April 30, 2002

Mr. David A. Lochbaum
Nuclear Safety Engineer
Union of Concerned Scientists
1707 H Street, NW, Suite 600
Washington, D.C. 20006-3919

Dear Mr. Lochbaum:

I am responding to your letter of January 21, 2002, regarding the report to Congress on abnormal occurrences for fiscal year 1999. You stated that information contained in Temporary Instruction (TI) 2515/146, "Hydrogen Storage Locations," dated December 14, 2001, seemed to contradict information provided to Congress in the 1999 abnormal occurrence report (AOR). I am also responding to your letter of February 6, 2002, in which you raised questions about a memorandum, dated September 29, 1994, from Eric S. Beckjord to Joseph A. Murphy on Generic Issue No. 167, "Hydrogen Storage Facility Separation."

With regard to the apparent inconsistencies between the 1999 AOR and the subsequent TI, the NRC staff has reviewed the AOR, the TI, and related documents. We have concluded that an inconsistency does not exist between the two, although the TI does understate the number of facilities that provided information. In preparing the 1999 AOR, the NRC staff evaluated historical data on the storage of combustible gases at nuclear facilities certain including Generic Safety Issues (GSIs) (GSI 106 and GSI 136), Generic Letter (GL) 93-06, Information Notices (IN) (IN 87-20 and IN 89-44) and Individual Plant Examinations of External Events. The NRC staff determined that a great deal of guidance and information on this subject had been provided to licensees and concluded that NRC staff reviews performed up to the time of preparing the 1999 AOR provide adequate assurance that fires and explosions at hydrogen (H_2) storage facilities are not indicative of an undue risk to safe nuclear power plant operation. This evaluation formed the basis for the statement in the 1999 AOR which concluded that the probability of fires and explosions from on-site H_2 storage facilities posing a risk to safe facility operation was low. A copy of the staff's evaluation is enclosed.

Notwithstanding the low risk, the NRC staff thought it prudent to verify licensee compliance with the applicable codes, NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Branch Technical Position CMEB 9.5-1 guidance for post-1979 plants, Appendix A to Branch Technical Position APCSB 9.5-1 guidance for pre-1979 plants and other commitments regarding H_2 storage. Therefore, the NRC staff conducted an informal survey of nuclear power plants to update information previously provided to the NRC concerning H_2 storage at those facilities. Not all plants responded or provided complete information on this informal survey. Based on the results of this survey, the NRC staff prepared TI-2515/146 for inspecting the plants that did not respond or that provided incomplete information to the survey. During our comparison of the TI and the earlier AOR, the staff identified that the TI understated the number of facilities that actually provided adequate information. Rather than stating that only 9 plants (12 reactors) responded with information the TI should have stated that plants responded to the survey with insufficient information to determine if code compliance and commitment compliance were achieved. Additionally, 15 plants did not respond. The remaining plants responded with complete information. Inspections are being conducted for those facilities that either did not provide sufficient information or did

not respond at all. When the inspections are complete, the NRC staff will evaluate the inspection findings and determine whether licensees are in compliance with applicable requirements; the results of the inspections will be documented in routine inspection reports for each facility. If the inspections raise new concerns, the NRC staff will determine whether further actions or notifications are necessary. If appropriate, the additional actions or notifications would then be provided on the NRC Public Web site (http://www.nrc.gov).

In your February 6, 2002, letter you asked for the identification and status of the three plants mentioned in Eric Beckjord's memorandum of September 29, 1994, and for NRC's assessment on whether or not the plants were still vulnerable. Beckjord's memorandum stated that eighteen light-water reactors (LWRs) lacked proper H_2 storage separation and that three of these plants lacked adequate mitigation capability. The source of this information was NUREG-1364, "Regulatory Analysis for the Resolution of Generic Safety Issue 106, Piping and the Use of Highly Combustible Gases in Vital Areas." However, the three plants were not identified. The NRC staff has determined that the data that contained the identification of the three plants and were used to support NUREG-1364 were collected by a consultant and not provided to the NRC. The NRC staff contacted the consultant but the consultant was unable to provide this information. In addition, employees in the Office of Nuclear Regulatory Research and the Office of Nuclear Reactor Regulation who might have been involved with this issue, at that time were contacted but were also unable to provide any insight into the identification of these three plants. Therefore, NRC cannot identify the three plants referenced in the September 29, 1994, memorandum with certainty. However, the issue will be addressed at all plants because the TI instructed inspectors to collect data associated with separation distances between hydrogen storage facilities and safety-related or risk-significant structures, systems or components, or ventilation system intakes, or licensees responded to the survey that their H_2 storage meets NRC guidance cited in NUREG-0800 CMEB 9.5-1 for post-1979 plants or Appendix A of Branch Technical Position APCSB 9.5-1 for pre-1979 plants.

In your letter of February 6, 2002, you also questioned whether the 1999 AOR was consistent with the September 29, 1994, memorandum. After reviewing both documents, we find no inconsistency. The AOR stated that "there was a low probability of fires and explosions from on-site hydrogen storage facilities posing a risk to safe facility operation." The September 29, 1994, memorandum serves to support this conclusion in stating, "based on the impact/value ratio and calculated CDF [core damage frequency], this issue is given a LOW priority ranking." A LOW priority ranking reflects both a low impact/value ratio and a low calculated CDF.

Finally, you questioned the appropriateness of evaluating the cost-effectiveness of bringing a licensee with a non-conforming plant condition into compliance. it is not appropriate to evaluate the cost-effectiveness of enforcement to determine whether or not a plant should be brought into compliance with the NRC regulations. However, the cost-effectiveness evaluation in the memorandum of September 29, 1994, from Eric S. Beckjord to Joseph A. Murphy was not for the purpose of enforcing the NRC regulations but was performed to assist in the timely and efficient allocation of NRC resources for the resolution of those GSIs that have a significant potential for reducing risk.

We have referred your letters and concerns to the NRC Inspector General for his review and consideration. We are also providing the NRC Inspector General a copy of this response.

Thank you for your letters. I trust that this information is responsive to your concerns.

Sincerely,

/RA/

William D. Travers
Executive Director for Operations

Enclosure: As stated

We have referred your letters and concerns to the NRC Inspector General for his review and consideration. We are also providing the NRC Inspector General a copy of this response.

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Enclosure: As stated

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