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EDATS: SECY-2007-0057

Peter R. Smith
New York State Energy Research
and Development Authority

TO:

Chairman Klein

FOR SIGNATURE OF : ** PRI ** CRC NO: 07-0170

Chairman Klein

DESC:

Sr-90 Contamination in Groundwater at the
Western New York Nuclear Service Center

ROUTING:

Reyes
Virgilio
Kane
Silber
Johnson
Cyr/Burns
Collins, RI

DATE: 03/15/07

ASSIGNED TO: CONTACT:

FSME Miller

SPECIAL INSTRUCTIONS OR REMARKS:

EDATS

Electronic Document and Action Tracking System

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General Information

Assigned To: FSME **OEDO Due Date:** 3/26/2007 5:00 PM

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Subject: Sr-90 Contamination in Groundwater at the Western New York Nuclear Service Center

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Addressee: Chairman Klein

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AUTHOR:	Peter Smith
AFFILIATION:	NY
ADDRESSEE:	Dale Klein
SUBJECT:	NRC action is needed to address Sr-90 contamination in groundwater at the Western New York Nuclear Service Center
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EDO --G20070167

832

NYSERDA

New York State Energy Research and Development Authority
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March 6, 2007

Dale E. Klein, Chairman
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Washington, D.C. 20852

Dear Chairman Klein:

Subject: NRC Action is Needed to Address Sr-90 Contamination in Groundwater at the Western New York Nuclear Service Center

The New York State Energy Research and Development Authority (NYSERDA) has significant concerns about the ongoing migration of strontium-90 in groundwater at the Western New York Nuclear Service Center (Center). As discussed below, we believe that the West Valley Demonstration Project (WVDP) Act and the associated implementing agreements clearly demonstrate that the U.S. Department of Energy (DOE) is the entity responsible for taking all actions needed to address properly the continued migration of the groundwater plume. We believe that the Act and the agreements also show that the U.S. Nuclear Regulatory Commission (NRC) continues to have significant responsibility, and authority, for the protection of public health and safety at the Center. NYSERDA therefore requests that NRC take all possible steps within its statutory mandate to facilitate action by DOE to control and contain the West Valley groundwater plume.

Location of the Sr-90 Groundwater Plume

The Sr-90 groundwater plume is migrating through a sand and gravel aquifer on the North Plateau, an area of the Center that is under the exclusive possession of DOE for the purpose of conducting the WVDP. The plume originates at the Main Plant Process Building, and extends approximately 500 meters to the northeast (see Attachment 1).

The Sr-90 concentration in North Plateau groundwater is as high as 150,000 pCi/L (see Attachment 2), which is 18,000 times higher than the EPA Sr-90 drinking water Maximum Contaminant Limit (MCL) of 8 pCi/L. This contamination is continuing to move toward the boundary of the DOE-controlled WVDP property. When the plume passes beyond the boundary of the WVDP, it will enter the portion of the Center that is managed by NYSERDA (the Retained Premises), where it will contaminate groundwater, soil, sediment, and surface water (see Attachment 3).

The plume resulted from at least one leak from process piping that was part of the reprocessing operation conducted at the Center under a Part 50 license issued by the U.S. Atomic Energy Commission (AEC). A significant quantity of Cs-137 (approximately 100 curies), and other contaminants were released at the same time the Sr-90 was released. Because Cs-137 migrates at a much slower rate than Sr-90, the Cs-137 remains in the soil somewhere beneath the Main Plant Process Building.

07 MAR 6 3:18
CHAIRMAN REC'D

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DOE Unsuccessfully Attempts to Control the Spread of the Sr-90 Plume

For a ten-year period beginning in 1993, DOE actively worked to control and mitigate the spread of the plume. During this time, DOE conducted four separate field sampling investigations to characterize the plume, conducted laboratory studies on possible chemical methods to slow the plume, and installed two separate plume mitigation measures, including three groundwater extraction wells and an in-situ, permeable treatment wall (PTW) (see Attachment 4). DOE also implemented several upgradient water diversion projects to limit the volume of clean groundwater and precipitation entering the contaminated area.

In 2003, DOE brought an end to its effort to control the spread and improve the capture of the Sr-90 plume. After a ten-year effort, DOE apparently reconsidered its responsibility and determined that the plume was outside the scope of DOE's congressionally mandated WVDP activities. DOE publically stated that any further efforts to control or limit the spread of the plume would be NYSERDA's responsibility.

Sr-90 Contamination in Groundwater Continues to Spread Across the North Plateau

Currently, the groundwater extraction wells capture only a small portion of the spreading contamination, and the PTW does not function as intended. Groundwater contaminated with high concentrations of Sr-90 (>50,000 pCi/L) has now bypassed the extraction wells and PTW (see Attachment 4), and is moving, unimpeded, toward the edge of the North Plateau. When this contaminated groundwater reaches the edge of the North Plateau, it will seep out from the side of the sand and gravel deposit and flow into Frank's Creek on the Retained Premises (see Attachment 3). The steady advance of the plume, through previously uncontaminated areas of the North Plateau, can be seen clearly in the data from DOE's groundwater monitoring program (Attachment 4). DOE's own estimates of soil contamination resulting from the Sr-90 plume show that over the last ten years, the volume of soil contaminated by the plume that would require remediation to meet NRC's criteria for license termination has increased from 4 million ft^3 in 1996 to 28 million ft^3 in 2005.

Sr-90 Contamination in Surface Water is Presently Discharging from the WVDP

In addition to contaminating large volumes of soil and groundwater, the Sr-90 release is also presently contaminating surface water on the WVDP Premises. The contamination of surface water occurs because contaminated groundwater from the plume is seeping into low-lying ditches within the WVDP property, and by doing so, the contaminated groundwater becomes contaminated surface water. This contaminated surface water then flows through a culvert from the WVDP Premises onto the Retained Premises.

