray 3/28/2007 3:08 PM >>>  
Renee,

Today I received a copy of the OD's decision on the Red Oil DPO. The decision is dated March 23rd. It contains the DPO Panel Report attachments but not the DPO Panel Report itself. Is the DPO Panel Report the same version as in the package given to me, i.e., the 2/21/07 version? If so, I will just copy and insert it myself.

Please advise,

Alex.

>>> Alex Murray 03/19/2007 5:43 PM >>>

Renee,

Thank-you for the opportunity to comment on the DPO Panel Report on Potential Red Oil Events at the Proposed MOX Fuel Fabrication Facility.

I have briefly reviewed the Report. It is an outrageous farce; the report recommendations of inaction do not comport with the findings and conclusions in the report which, in short, agree with the safety concerns raised by the DPO. Phrases like "significant unanswered technical questions," "unclear technical bases," "it is unclear how the design bases will provide adequate protection," and "high consequences" are not phrases that seem compatible with NRC regulations and acceptance, even at the construction stage. Inaction or limited action on identified safety concerns is neither in alignment with the Part 70 regulations nor with the NRC Strategic Plan goals of ensuring safety, openness, effectiveness, and management excellence.

This injustice needs to be corrected.

I demand that::

- the DPO Panel Report recommendations of inaction/limited action are corrected to reflect proactive steps to resolve the safety concerns of the DPO and the DPO Panel Report findings and conclusions. Such proactive steps might include reopening the safety issue and adding it to a tracking system.
- the contractor report is made fully publicly available (it is currently categorized as Official Use Only).
- the letter from FCSS management to NMSS prejudicially commenting against the DPO and the safety issues (circa late 2005) - and any other letters, E-mails, or communications - is (are) made fully publicly

available.

- the DPO Panel Report acknowledge the fact that the DPO was submitted by the Lead Chemical Safety Reviewer for MOX, who has now been redirected by management to work on non-MOX activities.

If these are not satisfied, I will conclude the DPO process has failed again, and I will pursue other avenues to ensure the safety issues are addressed.

Alex.

p.s. Some additional comments follow.

**General Comments:**

1. The cover letter to the NMSS Director is a generic cover letter of inaction that makes no mention of the general consensus that there are safety issues. These safety issues should be reflected in the cover letter.
2. The report is better written than most DPO Panel reports. However, there still is a prevailing partiality of accepting the existing management position and inaction. In addition, citations are weak. There are no citations for comments made by the contacts (basically, who said what) even though statements made by the DPO submitter are attributed as such - this is both inaccurate and unfair. Such citations should be included. Also, any OGC statements or considerations should be identified.
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22. Panel Report, page 9, Concern 3: The Panel Response should include additional findings from the CNWRA report related to pressure, such as sharp and fast pressure spikes, and steep increases in pressure and temperature caused by the inadequate (choked) vent.

23. Panel Report, pages 9-10, Concerns 4-6: Specific statements from the CNWRA's report should be added.

24. Panel Report, pages 10-11, Concern 7: The Panel Finding contains errors and does injustice to the concerns. There are safety culture issues. There are several documents that identify staff concerns with the safety review process in this part of the NRC, with multiple authors. These should be acknowledged, discussed, and referenced. In addition, the "system" would truncate safety discussions on the subject and not follow the normal consensus process - the Panel Report should acknowledge and reference that there is still an ongoing process trying to resolve these staff concerns and define consensus, and roles and responsibilities. The Panel Report erroneously states the DPO submitter was afforded the opportunity to discuss the concerns before the ACRS - instead, it should accurately reflect that the ACRS agenda/presentation specifics were developed by management while the DPO submitter was leading a seven-day workshop in Russia, that the DPO submitter was denied participation in the ACRS presentation by management, and that the DPO submitter requested a separate session to present the concerns before the ACRS. The ACRS put the two sessions together. In short, it is a great fallacy to state the DPO submitter was offered the opportunities before the ACRS, and this should be reflected in the Panel Report. Finally, the Panel Report should acknowledge the stigmas associated with submitting a DPO - it is not a normal process - the staff's negative perception of the DPV/DPO process (as evidenced by most surveys), and the DPO submitter filing grievances because of retaliation for his raising safety issues and writing DPOs.

