

COMMENTS ON NUREG-0686,
DRAFT ENVIRONMENTAL IMPACT STATEMENT
BY THE
U.S. NUCLEAR REGULATORY COMMISSION
FOR
DRESDEN NUCLEAR POWER STATION, UNIT NO. 1
PRIMARY COOLING SYSTEM CHEMICAL DECONTAMINATION
COMMONWEALTH EDISON COMPANY
Docket No. 50-10

by Peter Montague, Ph.D., Director

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July 20, 1980

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Thank you for this opportunity to comment on the draft environmental impact statement for the decontamination of the Dresden Nuclear Power Station (NUREG-0686).

Unfortunately, the pages of the draft document are not consistently numbered, so comment is made more difficult than normal. However, I will try to make clear comments despite this drawback in the document. Figure 1, following page 2-2, should be re-drawn with the units converted from reactor-years to gigawatt-years of reactor operation. This would give a more meaningful standard of comparison than is the case with the current figure. More importantly, the figure as given shows one of two things: (a) either the Dresden reactor is not in need of decontamination because (with the exception of anomalous man-rem doses in 1975) it is operating at or below the average of all BWR dose-rates, or (b) all BWRs are in need of decontamination because they are giving higher dose-rates than the Dresden plant.

If the Dresden plant is giving doses lower than the average of BWRs, then why does Dresden need decontamination? If Dresden needs decontamination and it is giving below-average doses (compared to the average of all BWRs), then Dresden is really just the first experiment in a BWR decontamination program and the impact statement should be a programmatic impact statement or a generic impact statement covering the entire program of BWR decontamination. From Figure 1, one could also conclude that Dresden exposure experience is so close to the average of all LWR exposure experience that the remarks made above could apply equally well to all LWRs. Either Dresden doesn't need decontamination because (with the exception of the anomalous year, 1975) it is very close to the average of all LWR exposures, or, alternatively, all LWRs need decontamination. If the latter case is true, the Dresden decontamination is just the first step in a decontamination program and the entire program should be the subject of this DEIS. Table 2, on the page following Figure 1, again demonstrates that Dresden is not giving exceptionally high exposures or exposure-rates, relative to other BWRs, and thus either (a) Dresden doesn't need decontamination or (b) all BWRs need decontamination and this EIS should cover the full decontamination program.

In Appendix A, "STAFF RESPONSES TO QUESTIONS CONTAINED IN THE ILLINOIS SAFE ENERGY ALLIANCE'S SEPTEMBER 20, 1979,

PETITION," pg. 15, it is stated that consideration is being given to using "a weaker but more frequent decontamination process on line". Yet on the second page of Table 3 (on the unnumbered pages following Table 2, which is on the unnumbered page following Figure 1, which is on the unnumbered page following pg. 2-2), it is stated that a "proven or even promising method" of "on-line chemical addition" is "unknown at this time". These two statements are inconsistent and should be clarified in the final EIS. The third page of Table 3 says that the technology of choice -- the use of Dow NS-1 -- will cause "extensive corrosion". This would appear to be a potentially very serious problem that needs full description and discussion in this document. Details of a corrosion test program need to be presented. On the unnumbered page following Table 3, the statement is made that "Based on CECO's criteria and the preliminary feasibility tests carried out by CECO and its contractors, the decision was reached to use Dow Chemical's proprietary solvent NS-1...." The tests need to be described and the test results given. Without these data, the basis for the decision cannot be made clear -- and that, of course, is the purpose of an EIS, to make clear the basis for decisions.

Similarly, on pg. 3-1, the statement is made that "This solidification process has been tested on the NS-1 solvent and produced a solid waste form that contained no free liquids."

The test program needs to be described and the resulting solid needs to be described. Is there chemically-bound water in the resulting solid? Will radiolytically-induced degradation of the solid result in eventual release of chemically bound water?