NYSERDA is very concerned that this contaminated surface water is being allowed to flow freely from the WVDP onto the Retained Premises. Soil and sediment on the Retained Premises are likely being contaminated with Sr-90 from this surface water effluent from the WVDP, but we are not aware of any recent DOE efforts to sample or otherwise assess the need for radiological controls on the Retained Premises. Consequently, we believe that the regulation of contaminated areas outside of the WVDP Premises, and the establishment and maintenance of radiological controls in these contaminated areas, must be addressed in the near-term by NRC.

Sr-90 Concentrations in Surface Water Discharge Exceed Relevant Regulations and Guidance

As mentioned above, contaminated surface water is presently discharging through a culvert from the WVDP Premises onto the Retained Premises. In the summer of 2006, the Sr-90 concentration in surface water discharging from the DOE-controlled WVDP Premises was approximately 3,300 pCi/L (see Attachment 5) and the gross beta concentration was about 7,500 pCi/L. These concentrations exceed the EPA Sr-90 drinking water MCL (8 pCi/L); the NRC 10 CFR Part 20 Appendix B Table 2 Sr-90 effluent limit (500 pCi/L); the DOE Sr-90 Derived Concentration Guide (1,000 pCi/L);

the NYS Ambient Water Quality Standard and Guidance Value for gross beta radiation (1,000 pCi/L); and the NYSDEC Part 380 Table II Sr-90 limit (500 pCi/L).

In addition to exceeding relevant regulatory standards and guidance, the Sr-90 concentration in surface water flowing off the Project Premises also exceeds the site-specific effluent limit set by AEC in the early 1970s. In September 1971, AEC established liquid effluent discharge limits at the point of discharge from the facility lagoons. In a 1970 letter from Lyall Johnson, Acting Director of the Division of Materials Licensing at AEC, to Robert Miller, president of NFS (Attachment 6), AEC told NFS:

> "...It is important that you develop an alternate plan to achieve at the earliest possible date a reduction in quantities and concentration of radioactivity released in liquid effluents. The objective of the alternate plan should be to comply with Appendix B, Table II of 10 CFR Part 20 for radioactivity in liquids at the point of release from the lagoon rather than down stream as presently provided in your license."

This effluent discharge limit was incorporated as Section 4.2.5 of the technical specifications of License CSF-1 via Change No. 15 as a sum-of-the fractions limit where the sum-of-the-fractions for four specified radionuclides had to be less than or equal to one. The denominator of the Sr-90 portion of the sum-of-the fractions equation was set at 3×10^{-7} or 300 pCi/L, which means that the Sr-90 concentration in the discharge from the DOE-controlled Project Premises *currently exceeds the 1972 license discharge limit by a factor of 11.*

NYSERDA believes that these regulatory standards, limits, and/or guidance values were established to protect public health and safety. As such, we are concerned that established regulatory limits are being exceeded without a call from NRC for DOE to take further action on the plume.

The Spreading Plume Will Add Significant Cost to Facility Decommissioning

Documents prepared in support of the 2005 Agency Review Draft of the West Valley Decommissioning EIS show that in order to decommission the North Plateau to allow termination of the NRC license without restrictions, the exhumation and disposal of contaminated soil from the plume will add at least $1 billion to the cost of decommissioning. As the plume continues to spread under DOE's current management approach, decommissioning costs will continue to increase.

DOE's current position is that it has no future financial liability for decommissioning, or for providing long-term stewardship for the plume. This position actually provides DOE with an incentive **not** to take further near-term action to control the plume, despite the fact that continued inaction will significantly increase the cost and complexity of decommissioning. Since DOE appears unwilling to take further voluntary action to stop the plume from spreading, there is a pressing need for NRC to actively engage DOE in identifying and implementing additional measures to stop the plume from expanding farther into uncontaminated and uncontrolled areas of the site.

The WVDP Act and Three Implementing Documents Clearly Identify DOE and NRC Responsibilities during the Term of the Project

The WVDP Act, passed on October 1, 1980, required three separate documents to establish the framework for the involvement of DOE, NRC, and NYSERDA in the WVDP. The final versions of these three documents were completed within 45 days of each other (between August 14, 1981 and September 22, 1981). These documents (discussed below) clearly show that during the term of the Project, DOE is the entity responsible for taking all actions required at "the facility." The documents also show that NRC retains a significant, present-day responsibility for the protection of public health and safety, even during the term of the WVDP.

- ***Change No. 31 to the 10 CFR Part 50 License for the Facility Transfers Responsibility for the Facility to DOE*** - NRC has regulatory responsibility for the Center through a 10 CFR Part 50 license granted by its predecessor agency, AEC, in 1966 (Provisional License CSF-1). On August 14, 1981, NYSERDA, *joined by DOE,* submitted an application for amendment of the Part 50 license to provide for the conduct of the WVDP (the amendment was required by Section 2(b)(4)(D) of the WVDP Act). NYSERDA and DOE, *together*, proposed the language that would ultimately be incorporated by Change No. 31 as Paragraph 7 of the license.

  NRC issued Change No. 31 on September 30, 1981 and, in doing so, implemented two simultaneous actions - it transferred exclusive possession of "the facility" to DOE to conduct the WVDP *and* it removed NYSERDA's authorization "to possess, use, or operate, or be responsible for maintenance, surveillance, or safeguarding of the facility under this license." By taking these two actions *simultaneously*, NRC did not leave open the option for DOE to pick and choose parts of "the facility" DOE would manage as it conducted the WVDP, nor did NRC provide DOE with the option to unilaterally shed responsibility for the management of contamination in the soil and groundwater emanating from the Main Plant Process Building.