25. Panel Report, page 11, Concern 8: The Panel Response misstates the concern. The Report should comment on the management decision referenced by the DPO which used process efficiency as a criterion for accepting a safety case.

26. Panel Report, page 11, Concern 9: This misstates the concern. Management (NMSS-OD) has provided guidance on other DPO decisions that states staff cannot review issues beyond the PSSCs/Design Bases accepted by the FSER - once approved, it's approved. The Panel Report should state this fact. The statement about the applicant making substantial modifications to its license application is a misstatement - the applicant merely moved information between submitted documents (the LA and the ISA Summary) - this should be reflected in the Panel Report.

27. Panel Report, page 12, Concern 10 and Conclusions: These are inconsistent with the findings of the report and the CNWRA document - they do not follow - they need to be changed to be proactive to address the safety issues. In addition, there seems to be an implied regulatory concern regarding 70.23(b), SECY-188, and backfitting - if so, this should be stated. Furthermore, there is no clear reference to documentation communicating risk acceptance and acknowledgement by the applicant. Such risk acceptance is neither part of the regulation nor the guidance.

28. Attachment 3 lists the persons contacted by the Panel. There is no indication of the type or context of discussions with these contacts, and, with the exception of the DPO submitter, there are no citations in the text. This is a fundamental inequity of these DPO reports - only statements attributed to the DPO submitter are identified as such. The Panel Report should include citations and identify their sources, including interviews. Also, line management responsible for MOX is conspicuously lacking.

29. Is there a separate Attachment 4 to the Panel Report? If so, it appears to be lacking.

30. The CNWRA report is listed as Attachment 5. Some comments:

- This is listed as Predecisional - OUO. It is no longer predecisional and the OUO designation should be removed. OUO was also an incorrect categorization of the report.
- Pages 2 and 3 are missing from my copy. Please provide.
- Pages 5 and 6 indicate even higher consequences than originally estimated. This should be brought forward and mentioned in the Panel Report.
- Some of the unit operations concerns from pages 6 and 7 should be brought forth. Also, on page 7, the report fails to mention the likely presence of nitrates and adducts in the oxalic precipitation and oxidation unit.
- Pages 7-12 are much more negative with respect to the proposed safety strategy than discussed in the Panel Report. Some of this should be brought forward to the Panel Report, such as self-heating initiating well below the design basis temperature.
- Pages 12 and 13 discuss the proposed acceptance of a test plan. The CNWRA report notes that, assuming a perfect research plan, it is not evident how the new knowledge would be incorporated in to the process design to improve the operational safety margin. This is a very important point not mentioned in the Panel Report - it should be brought forward.
- Pages 13 and 14 mention backfit options and costs. No basis is provided for the conclusions of no extensive retrofits and no significant construction cost implications. This basis needs to be provided. Table 3.1 also indicates cost implications and contains inconsistencies which need explanation. For example, Option 1 states no substantial cost implication but a significant reduction in process efficiency - the latter would seem to imply a significant cost impact.
- Page 15 lists safety items excluded by the DCS/MOX design philosophy. It also mentions that reliable temperature and pressure controls would help to ensure that a potential detonation does not occur. This point needs to be brought forth to the main part of the DPO Panel Report.
- Page B-1 reinforces earlier concerns in the CNWRA report about the possibility of a trapped organic phase. Again, this finding should be brought forth to the DPO Panel Report.

>>> Renee Pedersen 03/09/2007 12:56 PM >>>  
Alex,

FYI, the EDO has approved a new goal for this DPO Decision. In light of this goal, if you have issues with the Panel's characterization of your concerns, now would be a good time to forward them to the Panel.

Please let me know if you have any questions.

