



**Commonwealth Edison**  
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July 21, 1980

Director, Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

Subject: Dresden Station Unit 1  
Comments on Draft Environmental  
Statement for Primary System  
Chemical Decontamination

Reference (a): D. M. Crutchfield letter to D. L. Peoples  
dated May 30, 1980

Dear Sir:

This letter is to provide the Commonwealth Edison Co. comments on the Draft Environmental Statement, NUREG-0686, for the Dresden 1 Primary System Chemical Decontamination which was transmitted by Reference (a).

The Final Environmental Statement should specifically address the factors identified in Sections 102 (2)(C) and 102(2)(E) of NEPA, 42 U.S.C. 554332(2)(C) and 4322(2)(E). The Draft Environmental Statement explicitly discusses only two of those factors: environmental impact, Section 102(2)(C)(i); and alternatives, Section 102(2)(C)(iii), although the discussion of occupational exposure is probably responsive to Section 102(2)(C)(ii), which calls for a discussion of any adverse environmental effects which cannot be avoided should the proposal be implemented.

There is no explicit discussion in the Draft Environmental Statement of "the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity," as required by Section 102(2)(C)(iv). While this prescription is somewhat difficult to apply to the facts at hand, it seems reasonable to say that the proposed decontamination does not significantly affect the trade-off between short term and long term uses of the environment implicit in the decisions to build and operate the Dresden Unit One reactor, made more than twenty years ago. Similarly, the shipment of radioactive wastes produced by this project to licensed burial facilities does not affect the trade-off between short term and long term uses of the environment which was made when those sites were licensed. This conclusion is supported by the discussion of radioactive waste disposal found in Section

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4.2.3. and Appendix A of the Draft Environmental Statement. Further, from Table 1 it can be seen that the dominant radioactive isotope to be buried will be  $^{60}\text{Co}$ , with a half-life of 5.3 years. Essentially all of the radioactivity therefore will have decayed away in fifty years.

Section 102(2)(c)(v) directs federal agencies to consider "irreversible and irretrievable commitments of resources." For the Dresden decontamination, these would be the money involved, the concrete and steel used to build the decontamination facility, the NS-1 solvent, the Dow vinyl ester-styrene polymer solidification system, the 55-gallon steel drums, and the burial space to be occupied. Although Commonwealth Edison does not believe NEPA requires consideration of financial resources, see Consumers Power Company (Midland Plant, Units 1 and 2) ALAB 458, 7 NRC 155 (1978), the cost of the decontamination project is obviously very small compared with the savings to be gained by carrying out the project, as described elsewhere in these comments. Similarly there is no shortage of stainless steel or concrete in this country. Both the NS-1 solvent and the Dow solidification polymer are petroleum-based products. However, the amount of oil needed to make these products is small in absolute terms and in comparison to the energy savings associated with continued reactor operation.

Finally, NEPA Section 102(2)(E) requires federal agencies to "study, develop and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources." The Draft Environmental Statement's discussion of alternatives is adequate, with the modifications suggested elsewhere in these comments. Nevertheless it seems worth pointing out that this project does not involve unresolved conflicts concerning alternative uses of available resources. Dresden Unit One was built to operate and this project will contribute to that goal. The burial facilities to which radioactive waste will be sent were licensed for that purpose. And, of course, the NS-1 solvent and the Dow solidification system were developed for projects such as the Dresden decontamination.

Although Commonwealth Edison does not question the authority of the NRC in the performance of an Environmental Statement for the chemical decontamination, we question the necessity of performing one for an action which has minor impact on the public and the environment, considering the cost involved. The decision to perform an environmental statement at such a late date and the resulting delay in the chemical cleaning will add to Commonwealth Edison's cost to complete the project. These costs will in turn be borne by Commonwealth Edison's customers. As indicated in

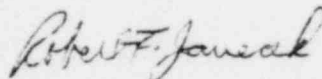
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Comment 17 on page 3 of Attachment A, rescheduling activities and maintaining key personnel on the project for the period required to prepare the environmental statement will cost \$25,000 in June and July plus \$110,000 per month thereafter. An additional \$90,000 will be required to redo earlier testing to assure equipment operability and to train additional personnel. Assuming an October 1, 1980 injection date at the earliest, the total cost of the project delay from June 1, 1980 is estimated to be \$360,000. Further delay will result in additional costs accruing at a rate of \$110,000 per month.

In addition to the previous general comments, specific comments to various sections of the draft statement are provided in Attachment A.

Very truly yours,



Robert F. Janecek  
Nuclear Licensing Administrator  
Boiling Water Reactors

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## ATTACHMENT A

- 1) Page ii, paragraph 3:

Though shutting the reactor down permanently would have prevented the continued increase of radiation levels in Dresden 1, it will not preclude the need to chemically clean if prompt decommissioning is desired. Therefore, it is not necessarily an alternative to the proposed chemical cleaning project.