  NRC's Safety Evaluation Report that accompanied Amendment No. 31 asserted "that the issuance of Amendment No. 31 to Facility License No. CSF-1 involves no significant hazards consideration" based primarily on DOE's "exclusive possession of the facility," and that while DOE is in possession of the facility, NYSERDA is "*not authorized to take any action under the license. All activities will be conducted by DOE*." NRC's clear expectation here is that while DOE is in possession of the facility, DOE will take all actions at the facility. NRC is just as clear that it did not intend for, or even allow, NYSERDA to take any action at the facility. Accordingly, under the framework established by Change No. 31, during the term of the WVDP, the responsibility for mitigation of environmental threats from releases of licensed material from the facility, even from past operations, can rest only with DOE.

- ***Cooperative Agreement Between DOE and NYSERDA Shows DOE Agreement to take All Necessary Actions to Maintain the Facility*** - In addition to the joint application for Change No. 31 to License CSF-1, the WVDP Act required DOE to enter into a Cooperative Agreement with NYSERDA for the purpose of implementing the WVDP Act. The Cooperative Agreement was initially effective on October 1, 1980, and was amended on September 18, 1981, just a month and a few days after DOE and NYSERDA jointly submitted the application for Change No. 31 to NRC.

  Many provisions of the Cooperative Agreement address DOE's obligation to protect public health and safety and to maintain the Project Premises and Facilities during the term of the Project. Those provisions include, but are not limited to:

  > Section 3.01. Department Responsibility for the Project. Except as provided in Section 3.03 and Article VIII, the Department shall have the sole responsibility for carrying out the Project, including without limitation the planning, design, management, implementation, and completion thereof in a manner which protects public health and safety.
  >
  > Section 3.02. Specific Department Responsibilities. Without limiting the generality of its obligations under Section 3.01, the Department shall:
  >
  > (b) on or before October 1, 1981:
  >
  > (ii) assume responsibility for protection of public health and safety with respect to the Project Premises and Project Facilities for the duration of the Project.

Section 4.06. Present Condition of the Center. The Act directs the Department to carry out the Project at the Center, and therefore the Department's responsibilities hereunder shall not be affected by any defect in the condition or fitness of the Project Premises or Project Facilities nor shall the Department have any claim against the Authority arising from any such defect.

Section 4.08. Operation, Maintenance and Repair. The Department shall operate and maintain the Project Premises, Project Facilities, and such Additional Facilities which it uses in carrying out the Project, and as may be necessary or appropriate to carry out the Project in a manner which protects public health and safety and complies with the provisions of the Agreement. As used in this Section, the term "maintain" shall include, but not be limited to, the obligation to make all necessary and appropriate repairs, changes, alterations, and additions thereto or replacements thereof, interior and exterior, structural and non-structural, ordinary and extraordinary, foreseen and unforeseen.

The Cooperative Agreement, when read in the context of the joint application for Change No. 31, clearly shows the parties' intent and agreement that DOE would take all necessary and appropriate actions to operate and maintain the Project Premises (which includes the area of the site that is now impacted by the plume), while it is in possession of the facility.

- ***WVDP Act and MOU Between DOE and NRC on the WVDP Identifies NRC's Responsibility for Protection of Public Health and Safety*** - Section 2(c) of the WVDP Act requires the Secretary of Energy to enter into an agreement with the Commission, which was to provide, among other things, that "the Secretary shall afford the Commission access to the Center *to enable the Commission to monitor the activities under the Project for the purpose of assuring the public health and safety.*"

  On September 22, 1981, three days after signing the Cooperative Agreement, and just two weeks after submitting the application for Amendment No. 31, DOE entered into a Memorandum of Understanding (MOU) with NRC in regard to NRC's review and consultation with DOE on the WVDP. Although the MOU states that the DOE has responsibility for the public health and safety associated with the Project, the MOU also says that NRC will monitor Project activities "to further assure the public health and safety from a radiological standpoint." The MOU provides for "NRC review, consultation, and monitoring" that will provide DOE with "independent analyses to assist the Department in fulfilling its responsibility for public health and safety." From the language in the Act and the MOU, it is clear that NRC retains a significant responsibility for the protection of public health and safety, even during the period of DOE's performance of the WVDP.

  The MOU and the WVDP Act both state that NRC's review and consultation with DOE with respect to the Project will be conducted informally, and will not be subject to formal Commission procedures or actions required by law. As such, the formal *processes* for NRC regulation and oversight that would be required at a licensed facility have been set aside during the WVDP, but NRC's legislative mandate and primary mission to protect public health and safety from activities at the Center, remain.

NRC Responds to the Unplanned Release of Radioactive Material at Other NRC-Licensed Sites

In response to the inadvertent release of radioactive liquids to the environment from several nuclear power plants, the NRC convened the Liquid Radioactive Release Lessons Learned Task Force (LRRLLTF) in 2006. The LRRLLTF was chartered by NRC to conduct a lessons-learned review of these unplanned, unmonitored releases to assess: public health impacts, the existing regulatory framework, inspection program requirements, industry actions, implications for decommissioning, and communications.

Although it was determined that the inadvertent releases had essentially no off-site dose consequences, the LRRLLTF recognized that the loss of control of licensed material can result in a high level of concern from the public, a high level of attention from the news media and elected officials, increased decommissioning costs, and a lack of trust in the information provided by the NRC and the site operator. Accordingly, the LRRLLTF identified 26 specific recommendations to NRC that address enhanced regulations or regulatory guidance for unplanned, unmonitored releases, additional reviews in the area of decommissioning funding and license renewal and enhanced public communications. The report also noted that, as a result of the unplanned releases, the nuclear industry has developed its own groundwater protection initiative to increase public confidence in nuclear industry activities.

The contamination data provided in the LRRLLTF indicate that, at many of the facilities in question, the inadvertent releases resulted in groundwater contamination levels that are below the EPA drinking water MCLs. At those facilities where contamination exceeded the EPA drinking water MCLs, the contamination was generally less than 25 times greater than the EPA drinking water MCLs. This is in stark contrast with the contamination level in groundwater at West Valley, where Sr-90 in groundwater is 18,000 times greater than the EPA drinking water MCL.

