

John T. Conway, Chairman  
A.J. Eggenberger, Vice Chairman  
John W. Crawford, Jr.  
Joseph J. DiNunzio  
Herbert John Cecil Kouts

# DEFENSE NUCLEAR FACILITIES SAFETY BOARD

625 Indiana Avenue, NW, Suite 700, Washington, D.C. 20004  
(202) 208-6400



September 10, 1993

The Honorable Thomas P. Grumbly  
Assistant Secretary for Environmental  
Restoration and Waste Management  
U.S. Department of Energy  
Washington, DC 20585

Dear Mr. Grumbly:

Two DNFSB staff and an outside expert recently reviewed conduct of operations issues at the Idaho Chemical Processing Plant (ICPP). A copy of their report is enclosed.

The report cites progress in improving conduct of operations and provides a number of constructive suggestions for further improvements. The report is being provided for whatever actions you may deem appropriate in the furtherance of our mutual interests in safe operations.

Sincerely,

A handwritten signature in black ink, appearing to read "A. J. Eggenberger".

A. J. Eggenberger  
Vice Chairman  
and for the Chairman

Enclosure

c:

M. Whitaker, Acting DOE/DR-1  
P. Brush, Acting DOE/EH-1

**DEFENSE NUCLEAR FACILITIES SAFETY BOARD**

July 20, 1993

**MEMORANDUM FOR:** G. W. Cunningham, Technical Director

**COPIES:** Board Members

**FROM:** D. M. Winters, Program Manager  
INEL/WIPP programs

**SUBJECT:** Idaho National Engineering Laboratory: Review of Conduct of Operations at the Idaho Chemical Processing Plant

1. **Purpose:** This report documents DNFSB staff and outside expert efforts in reviewing Conduct of Operations at the Idaho National Engineering Laboratory's (INEL's) Idaho Chemical Processing Plant (ICPP) during the week of May 24, 1993.
2. **Summary:** On May 24-27, 1993, the DNFSB staff (Dermot Winters, Ralph Arcaro) and Outside Expert (David Boyd) performed a Conduct of Operations review at the ICPP. Conduct of operations at the ICPP was assessed by (1) reviewing records and documentation, (2) touring operations spaces and areas, (3) observing work activities, and (4) interviewing personnel in various sections of the Operations Department.

There appears to be general acceptance and internalization of the concepts of good Conduct of Operations as embodied in DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities* by WINCO/ICPP senior management and by operators at the New Waste Calcining Facility. Nevertheless, improvement throughout the ICPP is required in the area of conduct of operations. Also, deficiencies in training, compliance with procedures, and radiological controls were noted.

3. **Background:** DNFSB staff and outside experts had previously conducted a general review of the ICPP in May 1992, followed by a series of New Waste Calcining Facility (NWCF) restart readiness reviews in October, November, and December, 1992. A subsequent review of NWCF restart issues, particularly in the area of Conduct of Operations was conducted on January 13-14, 1993 by outside expert David Boyd, assisted by Andrew Stadnik of the DNFSB staff.

The October, November, December, and January reviews of NWCF restart activities were initiated due to concern with the adequacy of planned restart readiness reviews. These reviews identified additional concerns with the quality of Conduct of Operations at the entire ICPP.

4. **Discussion/Comments:** The following discussion provides the highlights of the May 1993 Conduct of Operations review at the ICPP.
- a. **General**--There appears to be general acceptance and internalization of the concepts of good Conduct of Operations as embodied in DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities* by WINCO/ICPP senior management and by operators at the New Waste Calcining Facility. Progress has been made in implementing and upgrading various policies, procedures, and practices since the reviews performed in December 1992 and January 1993. Nevertheless, considerable work remains to be initiated or completed on (1) increasing the effectiveness of management oversight, (2) revising training to better meet the needs of operations, (3) upgrading procedural compliance and the overall quality of certain procedures, (4) revising radiological controls, and (5) improving housekeeping.
- b. **Specifics**--
1. **Management Overview Program**--As one element of a self-assessment program, the Vice President and Manager of Operations established Management Overview Program (MOP) tours in November 1992. This program includes approximately 140 managers who perform monthly reviews of their own and other departments. The content of these reviews is decided upon by the reviewing manager and reports are sent to the operations staff manager. The MOP appears to be of limited effectiveness in assessing conduct of operations because it is relatively unstructured and does not specifically focus on conduct of operations. In order to ensure that an adequate conduct of operations culture is embedded at ICPP it may be beneficial to institute a more formalized program that includes topics of review, inspection criteria, and a structured follow-up action process.
  2. **Interviews of Operations Department Personnel**--Eight personnel with varied responsibility levels, selected from a wide variety of ICPP functional areas, were interviewed individually for one-half hour each by two DNFSB team members on various subjects directly relevant to their work. Both a WINCO and a DOE-ID observer were present for the interviews. Knowledge deficiencies were evident in the following areas:
    - (a) Separations processes
    - (b) HEPA filter characteristics
    - (c) Nitrous oxide hazards
    - (d) Types of ionizing radiation and the sources and hazards at ICPP