- 2) Page 2-2; Table 1:

The estimated activity of 3000 curies shown was based on an crud analysis taken in 1974. Two significant events need to be considered which affect this estimate. First, the unit remained in service to October 31, 1978, which has the effect of increasing the estimate slightly. Second and more significant, is that the unit has been shutdown from October 31, 1978. During this current two year outage, a significant reduction in curie inventory can be expected due to the short half lives of the majority radionuclides present in the oxide layer. As a result, it is expected that between 2000-3000 curies will be removed during the chemical cleaning.

The estimated curies per barrel of 2.5 Ci is a minimum figure. The actual value may vary between 2.5 Ci and 7 Ci/barrel based upon the total curies removed and the ability to evaporate excess water and maximize the volume of concentrated radwaste per barrel. The amount of activity per drum can be regulated by changing the concentration and/or amount of radwaste placed in a barrel.

By minimizing the total radwaste volume, the total number of barrels required to be shipped can be reduced. This will reduce the number of shipments and minimize the total transportation costs.

- 3) Pages 2-6, 2-7, 2-8, 2-9, 2-10, 2-11, 4-8, 4-9, 4-10, 4-11, 5-1, 5-2, 5-3, 6-1 and 7-1 have not been numbered.
- 4) Page 3-1, paragraph 3: Not all of the chemical cleaning facility structure is Seismic Cat. I. Only the concrete floor and the walls designated as the "bathtub" and the walls and ceiling surrounding the two radwaste hold tanks have been designed as Seismic Category I structures
- 5) Page 3-1, paragraph 4: It should be stated that the solidification process, including the solidification line equipment, the radwaste injection locations and the solidification line control room are all located within the chemical cleaning facility which also contains the radwaste hold tanks.
- 6) Page 4-5, paragraph 2, line 12; typo, ". . .academy. . ."

7) Page 4-7, Section 4.2.2 B, paragraph 2: The first sentence should be deleted and replaced with the following:  
"Continuous sampling and monitoring will be done. Thus, any unplanned releases due to leaks and spills can be quickly detected and remedial steps taken."

8) Page 4-7, Section 4.2.2.C, paragraph 1:

See Comment #2, listed above.

The 1200 fifty-five gallon drums mentioned is a maximum number of barrels expected. This quantity is based on the unlikely event of requiring two cleaning cycles using a total of 225,000 gallons of solvent and an approximate evaporation ratio of 7:1. This results in a maximum of 36,000 gallons of concentrated waste. Approximately thirty (30) gallons of waste will be solidified per drum for a total of 1200 drums. The actual number of drums of solidified radwaste is expected to be considerably less (400-600 drums) based on lower "crud" inventory and increased evaporation and waste to binder ratios.

9) Page 4-8, Section 4.2.2 C, paragraph 1 continued, line three: Replace ". . .has. . ." with ". .have. . ."

10) Page 4-8 Section 4.2.2 C, paragraph 1 continued: Add the following between lines three and four: "(The chemical cleaning of the test loop was a test of the solvent and cleaning process in a pilot system which was subjected to the same solvent conditions as anticipated for the full scale chemical cleaning)".

11) Page 4-8, Section 4.2.2 C, paragraph 2:  
Typo: ". . .destructively. . ."

12) Page 4-8, Section 4.2.2 C, paragraph 3: Retain the first sentence and delete the remainder that follows. Replace the deletions with the following: "For each drum of solidified waste, a rod containing a thermocouple will be brought in contact with the top surface of the solid material to measure its temperature to verify the occurrence of polymerization. This same rod by making contact and measuring resistance to penetration of the solid mass, will verify the solidification. Television cameras will allow for the observation of this activity at the top of the waste drum.

"The liquid waste to be solidified will be added to the solidification agent during mixing. Any incomplete mixing will also likely be observable from above by using television as the solidification agent and waste are not soluble and are of different colors and densities."

13) Page 4-9, Section 4.2.3, paragraph 1, line 10:  
Delete ". . .significant. . ." and add  
". . . insignificant . . ."

- 14) Page 4-10, paragraph 1, line 9: Change ". . . Amendment 1. . ." to ". . . Amendments 01, 02, and 03. . ."
- 15) Page 4-10, paragraph 3, line 12: Delete ". . . comprehensive strength testing. . ." add ". . . resistance to penetration testing. . ."
- 16) Page 4-10, paragraph 2, lines 8 and 9: Delete ". . . manufacturer (DOW Chemical Company). . . by the manufacturer." and add ". . . the DOW Chemical Company, when wastes were solidified in accordance with the procedure specified by DOW."
- 17) Page 5-3, Section 5.2, paragraphs 1, 2, & 3:

See Comment #1, listed above.