The high degree of public concern and lack of trust that resulted from inadvertent releases at nuclear power plants also is present, and increasing, at West Valley. In December 2006, the West Valley Citizen Task Force (CTF) sent a letter to the Commission that questioned NRC's response to the plume, and urged NRC to compel DOE to develop a plan to remediate the source of the plume. On January 16, 2007, the CTF issued a press release to communicate their concern about the plume to the general public.

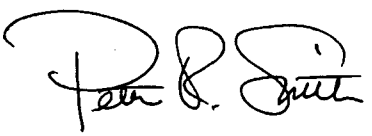
The NRC response to the unintended release of radioactive material at these nuclear power plants shows that the NRC considers the unplanned release of radioactive material from licensed facilities to be a serious matter that must be addressed promptly and properly. As such, we are perplexed by the NRC's low level of involvement in the groundwater contamination issue at West Valley.

More Active Involvement from NRC is Needed to Address the West Valley Groundwater Plume

The Sr-90 groundwater plume on the WVDP Premises is spreading across the North Plateau in an uncontrolled manner, and is moving toward the boundary between the DOE-managed WVDP Premises and the NYSERDA-managed Retained Premises. Sr-90 concentrations in groundwater show that the plume has severely impacted the environment in the developed portion of the Center, and would pose a threat to public health and safety if access to the site was not restricted.

The WVDP Act and the pertinent implementing agreements confirm that DOE has the responsibility to take any actions needed to address this spreading contamination. These same implementing agreements also show that NRC has a significant, present-day responsibility for the protection of public health and safety, and thus should be actively involved in identifying appropriate measures to control the further spread of the plume. Accordingly, NYSERDA requests that NRC take all possible steps within its statutory mandate at West Valley to facilitate action by DOE to control and mitigate the West Valley groundwater plume. Thank you.

Sincerely,



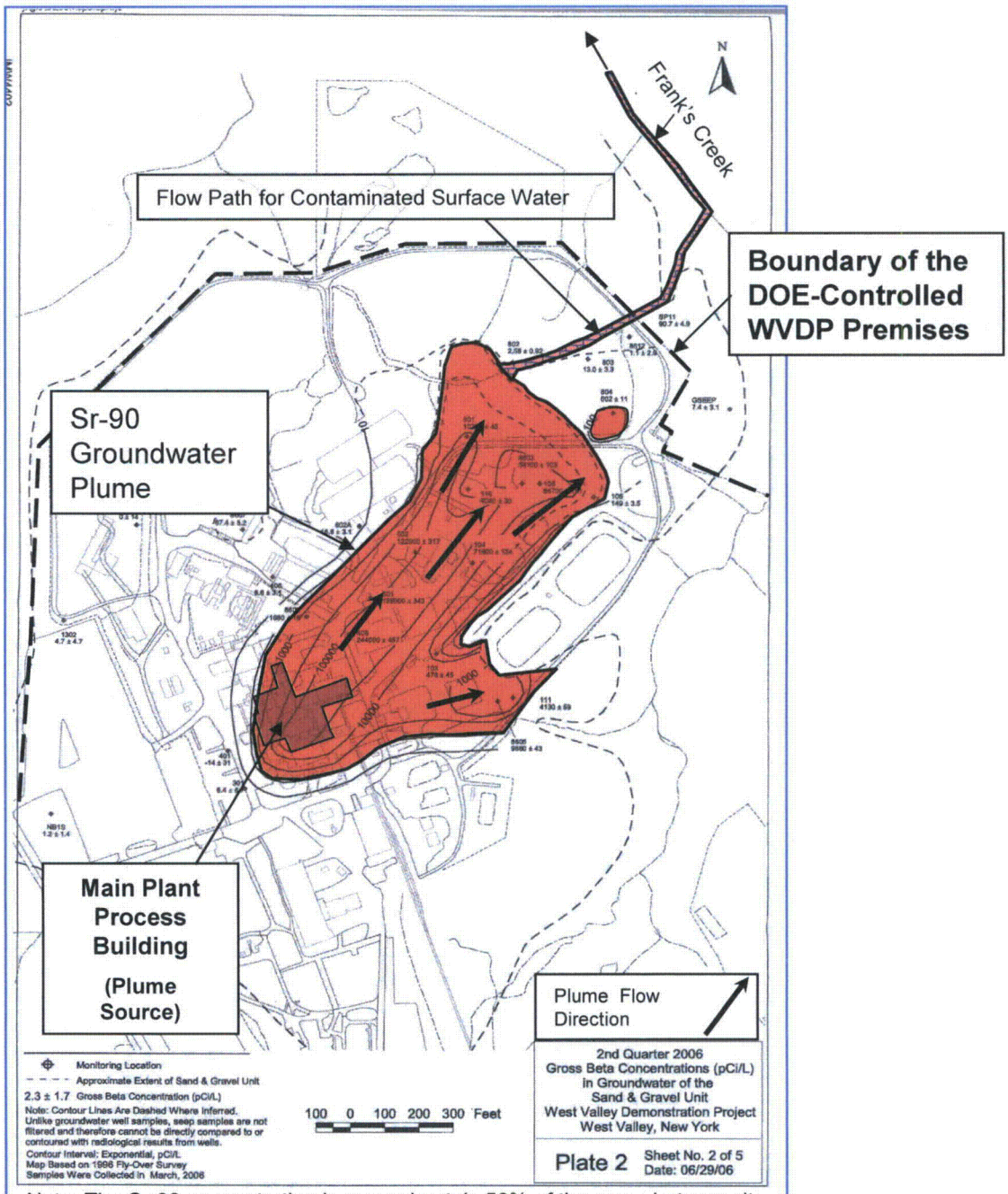
Peter R. Smith
President and CEO

Attachments:

1. North Plateau Sr-90 Groundwater Plume Location Map
2. North Plateau Groundwater Data from Wells in the Core Area of the Plume
3. North Plateau Plume Groundwater Transport Path
4. North Plateau Groundwater Data from Wells Downgradient of the DOE Mitigation Measures
5. Sr-90 Concentrations in Surface Water Exiting the DOE-Controlled Area
6. Letter from Lyall Johnson, Acting Director of the Division of Materials Licensing at AEC, to Robert Miller, President of NFS, Re: Waste releases and environmental monitoring at the West Valley Plant

cc: Senator Charles E. Schumer, (w/atts.)
Senator Hillary Rodham Clinton, (w/atts.)
Representative John R. Kuhl, Jr. (w/atts.)
Representative Brian M. Higgins, (w/atts.)
Representative Louise M. Slaughter, (w/atts.)
Representative Thomas M. Reynolds, (w/atts.)
NYS Senator Catharine M. Young, (w/atts.)
NYS Assemblyman Joseph Giglio (w/atts.)
Commissioner Edward McGaffigan, Jr., USNRC, (w/atts.)
Commissioner Jeffrey S. Merrifield, USNRC, (w/atts.)
Commissioner Gregory B. Jaczko, USNRC, (w/atts.)
Commissioner Peter B. Lyons, USNRC, (w/atts.)
Judith Enck, Executive Chamber, (w/atts)
Chairman Vincent A. DeIorio, Esq., NYSERDA, (w/atts.)
West Valley Citizen Task Force, (w/atts.)
James A. Rispoli, USDOE, (w/atts.)
Dr. Ines R. Triay, USDOE, (w/atts.)
Frank Marcinowski, USDOE, (w/atts.)
Bryan C. Bower, USDOE, (w/atts.)
Luis A. Reyes, USNRC, (w/atts.)
Larry Camper, USNRC, (w/atts.)
Robert Prince, USNRC, (w/atts.)
Steve Hammond, NYSDEC, (w/atts.)
Edwin E. Dassatti, NYSDEC, (w/atts.)
Barbara Youngberg, NYSDEC, (w/atts.)
Paul A. Giardina, USEPA, (w/atts.)
Gary H. Baker, NYSDOH, (w/atts.)
Paul L. Piciulo, NYSERDA, (w/atts.)
Hal Brodie, NYSERDA, (w/atts.)

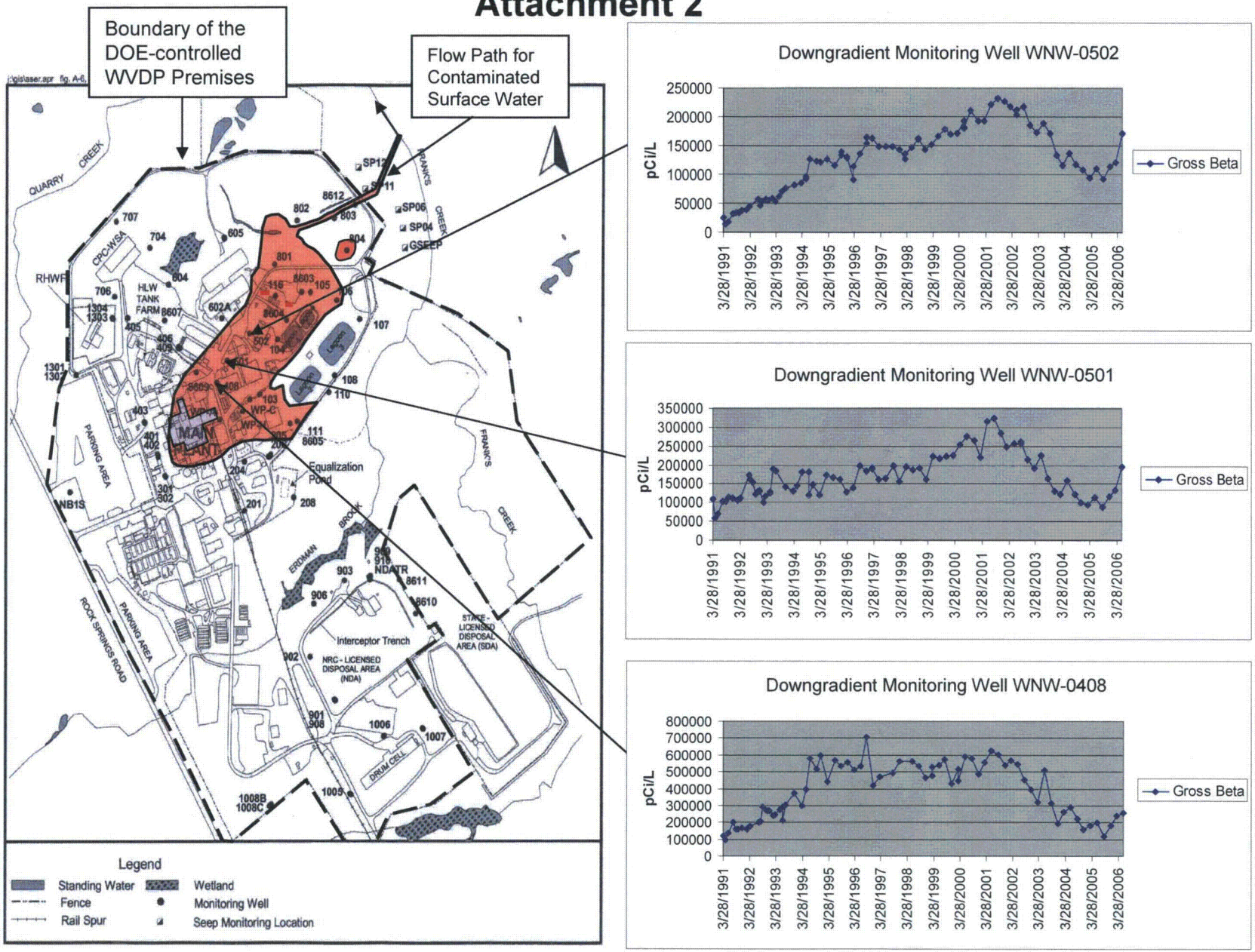
Attachment 1



Note: The Sr-90 concentration is approximately 50% of the gross beta result. The remainder of the gross beta result is primarily Y-90, the Sr-90 daughter.