Pg. 4-6, the proper name of the "Council of Environmental Quality" is the Council on Environmental Quality. This is obviously a very minor detail, but unfortunately it is indicative of sloppy work which is evident throughout this EIS. Unnumbered pages are another expression of this sloppiness; grammatical errors (to be pointed out below) are yet another expression of this sloppiness. Overall, the impression is given that this document was rapidly thrown together by persons of only minimal competence, or possibly by competent individuals who did not care very much about the quality of their work-product. Will this same attitude pervade the decontamination of the reactor if the program is permitted to proceed? The EIS should address this question because a poor quality decontamination job could lead to serious problems in future reactor operations.

On pg. 4-7 the statement is made that "All radioactive iodine isotopes have decayed to insignificant levels." What radioactive iodine isotopes? In the sentence following that one, reference is made to venting noncondensable gases. What are these gases and what will their effects (physical and psychological) be upon the surrounding population?

On the unnumbered page following 4-7, reference is made to "Solidification tests with spent radioactive decontamination solvent obtained from the actual decontamination of a Dresden Unit 1 test loop...." Describe these tests and present test results. Describe the "leach tests" performed on the resulting solids. Describe the resulting solids produced in the Dresden tests and the solids produced by "solidification methods routinely being employed by nuclear power plants." The tests and test-result data would give an EIS reader tools for evaluating the adequacy of the contemplated decontamination program. NRC statements about tests which are not described cannot give the EIS reader such tools for evaluation.

Same page: First sentence of the second full paragraph that begins on that page: the verb "is" should be "are" because the sentence has a plural subject ("liquids"). Grammatical errors of this kind lead the reader to believe that this EIS was thrown together by persons who are not careful or who are not competent. This EIS must address the possibility that persons equally careless or incompetent will carry out the Dresden decontamination program. The potential results of a careless decontamination program could be very significant from an environmental perspective.

On the unnumbered page two pages beyond 4-7, the statement is made that Dresden decontamination wastes will be

shipped to Beatty, Nevada, or Hanford, Washington. Going back to my earlier statement about the need for a generic or programmatic environmental impact statement, the disposal of all the wastes from a BWR or LWR decontamination program should be described. Will Beatty or Hanford take all of the resulting wastes? In addition, the Beatty, NV, site's operating license expired in June, 1980, and the state of Nevada is trying to prevent it from being renewed, according to Sheldon Myers of the federal Department of Energy. Thus this EIS needs to address the possibility that the Beatty site will not be available for disposition of Dresden wastes or other BWR and LWR decontamination wastes.

On the same page, in the paragraph that begins "4.2.3", the final sentence of the paragraph, the word "significant" probably was intended to read "insignificant". Once again this raises the issue of sloppy work by NRC. To repeat: will the decontamination of Dresden and other BWRs and LWRs be overseen by equally sloppy people, careless of detail? The EIS needs to address this possibility, since quality control of the decontamination is the only institutional protection that the public has from a potentially dangerous set of problems arising from the contemplated decontamination program.

The Hanford disposal site license, mentioned on that same page, and dated Jan. 11, 1980, is obvious^{ly} a key document and

should be included in the FEIS as an appendix; the standards set forth in that document will directly affect the nature, scope and detailed implementation of the proposed Dresden decontamination.

The indented paragraph on that same page quotes a paragraph from the Hanford license of Jan. 11, 1980; that quotation appears to ignore the fact that organic solvents such as toluene and xylene may degrade the polymer in which the Dresden decontamination wastes are encapsulated. This is a potentially serious problem which should be discussed in the FEIS.

On the following page, the last sentence in the first paragraph says that NRC will "destructively examine" the wastes from a "qualification test" of the Dresden decontamination wastes. The FEIS should present details, including test protocols and results of these tests.

On that same page, it is not clear whether the container of choice (a 55 gallon drum) contained radioactive wastes when it was tested and selected. This should be clarified in the FEIS. The "results showed that the barrel could be expected to last one or two years", says the DEIS (same page). This is a short enough time-period to be of concern; thus the question is relevant: Did the test protocol include radioactive materials in the solid matrix or not?