The current estimated cost for replacement power in 1981 is \$100,000 per day. The total estimated cost to purchase replacement power for Dresden I over the remaining 15 years of the unit's Operating License is approximately \$470 million dollars.

The total estimated cost to CECO. for the chemical cleaning, including solvent research and development; solvent compatibility testing; construction of the chemical cleaning facility and the operational cost to chemically clean is 37.5 million dollars, not the 39.5 million dollars, listed.

The chemical cleaning had been scheduled for 6/1/80. The NRC's decision to require an Environmental Impact Statement (EIS) at such a late date and the resulting delay in the cleaning will add additional expenditures to the project. These costs will in turn be borne by Commonwealth Edison's customers.

The need to retain core architect/engineering personnel; to re-establish priorities and reschedule project activities to provide most efficient use of time and personnel; and to provide support for the review and comment of the Environmental Impact Statement and additional NRC questions will result in an added cost of \$25,000 in June and July plus \$110,000 per month thereafter.

In addition, the delay will result in the need to obtain new personnel to replace experienced personnel, forced to be released from the project due to other commitments. These new personnel will supplement core personnel and will need to be trained in the chemical cleaning system and process. Also, all pre-operational testing completed earlier will need to be redone to assure the system is fully operational prior to cleaning. These activities will cost an additional \$90,000.

Assuming a 10/1/80 injection date at the earliest, the total cost of this delay is estimated to be \$360,000.

- 18) Appendix A, Page 4, Ques. 3a, paragraph 3:  
See Comment # 2, above.
- 19) Appendix A, Page 4, Ques. 36, paragraph 1, line 2:  
Delete ". . . under the trade name of NAJVAR". There is no such trade name.
- 20) Appendix A, Page 5, Ques. 3c, paragraph 1:  
Delete the first sentence and replace with the following:  
"The leach rate of DOW polymer under burial conditions has not been demonstrated, however, in arid disposal. . ."  
(Combine the new wording with the old second sentence)
- 21) Appendix A, Page 7, Ques. 4a:  
Delete the last sentence of the response and replace with the following: "10CFR71 and 73 pertains to the transportation of all radioactive material."  
  
The discussion concerning high level waste presented in the response to question 3 of the Illinois Safe Energy Alliances September 20, 1979 Petition should be referenced here.
- 22) Appendix A, page 8, Ques. 4b, paragraph 2, lines 14 and 15:  
Change ". . . or the manufacturer. . . by the manufacturer ". . . to ". . . or the DOW Chemical Company when the wastes were solidified in accordance with the procedure specified by DOW."
- 23) Appendix A, ISEA, page 2, Response 2, Paragraph 3:  
Typo ". . . program. . ."
- 24) Appendix A, ISEA, page 3, Question 3:  
In the last sentence of the question, Mr. Lange was mis-quoted. He never stated that 'Transuranics of a value of greater than 10 nanocuries/gram will remain at the Dresden site forever.
- 25) Appendix A, ISEA, page 5, Response 4, paragraph 2:  
Typo ". . . commercial. . ."
- 26) Appendix A, ISEA, page 8, Ques. 5, line 3  
Typo ". . . is . . ."
- 27) Appendix A, ISEA, Page 8, Response 5, Paragraph 5:  
Delete ". . . under the trade name NAJVAR."
- 28) Appendix A, ISEA, page 8, Ques. 6, line 1:  
Change ". . . the . . ." to ". . . and . . ."

- 29) Appendix A, ISEA, page 9, Response 6, Paragraph 1, line 5:  
Change "... individual ..." to "... individual's  
age ..."
- 30) Appendix A, ISEA, page 9, response 6, Paragraph 2:  
Typo "... industrial ..."
- 31) In Section 4.2.1.B emphasis is placed on the man-rem  
estimated. The figures are misleading as stated. The  
original estimate did not include items we later felt  
necessary to include in the dose accounting program of the  
chemical cleaning. How well we did in planning, projecting  
radiation jobs is not accurately stated. The following table  
will explain:

Original Estimate for Construction                      250-500 man-rem

Total Expended to Date (6-30-80)                      290

Dose incurred but not estimated in original scope:

a. Component Inspection	54
b. Sphere Cleanup	22
c. CRD Removal	4
d. B-Loop Bypass	2
e. Gamma Scan	<u>2</u>

Total = 84 man-rem expended  
but not planned  
for.

290	Total man-rem expended
- 84	Unplanned man-rem
<u>206</u>	Man-rem incurred that can be attributed to the original estimated jobs.

This shows that by strictly complying with the ALARA  
principles, the expended man-rem of 290 which included 84  
man-rem expended on jobs not originally planned for is well  
within the 250-500 man-rem estimated for chemical cleaning.