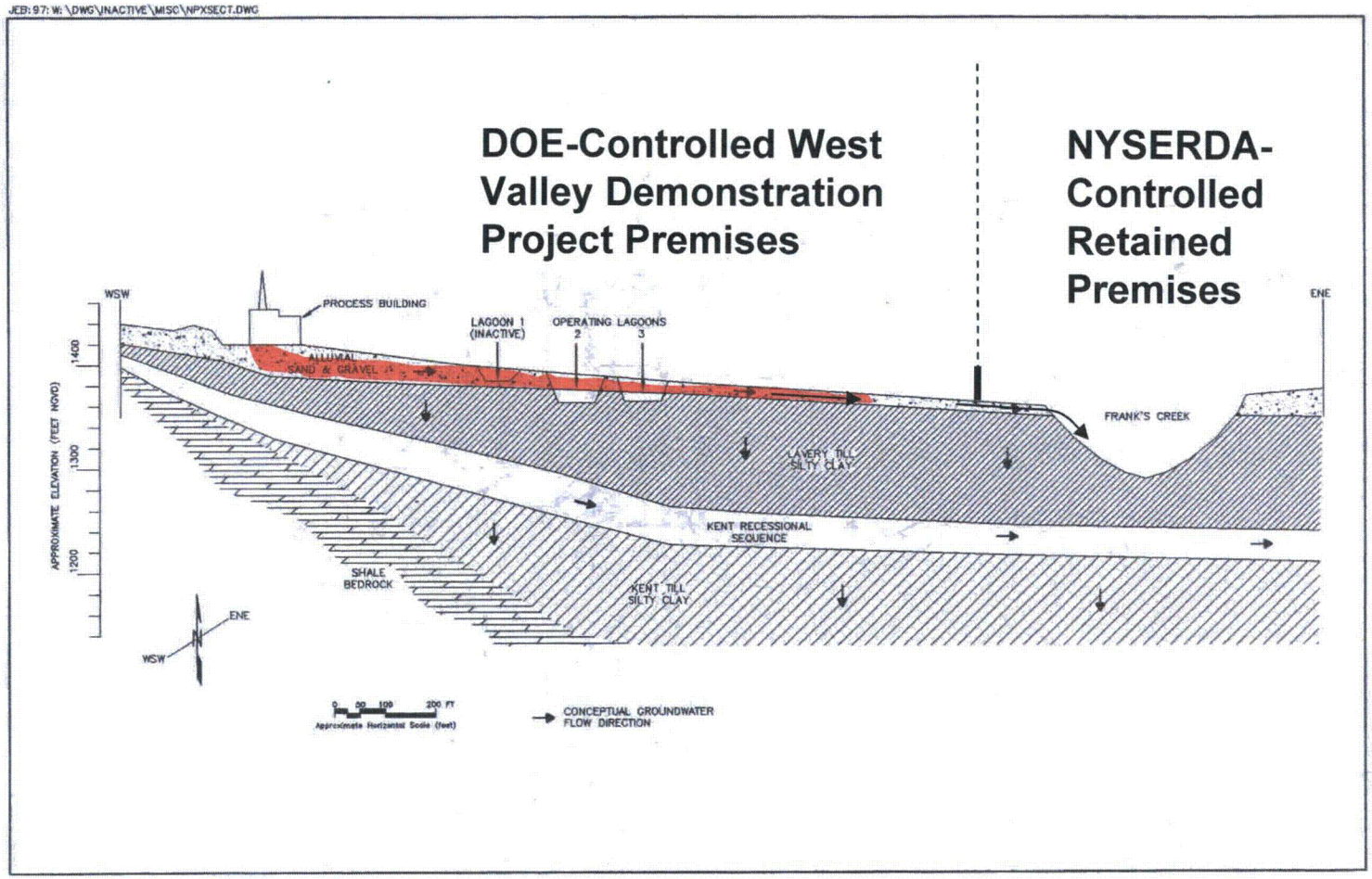
Attachment 1. Map of the North Plateau area of the Center showing the 15-acre Sr-90 groundwater plume. Map shows the plume source, the primary plume flow directions, and the flow path for contaminated surface water from the plume through ditches and gullies to Frank's Creek. The main body of the Sr-90 contamination continues to flow as groundwater toward the WVDP boundary.