Renee  
x2742

**DIFFERING PROFESSIONAL OPINION -- APPEAL**

1. DPO CASE NUMBER

DPO-2005-002

**INSTRUCTIONS:** Prepare this form legibly and submit three copies to the address provided in Block 12 below.

2. DATE APPEAL RECEIVED

3. NAME OF SUBMITTER

Alexander P. Murray

4. POSITION TITLE

Senior Chemical Process Engineer

5. GRADE

15

6. OFFICE/DIVISION/BRANCH/SECTION

NMSS/FCSS/SPTSD/MB

7. BUILDING

TWFN

8. MAIL STOP

8F42

9. SUPERVISOR

Stewart L. Magruder

10. DESCRIBE THE DIFFERING PROFESSIONAL OPINION. DESCRIBE THE PRESENT SITUATION, CONDITION, METHOD, ETC., WHICH YOU BELIEVE SHOULD BE CHANGED OR IMPROVED. (Continue on Page 2 or 3 as necessary.)

The DPO is entitled, "Differing Professional Opinion On Red Oil Events At The Proposed Mixed Oxide (MOX) Fuel Fabrication Facility," dated January 14th, 2005.

The applicant has proposed strategies for controlling potential red oil events in open and closed systems. The applicant has not followed the accepted DOE practice nor provided a clear rationale or calculational basis for their control strategies. The strategy for open systems does incorporate some aspects from the accepted practice at DOE facilities that limit reaction temperatures and organic compounds, and provide for vent sizes that have adequate margin within the recommended safe range identified by DOE and the Defense Nuclear Facilities Safety Board (DNFSB). For closed systems, the applicant's approach focuses primarily on the control of a single parameter - temperature. The temperature design basis is higher than the effective temperature in open systems. By comparison to the accepted practice at DOE facilities, the temperature design basis and vent sizing for closed systems are well into the unsafe range.

11. DESCRIBE YOUR REASONS FOR SUBMITTING AN APPEAL (IN ACCORDANCE WITH THE GUIDANCE PRESENTED IN NRC MANAGEMENT DIRECTIVE 10.159). (Continue on Page 2 or 3 as necessary.)

The main reasons are:

1. The "Final Decision" and the DPO Panel Report have an underlying theme of inaction even though the DPO Panel Report validates the technical safety concerns of the DPO and states there is unanimity between the DPO, ACRS, contractor report, and FCSS staff that significant technical issues remain. This oxymoron requires explanation.
2. FCSS and/or NMSS prejudicially commented against the DPO during the review, thus creating a bias.
3. The information in and attached to the DPO Panel Report indicates an Unresolved Safety Question (USQ) exists.
4. Other reasons are provided in my April 18th, 2007 letter.

SIGNATURE OF SUBMITTER

Alexander P. Murray

DATE

April 18th  
2007

SIGNATURE OF CO-SUBMITTER (if any)

DATE

12. SUBMIT THIS FORM TO:

Differing Professional Opinions Program Manager

Office of: Enforcement

Mail Stop: \_\_\_\_\_

**13. ACKNOWLEDGMENT**

13. SIGNATURE OF DIFFERING PROFESSIONAL OPINIONS PROGRAM MANAGER (DPOPM)

DATE OF ACKNOWLEDGMENT

**14. DECISION**

Appeal sustained

Appeal denied (see attached)

Differing Professional Opinion Closed

DATE

**From:** Alex Murray  
**To:** Renee Pedersen  
**Date:** Wed, Dec 14, 2005 5:15 PM  
**Subject:** Re: DPO-2005-002 Extension Approved

Hi Renee,

Thanx for the E-mail but I am completely puzzled. What extension request - from whom, and why? Basis and context? I also have not heard anything more about a contractor to assist the panel. Has a contractor been selected and, if so, are they adequately independent? Also, you still owe me a copy of the FCSS/NMSS management memo that commented on my response to the DPO panel. I remain concerned about the DPO process in general, this specific DPO, and the apparent communications between this panel's chairman and management.

Alex.

>>> Renee Pedersen 12/12/05 11:00 AM >>>

The purpose of this email is to notify you that the EDO approved an extension request to disposition this DPO to March 31, 2006.

If you have any questions, please feel free to contact me.

