NYSERDA

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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).

[redacted]

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

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

[redacted]

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 X 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*.

- ***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 [redacted]

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.

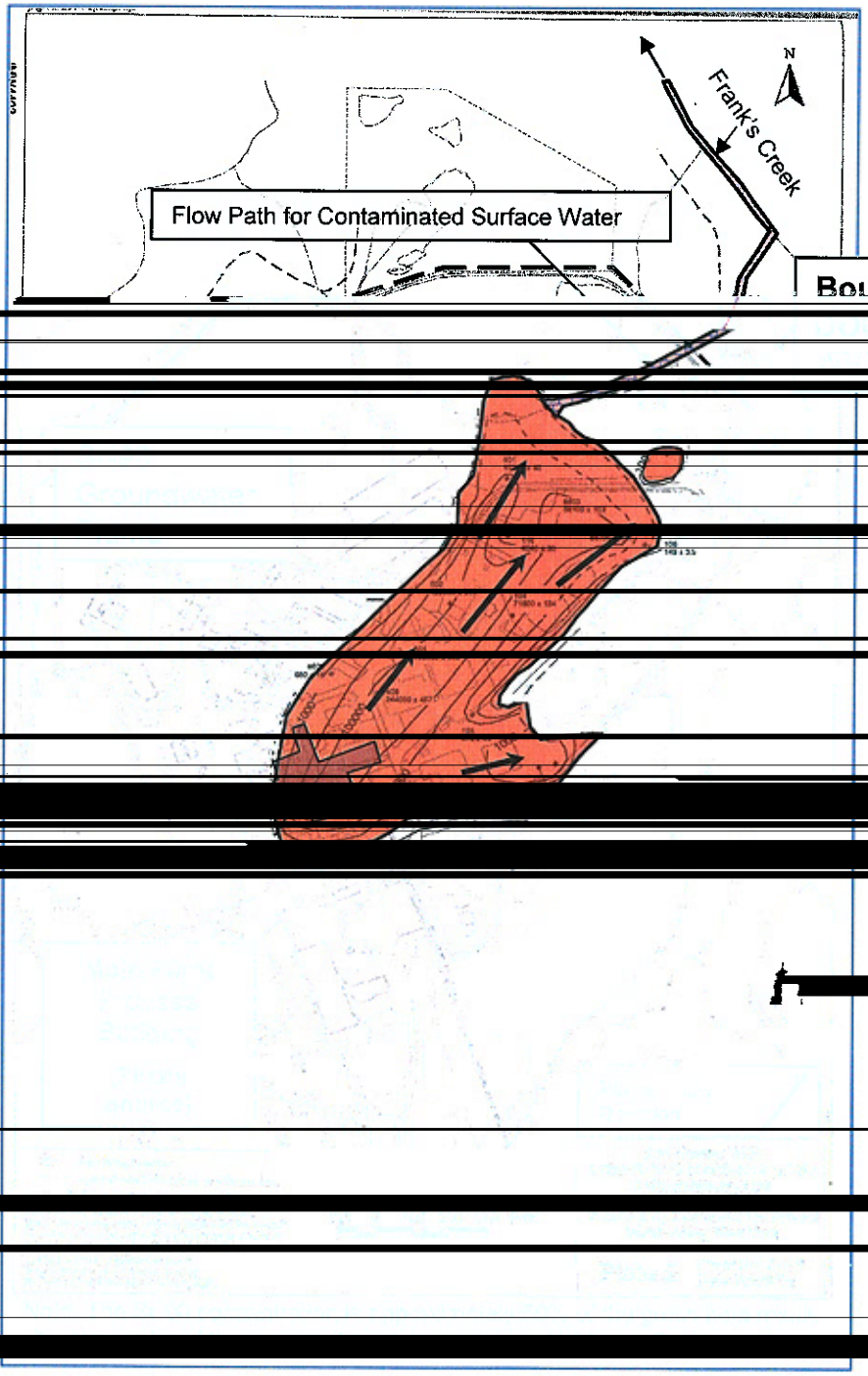
[redacted]