Attachment 2



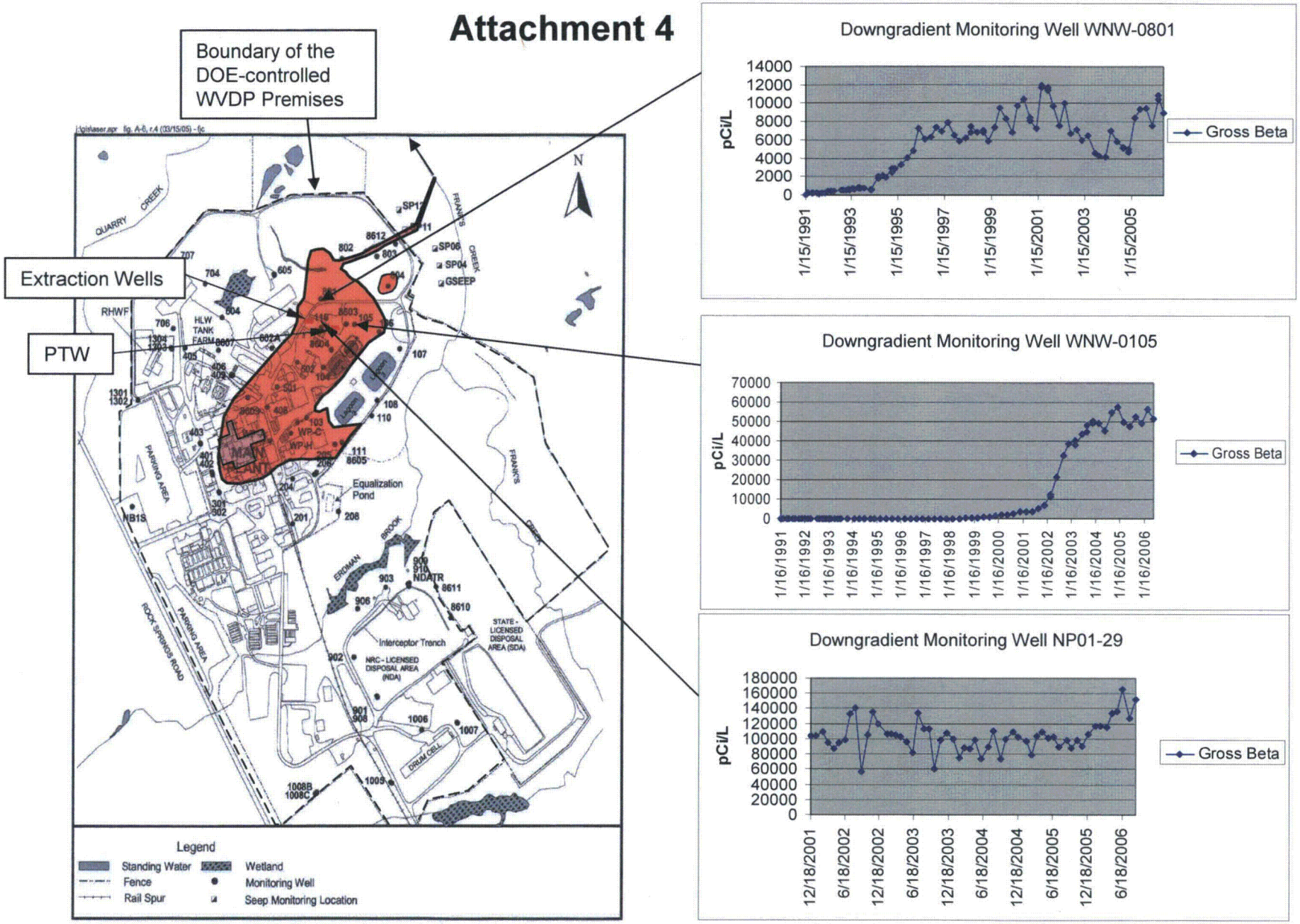
Attachment 2. Plots of gross beta concentrations in the core area of the plume downgradient of the Main Plant Process Building. Sr-90 concentrations near the Main Plant Process Building exceed 150,000 pCi/L (Note: The Sr-90 concentration is approximately 50% of the gross beta result shown on the plots. The remainder of the gross beta result is primarily Y-90, the Sr-90 daughter product). The EPA drinking water MCL for Sr-90 is 8 pCi/L.

Attachment 3



Attachment 3. Geologic cross section of the North Plateau area of the Center showing the primary groundwater and Sr-90 plume flow paths. The Sr-90 plume is represented in pink. The plume is flowing through a sand and gravel deposit on the DOE-controlled WVDP Premises toward the NYSERDA-managed Retained Premises. Contaminated groundwater will eventually discharge from the sand and gravel deposit onto the Retained Premises and flow into Frank's Creek.

Attachment 4



Attachment 4. Plots of gross beta concentrations in groundwater downgradient of the DOE groundwater extraction wells and PTW. Locations of the extraction wells and PTW are shown in red. Sr-90 concentrations exceed 50,000 pCi/L in some areas downgradient of the extraction wells and PTW (Note: the Sr-90 concentration is approximately 50% of the gross beta result shown on the plot. The remainder of the gross beta result is primarily Y-90, the Sr-90 daughter product).

