



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

March 2, 2005

MEMORANDUM TO: William H. Ruland  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

A. James Davis, Ph.D.  
Division of Engineering Technology  
Office of Nuclear Regulatory Research

Walter S. Schwink  
Division of Fuel Cycle Safety  
And Safeguards  
Office of Nuclear Material Safety  
and Safeguards

FROM: Jack R. Strosnider, Director  
Office of Nuclear Material Safety  
and Safeguards

A handwritten signature in cursive script, reading "Jack R. Strosnider", is written over the typed name and title of the sender.

SUBJECT: AD HOC REVIEW PANEL - DIFFERING PROFESSIONAL OPINION  
ON RED OIL EVENTS AT THE PROPOSED MIXED OXIDE (MOX)  
FUEL FABRICATION FACILITY (DPO-2005-002)

In accordance with Management Directive (MD) 10.159, "The NRC Differing Professional Opinions Program," I am appointing you as members of a Differing Professional Opinion (DPO) Ad Hoc Review Panel to review a DPO regarding potential red oil events at the proposed Mixed Oxide (MOX) Fuel Fabrication Facility. Copies of the DPO and MD 10.159 are attached.

I have designated Mr. William H. Ruland chairman of this panel. He has selected Mr. Walter S. Schwink, who was proposed by the DPO submitter, as the third member of the panel, pursuant to MD 10.159. I task the panel to do the following:

- Review the DPO to determine if there is enough information for a detailed review of the issue.
- Schedule and conduct a meeting with the submitter, generally within 8 calendar days of the date of this memorandum, to discuss the scope of the issue. The scope of the panel's review should remain fully focused on the issues as defined in the original written DPO, and will not exceed those issues.

CONTACT: Robert L. O'Connell, IMNS/NMSS  
(301) 415-7877

- Document the panel's understanding of the submitter's issues following the meeting, and send the submitter a copy of that documented understanding, with a copy to me.
- Establish a schedule of milestones for the disposition of the DPO.
- Request technical assistance through me, if necessary.
- Do a detailed review of the issues and conduct any record reviews, interviews, and discussions you deem necessary for a complete, objective, independent, and impartial review. The review should include periodic discussions between the full panel and the submitter to provide the submitter the opportunity to further clarify his views and to facilitate the exchange of information. However, there should be no separate communication between individual panel members and the submitter or key staff members on these issues during the review, except with the knowledge and agreement of all panel members.
- Make recommendations to me regarding the disposition of the issues presented in the DPO.
- Once the panel determines that it has received sufficient information to begin the review, the panel should normally complete the DPO review and submit its report and recommendations to me within 30 days.

All correspondence associated with your review should include the DPO number (DPO-2005-002) in the subject block. The correspondence should *not* be placed in the Agency Documents Access and Management System (ADAMS) until the case is closed. DPO-related time should be charged to Activity Code ZG0007.

Although the submitter has not filed this DPO confidentially, the matter should be treated as though he had. The submitter's name should not be used in discussions (the person may be referred to as the "DPO submitter"), documents should be distributed on an "only as needed" basis, and managers and staff should be counseled against "hallway talk" on the matter.

I appreciate your willingness to serve and your dedication to completing an objective review of this DPO. Successful resolution of the issues is important for NRC and its stakeholders. Since the DPO process has been undergoing revision, as you conduct your review, please note any changes you would recommend to the new management directive. If you have any questions, please contact me. You may also direct questions to the NMSS DPO Coordinator, Robert O'Connell, or the Acting NRC DPO Program Manager, Renee Pedersen, in the Office of Enforcement.

I look forward to receiving your independent review results and recommendations.

Attachments:

1. DPO-2005-002
2. NRC MD 10.159 (05/16/04 Revision)

cc: Submitter  
DPOPM

DIFFERING PROFESSIONAL OPINION

1. DPO CASE NUMBER

DPO-2005-002

**INSTRUCTIONS:** Prepare this form legibly and submit three copies to the address provided in Block 14 below.

2. DATE RECEIVED

1/19/2005

3. NAME OF SUBMITTER

Alexander P. Murray

4. POSITION TITLE

Senior Chemical Process Engineer

5. GRADE

15

6. OFFICE/DIVISION/BRANCH/SECTION

NMSS/FCSS/SPB/MOFLS

7. BUILDING

TWFN

8. MAIL STOP

T8F42

9. SUPERVISOR

Stewart Magruder

10. DESCRIBE THE PRESENT SITUATION, CONDITION, METHOD, ETC., WHICH YOU BELIEVE SHOULD BE CHANGED OR IMPROVED.

(Continue on Page 2 or 3 as necessary.)

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 DIFFERING OPINION IN ACCORDANCE WITH THE GUIDANCE PRESENTED IN NRC MANAGEMENT DIRECTIVE 10.159.

(Continue on Page 2 or 3 as necessary.)

As the Lead Chemical Safety Reviewer for MOX, I accept the applicant's approach only for open systems. Acceptance of the applicant's approach for open systems highlights significant safety concerns with the closed system approach of using a higher effective design basis temperature limit and extremely limited venting capability. The applicant's proposed approach for closed systems is well into the range considered unsafe by the DOE/DNFSB and the applicant has not provided assurances that the proposed safety strategy will function adequately.

I conclude that the prevailing management/staff position accepting the applicant's closed system approach for NRC regulatory purposes is too simple a position arrived at too expediently that, if allowed, would endorse the use of a safety control strategy, controls, and design bases (limits) that do not provide for adequate assurances of safety, as required by the regulations.

12. Check (a) or (b) as appropriate:

- ☒ a. Thorough discussions of the issue(s) raised in item 11 have taken place within my management chain; or  
☐ b. The reasons why I cannot approach my immediate chain of command are:

SIGNATURE OF SUBMITTER

Alexander P. Murray

DATE

January 14<sup>th</sup> 2005

SIGNATURE OF CO-SUBMITTER (if any)

DATE

13. PROPOSED PANEL MEMBERS ARE (in priority order):

1. Mr. Walt Schwink
2. NTEU Recommendation #1
3. NTEU Recommendation #2

14. Submit this form to:

Differing Professional Opinions Program Manager

Office of:

Mail Stop:

15. ACKNOWLEDGMENT

THANK YOU FOR YOUR DIFFERING PROFESSIONAL OPINION. It will be carefully considered by a panel of experts in accordance with the provisions of NRCMD 10.159, and you will be advised of any action taken. Your interest in improving NRC operations is appreciated.

SIGNATURE OF DIFFERING PROFESSIONAL OPINIONS PROGRAM MANAGER (DPOPM)

Rebecca M. Pedersen

PRE-CONDITIONS MET

☒ YES ☐ NO

DATE OF ACKNOWLEDGMENT

1/25/2005