NYSERDA New York State Energy Research and Development Authority
Vincent A. Delorio, Esq., *Chairman*
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May 13, 2003

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NYS Department of Environmental Conservation
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Albany, NY 12233-7258

Dear Messrs. Gillen, Giardina & Dassatti:

SUBJECT: NYSERDA Comments on *Acid Recovery Pump Room Radioisotope Inventory Report, RIR-403-005*, Revision 0, dated 09/27/2002

The New York State Energy Research and Development Authority (NYSERDA) is providing the U.S. Nuclear Regulatory Commission (NRC), the U.S. Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (NYSDEC) with a copy of NYSERDA's comment package on the *Acid Recovery Pump Room Radioisotope Inventory Report, RIR-403-005*, Revision 0, dated 09/27/2002. The information contained in this report, and a number of similar reports, will be used to estimate the residual source term in the Process Building and other West Valley facilities.

To facilitate early sharing of information and resources, NYSERDA, as a matter of course, intends to

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617 Main Street, Suite 105
Buffalo, NY 14203
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copy the cooperating agencies on comments submitted to the U.S. Department of Energy (DOE) on facility inventory and characterization reports.

If you have any questions you may contact me or Colleen Gerwitz at (716) 942-4378 or 4435, respectively.

Sincerely,

WEST VALLEY SITE MANAGEMENT PROGRAM

Paul L. Piciulo, Ph.D.
Director

PLP/amd
Attachment: Letter, Paul L. Piciulo, Ph.D., Director, to Alice C. Williams, Director, *NYSERDA Comments on "Acid Recovery Pump Room Radioisotope Inventory Report, RIR-403-005, Revision 0, dated 09/27/2002"*

cc: H. Brodie, NYSERDA-Albany (w/att.)
A. L. Mellon, NYSERDA-WV (w/att.)
C. L. Gerwitz, NYSERDA-WV (w/att.)
T. L. Sonntag, NYSERDA-WV (w/att.)
P. J. Bembia, NYSERDA-WV (w/att.)
A. C. Williams, DOE-WVDP (w/att.)
J. J. Kottan, NRC-Region I (w/att.)

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May 13, 2003

Alice C. Williams
Director
U.S. Department of Energy
West Valley Demonstration Project
10282 Rock Springs Road
West Valley, NY 14171-9799

Dear Ms. Williams:

SUBJECT: Comments on *Acid Recovery Pump Room Radioisotope Inventory Report, RIR-403-005*, Revision 0, dated 09/27/2002

The New York State Energy Research and Development Authority (NYSERDA) is providing the attached comments on the *Acid Recovery Pump Room Radioisotope Inventory Report, RIR-403-005*, Revision 0, dated 09/27/2002 (ARPR Report). We are requesting written responses to the seven comments that are attached and that the ARPR Report be revised to address our comments.

Due to the importance of facility characterization activities in determining the residual source term for the WVDP, NYSERDA believes that characterization data and reports, such as the ARPR Report, need to be of a high quality. Our comments are submitted for the purpose of improving the quality of the product. NYSERDA will continue to review and provide comments on the various inventory reports to you and the cooperating agencies.

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If you have any questions, please contact me or Andrea Mellon at extensions 4378 or 4054, respectively.

Sincerely,

WEST VALLEY SITE MANAGEMENT PROGRAM

Paul L. Piciulo, Ph.D.
Director

PLP/amd
Attachment: NYSERDA Comments on *Acid Recovery Pump Room Radioisotope Inventory Report, RIR-403-005*, Revision 0, dated 09/27/2002

cc: H. Brodie, NYSERDA-Albany (w/att.)
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D. M. Gillen, NRC-TWFN (w/att.)
E. E. Dassatti, NYSDEC (w/att.)
P. A. Giardina, USEPA (w/att.)
J. E. Loving, USDOE-EH-42 (w/att.)
C. D. Monroe, USDOE-GC-51 (w/att.)
M. W. Frei, USDOE-EM-30 (w/att.)
R. R. Warther, USDOE-OH (w/att.)

NYSERDA Comments

Acid Recovery Pump Room Radioisotope Inventory Report, RIR-403-005, Revision 0, dated 09/27/2002

1. The introduction to the *Acid Recovery Pump Room Radioisotope Inventory Report, RIR-403-005, Revision 0, dated 9/27/2002* (ARPR Report) states that the report provides "a conservatively bounded curie inventory." Considering the following comments, please explain the basis for asserting that the curie inventory presented in the ARPR Report is "conservatively bounding" and provide an estimate of the uncertainty associated with the ARPR curie estimate.

2. Considering the many different dissolving, stripping and extraction steps where nitric acid was used to achieve isotope separation and purification in the fuel reprocessing operations and that the nitric acid from these many different steps were recycled back through the ARPR, it would seem reasonable to expect to encounter many different isotopic distributions within this room. Please modify the report to explain the basis for assuming a single isotopic distribution for the residual ARPR source term.

3. Decontamination activities that occurred in the ARPR in 2001 are described in a report entitled *Acid Recovery Pump Room (ARPR) Decontamination Project, April 30, 2001*, which is included as Attachment B to the ARPR Report. In Section 3.3 of Attachment B, West Valley Nuclear Services Company (WVNSCO) states that, contrary to their initial assumption that all waste from the ARPR would have one radiological signature, initial screening samples from the ARPR indicated that "...multiple radiological distributions could be present." WVNSCO took additional samples from the floor in areas that were higher in activity and the report states that "... these samples showed a large variance in the radiological distribution between actinides and fission products." Regardless of this acknowledgment that multiple radiological distributions existed within the ARPR, a single radiological distribution (e.g., the Table 2 scaling factors) was used to generate the curie estimate for the ARPR. Please revise the report to reconcile or otherwise explain this apparent inconsistency.

4. The analytical results of characterization samples described in Section 3.3 of Attachment B were not included in the ARPR Report. Please revise the report to include these sample results and provide an explanation for exclusively using the mean of the three floor debris samples as opposed to the characterization samples to establish the residual radiological distribution (i.e, Table 2 scaling factors).

5. Please revise the report to include a technical justification for using the geometric mean instead of the arithmetic mean to calculate the ARPR scaling factors.

6. Microshield modeling of the ARPR was performed using dose rates from 24 locations (post-grouting dose rates) that were obtained after grout and a lead blanket were installed in the ARPR. "Pre-grouting" dose rates for these same 24 locations are available and could be used as inputs for the Microshield modeling of the ARPR. The Microshield modeling results using the pre-grouting dose rates should be reported in the ARPR Report, and compared with

the post-grouting Microshield modeling results to verify shielding assumptions introduced in the model.

7. Based on the total metals analytical results for the ARPR floor debris (Attachment E) all three drums would appear to be RCRA characteristic for various metals, as follows:

- Drum #1 - RCRA characteristic for chromium (136 ppm), lead (22,600 ppm) and mercury (4.6 ppm).
- Drum #2 - RCRA characteristic for lead (1,080 ppm).
- Drum #3 - RCRA characteristic for chromium (106 ppm) and lead (6,850 ppm).

The ARPR Report does not address RCRA characterization; but based on the cement debris results, it seems likely that residual RCRA hazardous waste constituents are present in the ARPR floor (and possibly the walls). The ARPR floor has already been covered with 8 inches of grout which will impede additional characterization efforts. RCRA hazardous waste characterization of the ARPR should be fully documented in this report or in a companion report. Actions which inhibit the collection of additional characterization data (e.g., grouting) should be minimized or avoided until the information has been provided to the regulatory agencies.