Attachment 5

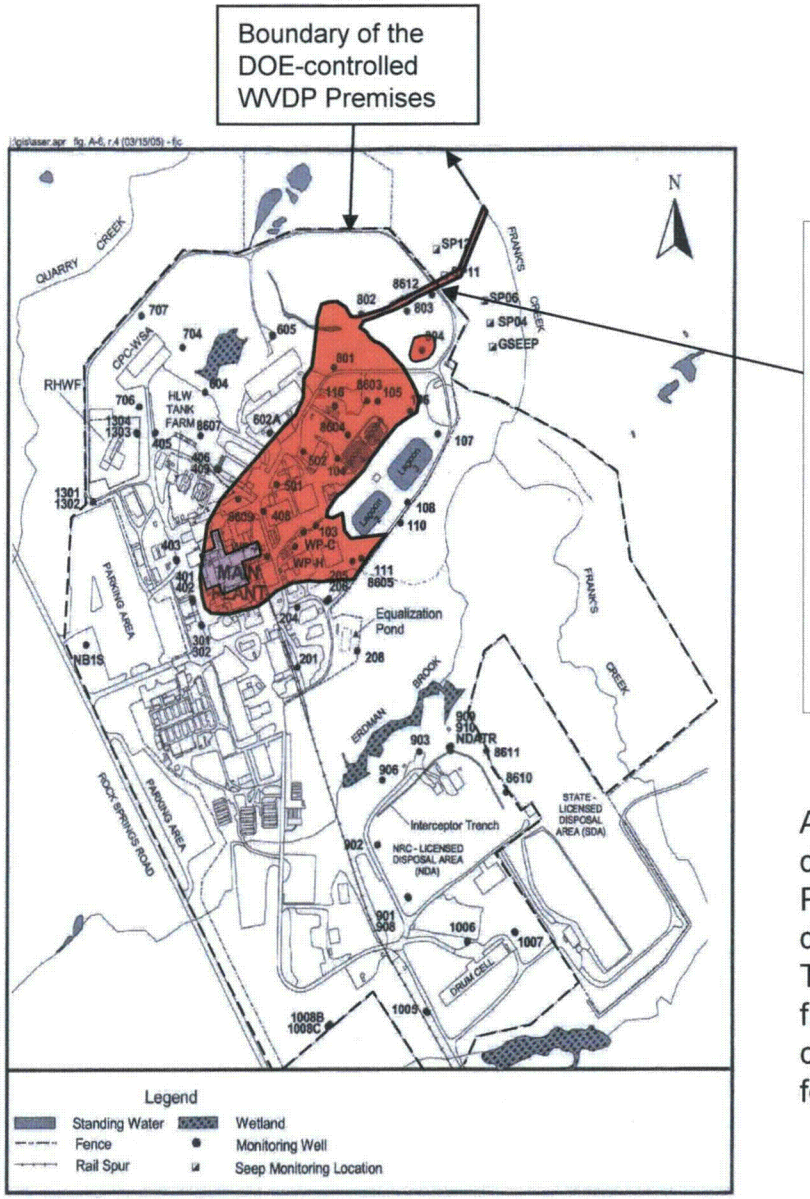
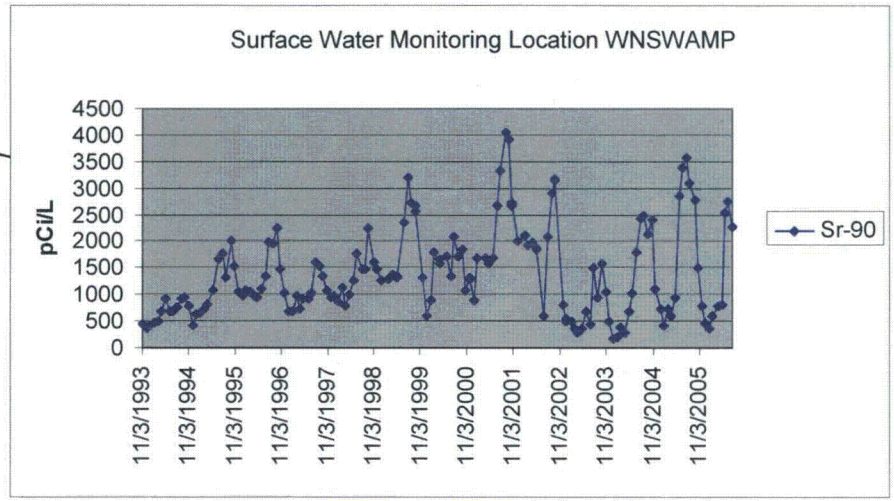


Figure A-6. Active WVDP Groundwater Monitoring Locations



Attachment 5. Plot of Sr-90 concentration in surface water discharging from the WVDP Premises to the Retained Premises. Sr-90 from the plume seeps from groundwater into ditches on the WVDP Premises and becomes surface water. That contaminated surface water discharges through a culvert from the DOE-Controlled WVDP Premises to the NYSERDA-controlled Retained Premises. The EPA drinking water MCL for Sr-90 is 8 pCi/L.

Attachment 6

UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

MAY 27 1970

DOCKET NO. 50-201

Mr. Robert N. Miller, President
Nuclear Fuel Services, Inc.
Wheaton Plaza Office Building
Suite 906
Wheaton, Maryland 20902

Dear Mr. Miller:

This letter will confirm our May 15, 1970 discussion with you, Messrs. Bechhoefer and Lewis and Dr. North concerning waste releases and environmental monitoring at the West Valley plant.

By application dated July 9, 1969, you requested authorization for deep-well disposal of low-level waste from the West Valley plant. This application was responsive to our May 31, 1968, letter stating that releases from the NFS plant should be significantly reduced. After careful consideration of your application it has become clear that questions related to public health and safety raised by deep-well disposal will not be resolved in the near future. We cannot, therefore, act on your request at this time.

Monitoring programs have shown an increase of radioactivity in the environment of the plant. While the observed levels of radioactivity do not present an immediate public health problem, they further confirm our position that significant reductions in the level of radioactivity discharged to the watershed should be made, and that the technical specifications governing liquid effluents from the plant site should be revised.

Thus, it is important that you develop an alternate plan to achieve at the earliest possible date a reduction in quantities and concentrations of radioactivity released in liquid effluents.

The objective of the alternate plan should be to comply with Appendix B, Table II of 10 CFR Part 20 for radioactivity in liquids at the point of release from the lagoon rather than down stream as presently provided in your license.

We request that you submit a proposal describing the scope and schedule for actions to be taken to reduce releases. It may be necessary to consider a stepwise program, if a full reduction to the ultimate target levels is not immediately practical. Please provide a schedule for any stepwise reduction, and include an indication of any nuclides the reduction of which would be emphasized at any given step.

In addition to actions to reduce the radioactivity released, your environmental monitoring program should be expanded. The expanded program should emphasize reliable identification and quantitative measurement of the principal isotopes which are now or could be present in the environment as the result of liquid and airborne releases. In addition, the program should provide a basis for evaluation of the effects of radioactivity released to the environment, including identification of the potential pathways for the radioactivity to reach man, and estimation of resulting exposures to people. We are particularly interested in the releases to the Cattaraugus watershed, in the concentration of radioactivity in stream biota and silts, in transfer of the radioactivity to human foods such as fish and deer, and in the potential resultant dose to the public.

A detailed description of the expanded environmental monitoring program should be submitted for our review.

Because of the importance of both of these matters, we would appreciate your reply within 30 days of the date of this letter.

Sincerely,

Lyall Johnson
Acting Director
Division of Materials Licensing