Renee Pedersen, DPOPM  
(301) 415-2742  
[DPOPM@nrc.gov](mailto:DPOPM@nrc.gov)

**CC:** Dale Yeilding NTEU

**From:** Alex Murray  
**To:** Dale Yeilding NTEU  
**Date:** Thu, Sep 15, 2005 6:11 PM  
**Subject:** This is outrageous - Re: ALERT - More Management Manipulation of the DPO Process

Dale,

Renee called me about this on Monday (9/12).

The story is as follows:

- the Red Oil DPO Panel asked if I had any other input or comments.
- I provided a memo to the panel, in response (June 15)
- the DPO Panel chair (Bill Ruland) forwarded my memo to Jack Strosnider, the NMSS Office Director, and asked if any actions were needed because of the memo.
- No one asked for my permission for the memo to be forwarded - from the MD 10.159, I was under the impression that DPO Panel/DPO Submitter correspondence was not distributed until the DPO went into ADAMS and was publically released.
- It appears the Panel Chair did not ask the other panel members if this should be done.
- Jack Strosnider of NMSS has signature authority for MOX licensing and approved the construction permit - the DPO involves an issue that the prevailing opinion closed in the permit (this is a conflict of interest - Jack also sent a previous memo saying the DPO Panel should not discuss the DPO with anyone - remember the E-mails I sent you!)).
- Jack forwarded my memo to Bob Pierson of FCSS for his consideration of any actions - Bob has Division responsibility for MOX and is part of the direct line management of MOX. He also made the decision that closed the DPO issue in the construction permit (another conflict of interest).
- Bob Pierson of FCSS had a memo prepared by my Section Chief (Stu Magruder) that apparently states no action is needed. The memo is going to Jack Strosnider of NMSS. Stu asked me for an electronic copy of my memo for attachment - he already had a paper copy.
- I took a quick look and could not find an electronic copy and I recommended that he scan it in.

This brings us up to the previous E-mail. I have requested a copy of the memo from FCSS to NMSS and I have been denied several times. The FCSS to NMSS memo will have limited availability.

Renee Pedersen (the DPOPM) may or may not have been involved from the beginning (she was vague). However, she had no problem with it. She considered my memo to be an allegation and outside the DPO process! I responded that my memo was submitted to a DPO Panel as part of the DPO process. She tried to talk around that but could not. She did not understand the conflicts of interest or even care. She restated that I would not be allowed to see the FCSS to NMSS memo.

MD 10.159 does not allow this type of thing. I conclude that once again management is meddling with the DPO process. There are the conflicts of interest and the management chain is conditioning itself for a "no action needed response" - and the response is hidden from scrutiny! It is all outrageous.

Please investigate this matter. If possible, I would like the union to express displeasure with this whole chain of events, perhaps hinting at grievances for removal of the DPO Panel chair and the DPOPM from this DPO process. You may even have contacts with the media that you could use.

Any other insights would be helpful,

Thanx in advance,

Alex.

>>> Alex Murray 09/09/05 12:59 PM >>>

Renee,

I am concerned about continuing and outrageous management manipulation of the DPO process.

Twice (yesterday and today), my Section Chief (acting as the messenger) asked for an electronic copy of a June 15th, 2005 memo I had sent to the Red Oil DPO Panel, in response to their questions about potential DPO remedies, my further thoughts etc. on the DPO.

- I was surprised by this request and even more surprised when my Section Chief stated he already had a paper copy! I inquired as to the purpose of the request.

- My Section Chief responded that the Red Oil DPO Panel Chair had sent a copy of my memo over to NMSS management for their comment - review of potential additional actions etc. This was subsequently sent to FCSS and a response was prepared. FCSS management wanted to attach a copy of my memo to the response.

- I asked to see a copy of the FCSS response and to be included on distribution. I was told no - I would "eventually" see the memo at the conclusion of the DPO process. I asked for viewing rights in ADAMS - I was told that the memo would have extremely limited viewing rights and I would not be granted viewing rights.

- I expressed my concerns to the Section Chief about management manipulation of the DPO process.

Inevitably, management review and comment will find its way to the DPO Panel, and independence and impartiality may be affected. This also gives the appearance of a coverup.

I will be discussing potential remedies with my colleagues.

Alex.