In paragraph number 5.3 (unnumbered page), the statement is made that "excessive corrosion" did not result from CECO's testing of Dow NS-1 solvent and other solvents. The FEIS should include test protocols and results in quantitative detail, not simply qualitative conclusions. How much corrosion would be considered "excessive", by what criteria? How close did the corrosivity of NS-1 solvent come to being "excessive"? These are important questions and the answers obviously exist in readily available form; the answers should be presented in the final EIS.

In Appendix A, the first unnumbered page, the response to Question 1 does not say whether 10 CFR Part 61 will be complied with. This issue should be addressed in the FEIS. The following page says "We do not have field or laboratory tests results [sic] which quantify the migration potential of radionuclides associated with Dow solvent...." This seems a very important omission, or lack, of data which should be remedied before the FEIS is issued. Obviously the migration potential of the wastes is an important issue.

On the following page (marked "- 3 -"), in Response 3 one again wonders whether proposed 10 CFR Part 61 will be -- or can be -- complied with by the proposed decontamination wastes. It's as if one branch of NRC is proposing 10 CFR Part 61 and another branch (the one overseeing the proposed Dresden decontamination) doesn't know it. The issue of 10 CFR Part

61's potential impact on the proposed Dresden operation should be discussed.

On the following page, the list of nuclides seems to omit significant isotopes of iodine and iron and nickel and perhaps others. The final EIS should discuss all relevant isotopes.

Next page (marked "- 5 -"), top paragraph: if more than 10 nCi/g of transuranics are discovered and the wastes cannot, then, be shipped to a shallow-trench burial ground, where will they go? A contingency plan needs to be discussed. The President's program, announced Feb. 12, 1980, calls for the first repository to operate in 1995; but we've already been told that the Dresden decontamination waste containers (55 gallon drums) will begin to deteriorate in one to two years. What will happen to these deteriorating containers during the 15 years necessary to establish a suitable repository if transuranics are discovered in the Dresden wastes? The FEIS needs to describe a contingency plan in detail.

The following paragraph says that, if the wastes contain TRU contamination, they will be disposed of at a suitable government repository. The questions become, "When?", and "What will happen to the wastes before they can be placed in such a repository?" These are significant questions that need to be addressed in the FEIS.

On pg. "- 8 -", in "Response 5", one needs data, not simply conclusions. "Analysis has shown..." the DEIS says.

What analysis? Published where? If so far unpublished, the data and test protocols should appear as appendices to the FEIS. If the relevant data are held to be proprietary, then the Dow NS-1 solvent cannot be deemed acceptable because, in the absence of an open flow of information about the relevant characteristics of the chemicals involved, the public must rely on Dow and the NRC to make important technical judgements in secret. Since it is concluded in the Kemeny Commission's report on the accident at Three Mile Island that "...as presently constituted, the NRC does not possess the organizational and management capabilities necessary for the effective pursuit of safety goals" [Kemeny Commission Report, pg. 60], the public needs first-hand data for independent analysis, not NRC conclusions from reviews of Dow's analyses. Dow's credibility with the public is flawed by the very fact that they are selling the NS-1 solidification agent and it is clearly to their economic advantage to have the NRC conclude that the material is satisfactory. Data, not conclusions, are needed in the FEIS -- or rather data and conclusions. In any case, the important need is for data, so that readers of the EIS can draw their own conclusions about the adequacy of the proposed program.

On pg. 9, Response 6 essentially skirts the issue of corrosivity. This is an important omission that needs to be remedied in the FEIS.

On the following page, Response 1 says that "All primary cooling system materials that will be in contact with NS-1 have been tested extensively..."

The FEIS should contain all the relevant test protocols and test data and conclusions for the reasons given above. Neither NRC nor Dow have credibility with the public and it is important that the public be able to analyze raw data and draw independent conclusions.

Four pages later (a page marked "APPENDIX A - 5 - ", the top paragraph says "Tests have been performed to demonstrate that the stability of the solid polymer will not substantially alter for over 50 years, corresponding to 10 half-lives of Co-60." Again, we have test conclusions and interpretations, but no test protocols or results. The tests themselves are the important basis for judgement, not Dow's or NRC's conclusions. The FEIS should present the test data.