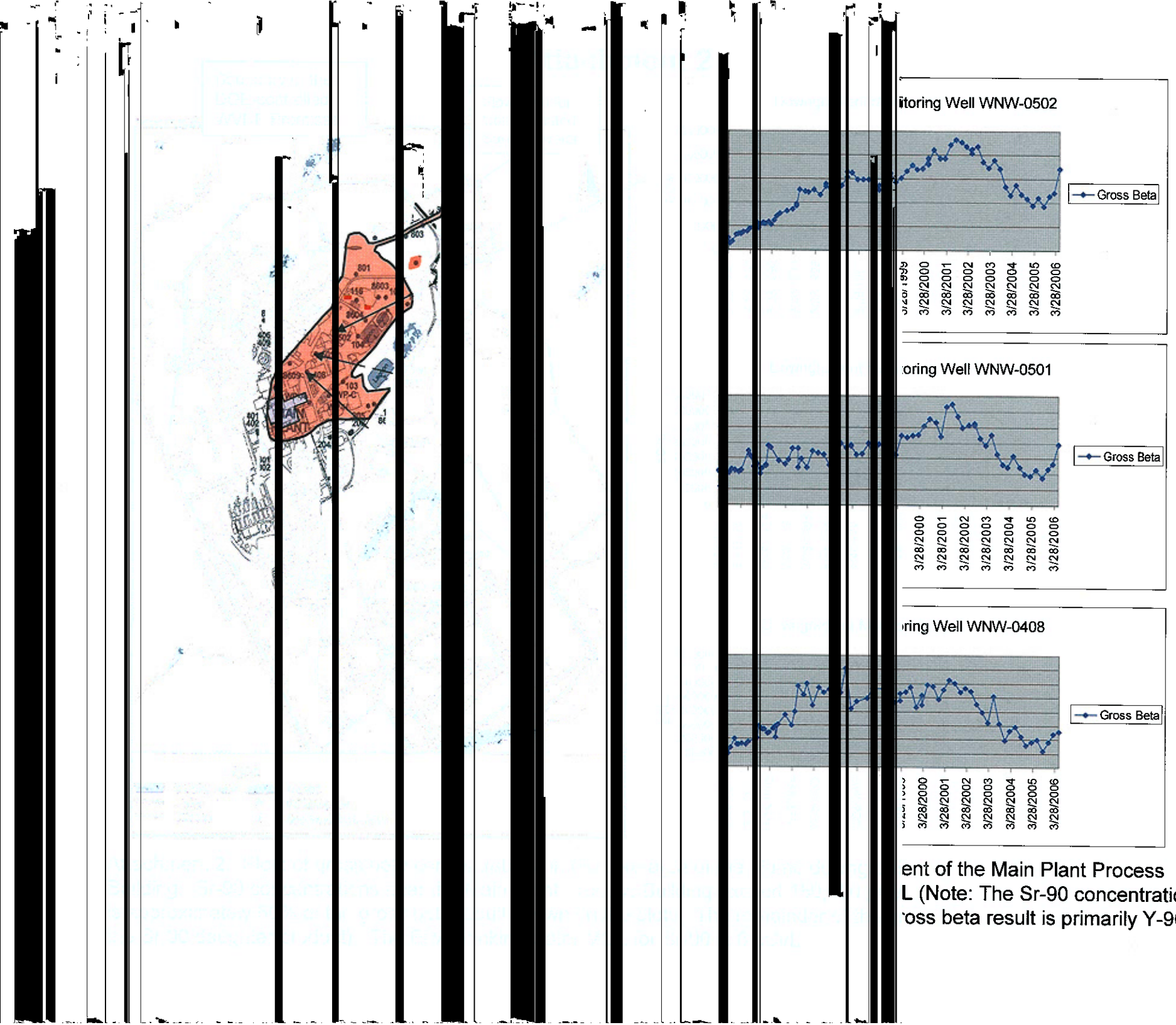
Although it was determined that the inadvertent releases had essentially no off-site dose consequences, the LRRLLTF recognized that the loss of control of licensed material can result in a high level of concern from the public, a high level of attention from the news media and elected officials, increased 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