- (e) Difference between contamination and radiation
- (f) Ability of equipment operators to provide simple explanations of the theory of equipment operation for the specific equipment they operate

3. **Procedures**--As part of the conduct of operations review, the DNFSB team observed numerous operations. Procedural adequacy and compliance appeared to be in need of review and upgrade in certain areas based on observations of the following deficiencies:

- (a) At the NWCF, one DNFSB reviewer observed preparation and performance of a job involving removal of hatches over the calciner cell. The following were noted:
  - (1) A pre-job briefing was not scheduled to occur until the DNFSB reviewer pointed out that the brief was specifically required by the procedure.
  - (2) One radiation technician later involved in the job was not present at the pre-job brief.
  - (3) The procedure did not direct the order of removal of the hatches. This resulted in the operations supervisor removing the hatch over the cell area with the highest radiation level (1 R/hr) first, raising ALARA concerns.
- (b) Observation of the special procedure "E-Cell Vessel and Piping Sweepdown", PSM-105-93 produced the following comments:
  - (1) An incorrect valve indication was not recognized when called up on the Process Monitoring Computer System (PMCS) until a question was posed by a DNFSB reviewer. There was no procedural review of this data.
  - (2) Procedures for transfer of flushing solution from the process makeup area to the E-Cell did not require having an Operational Health Physics (OHP) technician present. Since this was not required, the operator believed the piping system to have quick disconnects (which would not require OHP presence). When the operator realized this was not the case, an OHP was called resulting in delay of operations.
- (c) Review of "Standby Power Production", CPOP 4.4.2.2, GEN-UTI-601 identified the following uncertainties:

- (1) **The procedure was poorly arranged. Steps to start the diesel began on page 8, while steps to check on operation were found on page 4.**
  - (2) **Insufficient information was provided with step 4.1.3. The operator is told to adjust scavenging air intake as necessary for a light load. He is not told until step 4.3 that this is done by maintaining cylinder exhaust temperature from 550° to 600° F.**
  - (3) **Step 4.3.8.e identifies steps to repeat if the breaker does not close. The procedure does not indicate the number of times this should be attempted before the load test should be cancelled.**
4. **Radiological Control Program--Considerable progress has been made towards implementation of the new DOE Radiological Control Manual and an aggressive schedule is in place to complete its implementation. Nevertheless, a number of undesirable radiological control practices were observed (most were discussed with the Manager, Operational Health Physics during the visit) which appear to warrant more immediate attention. Undesirable practices noted included the following:**
- (a) **Several examples of posting problems including:**
    - (1) **Radiological Buffer Areas posted using Controlled Surface Contamination Area placards with Radiological Buffer Area written in the space for contamination zone designation.**
    - (2) **A radiological posting for a contamination area on a door obscured by the door being held open during operations in the space.**
    - (3) **Multiple radiological postings for the same area having different data filled in for protective equipment requirements.**
    - (4) **Company-issued blue coveralls and modesty garments designated as items of protective clothing on some radiological postings and Radiological Work Permits (RWPs).**
    - (5) **Placards at monitoring stations where both a hand held monitor and a Personnel Contamination Monitor (PCM) are present are incorrect. Use of the hand-held meter as the preferred option for performing a whole body frisk is indicated rather than the PCM.**

(b) In addition to the observed undesirable posting practices, there was also a concern over how WINCO is managing a work area that is only "potentially contaminated" so as not to turn it into a Controlled Contamination Area, with a consequent increase in the total extent of contaminated areas.

5. Housekeeping--Housekeeping and material condition appeared to be very good in frequented areas. However, in less commonly accessed spaces conditions were observed to be degraded. Efforts to bring the less frequented spaces up to the level of the more frequented areas are needed.

c. Facility Specific Observations--

1. New Waste Calcining Facility--Considerable progress has been made to improve conduct of operations in the time since the previous reviews in late 1992 and early 1993. However, significant additional improvement will be required to firmly embed the new conduct of operations culture and to see positive results. Specific areas in need of additional effort at the NWCF are:

(a) Effectiveness of management oversight

(b) Procedures and records

(c) Training to better meet the needs of operations

(d) Upgrade of radiological controls

(e) Housekeeping and material condition of infrequently visited spaces

2. CPP-666 Operations--Entries in the Deficiency Log for CPP-666 showed that most deficiencies recorded in 1991 and 1992 are still open. Numerous deficiencies had no work order number recorded and consequently there is no assurance that the deficiency has been entered in the work control process.

d. Conclusions--There are a number of areas meriting additional staff and outside expert follow-up review. The staff will conduct follow-up reviews to assess readiness, including conduct of operations, during August/September visits to cover two DOE operational readiness evaluations (OREs) at the ICPP. DOE should identify what improvements in the conduct of operations at the ICPP will be made to correct the ICPP-wide conduct of operations issues raised in this report and any others identified during the ORE coverage.