On that same page, the response to question 3c says "We do not know the leach rate of Dow polymer under burial conditions." This should be known if safety analysis is to go forward. It would appear to be impossible to carry out a safety or risk analysis without this key piece of information. The next to last paragraph on that page describes, very briefly, some tests on a concrete matrix. This is very important information and should be amplified in detail for the FEIS.

On the following page, the top paragraph presents test results, but no discussion of the tests themselves or of the data developed by the tests. The public does not need NRC's or Dow's conclusions; the public needs test protocols and data. The public can then draw its own conclusions. As the DEIS stands, the public has only NRC's and Dow's word for the adequacy of the materials tested. This is an important, and oft-repeated flaw in the EIS as it presently stands. The response to question 3d mentions a "mixed bed demineralizer" which "has been tested"; again, there is a data gap here. What kinds of demineralizers were employed? Organic resins? Zeolites? What tests were conducted? What data were gathered? Why is this information missing from the EIS?

On the following page, in the response to Question 4, the statement is made that "most barrels remain resistant to corrosion...."

What fraction of the barrels did not remain resistant to corrosion? What is meant by "resistant to corrosion"? This is a matter subject to quantification. In the FEIS, quantitative data should be presented.

On the following page, in the response to question 4b, the statement is made that, under certain conditions, the 55 gallon drums of waste could suffer "corrosion breakthrough" in "about one month". This result was reached under conditions that are only vaguely described ("the waste does not

solidify") in a test program that is not described at all (except to say that it was carried out by BNL [Brookhaven National Laboratory]). The FEIS should describe the test program, and the data resulting from that program, in detail. Later in that same answer, the statement is made that there would be no problems with the containers "...if buried within a few months of solidification." As previously mentioned in the FEIS, a finding of TRU wastes in the Dresden decontamination waste stream could force the emplacement of the Dresden decontamination wastes in a TRU repository instead of in a low-level waste repository; since no TRU repository exists, and since the President says it will be 1995 before such a repository exists, where would the Dresden wastes be stored for the intervening 15 years? What contingency plans, including new containers, has NRC developed for dealing with this eventuality? The FEIS should discuss this critical issue.

On the following page (" - 9 - ") the top paragraph indicates a conclusion being drawn from unspecified test protocols. What tests and what resulting data led to the conclusion drawn in that paragraph ("...the barrel could last 10 years..." etc.)?

On page " - 12 - ", response to question 4d, the conclusions in that response all need to be stated quantitatively. The entire discussion centers on comparative

leach rates; the FEIS should present the leach rates, the test conditions under which the various leach rates were achieved, and the contractors' conclusions from the data. To present the conclusions without any data is pitifully inadequate in an environmental impact statement.

On the following page, in the response to question 5a, the last sentence in the response, once again, presents conclusions without any supporting data. "The licensee's tests indicate..." etc. What tests? Under what conditions? With what resulting data?

On pg. - 15 - Response "a" begins "There is no evidence based on decontaminations that have been performed at the Canadian reactors and at the British reactors...." Yet no literature citations are given, referencing reports on these previous decontamination efforts. What reports are being cited? Why are citations not given in the DEIS?

Later in that same paragraph, the statement is made that "...the utility may elect to use a weaker but more frequent decontamination process on line...."

This is an extremely important statement and the program for developing this process should definitely be described in this EIS. The decontamination proposed in this DEIS may lead to use of this other process and so the two are inextricably and intimately related; this impact statement should deal with the potential on-going decontamination process "...currently being developed under EPRI sponsorship by Battelle Northwest".

Overall, this impact statement gives the strong impression of having been "thrown together" by a reluctant agency which is contemptuous of public participation in its decision-making processes. It is a defective document which does not adequately discuss possible alternatives to the proposed action, does not discuss the full impact of the proposed actions, does not develop a rationale for the need for the proposed action, and does not give confidence that the proposed program can be carried out safely by the main actors. The impact statement makes the main actors appear to be incompetent.