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

Attachment 1





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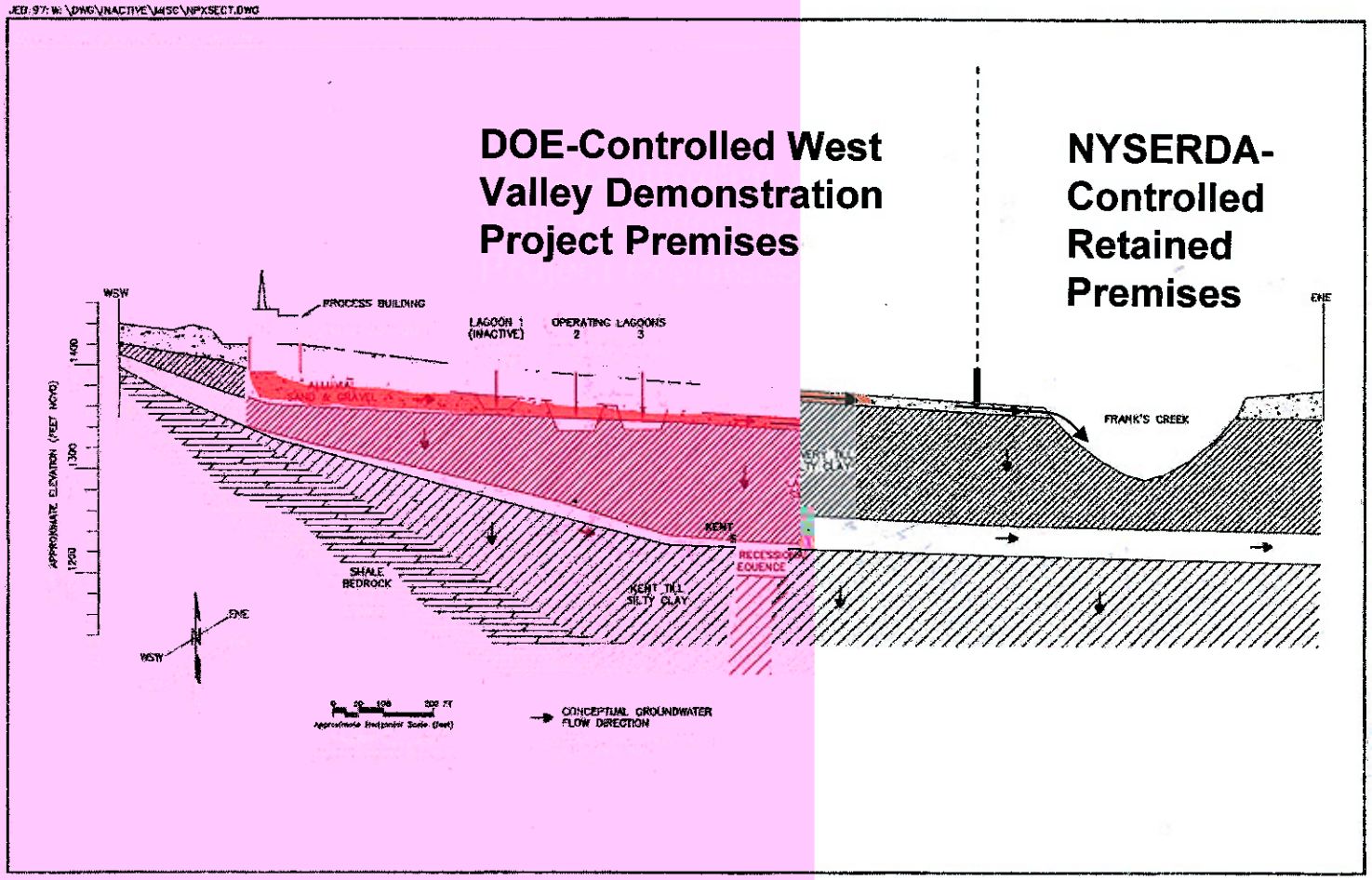
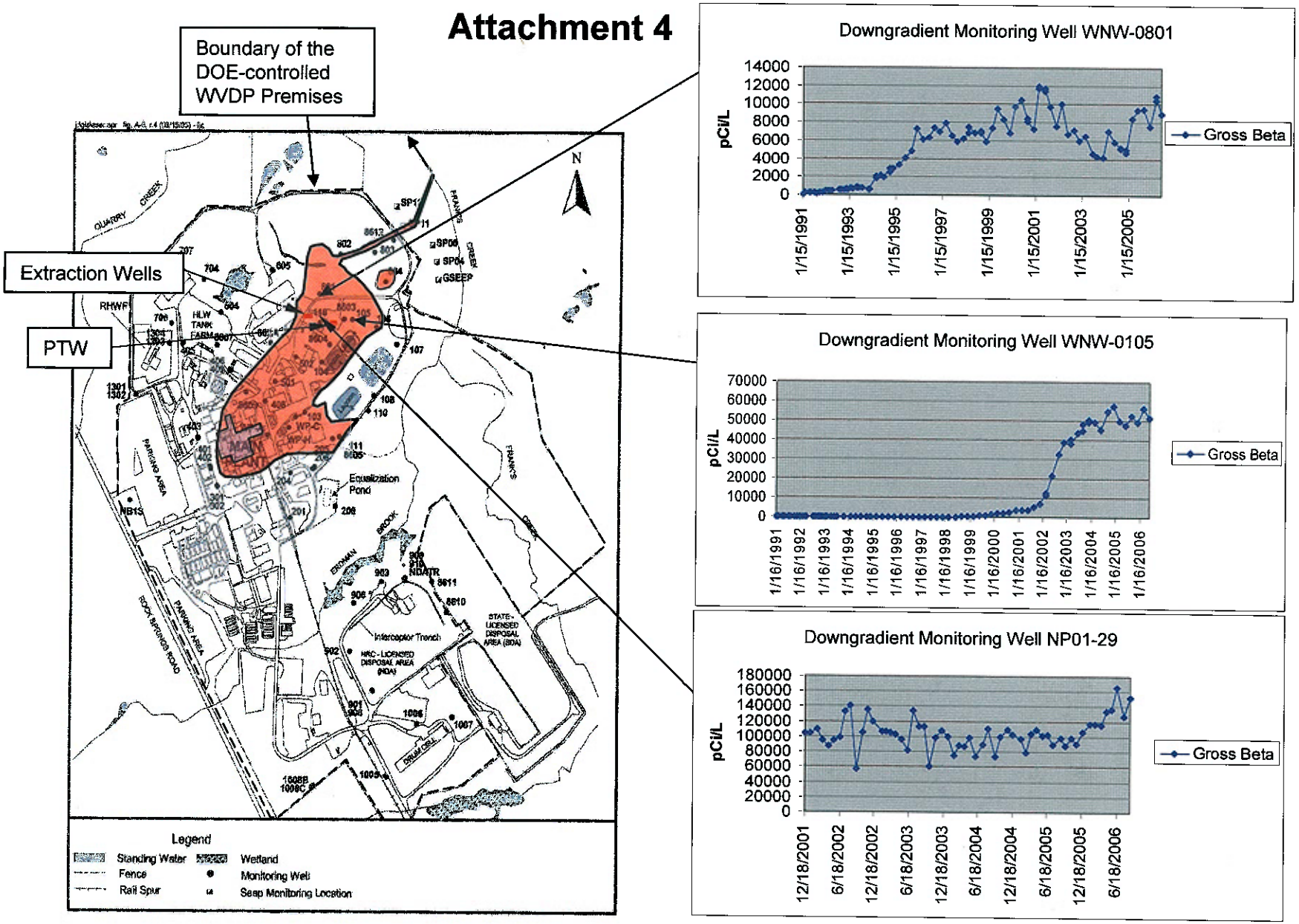
Attachment 3



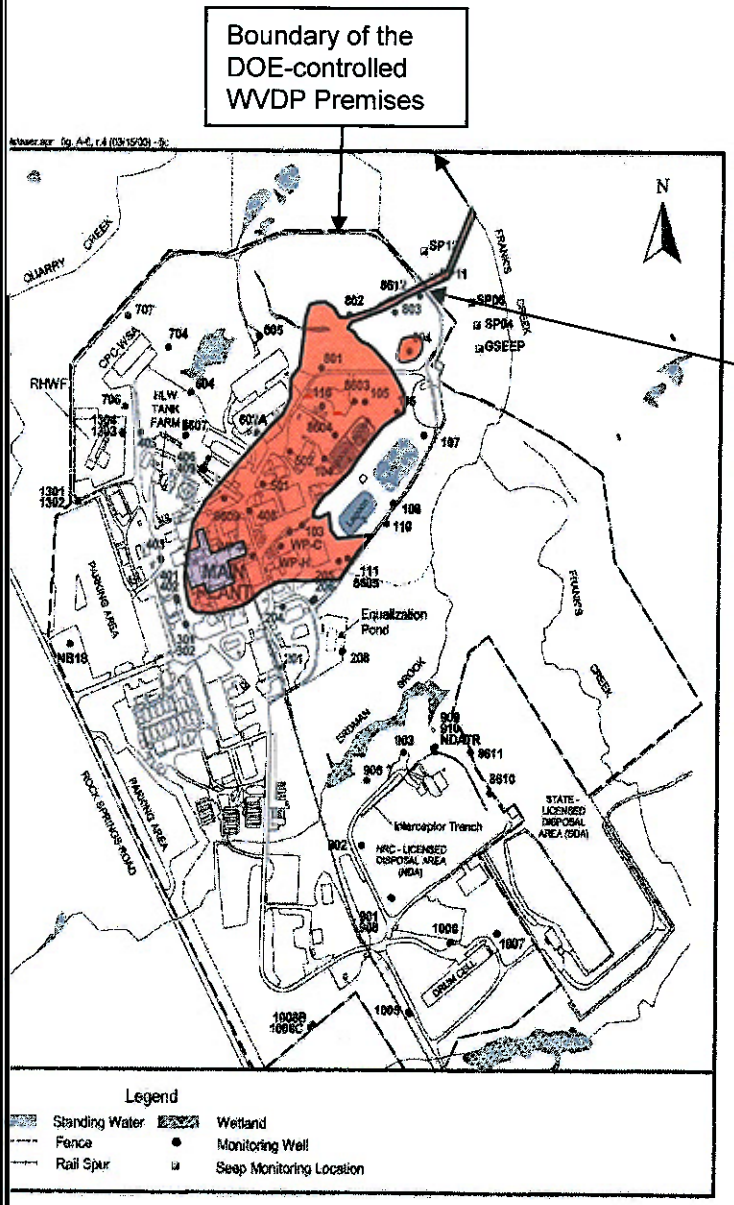
Attachment 3. Geologic cross section of the North Plateau area of the Center showing the primary groundwater and Sr-90 plume flow paths. The Sr-90 plume is represented in pink. The plume is flowing through a sand and gravel deposit on the DOE-controlled WVDP Premises toward the NYSERDA-managed Retained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

Attachment 4

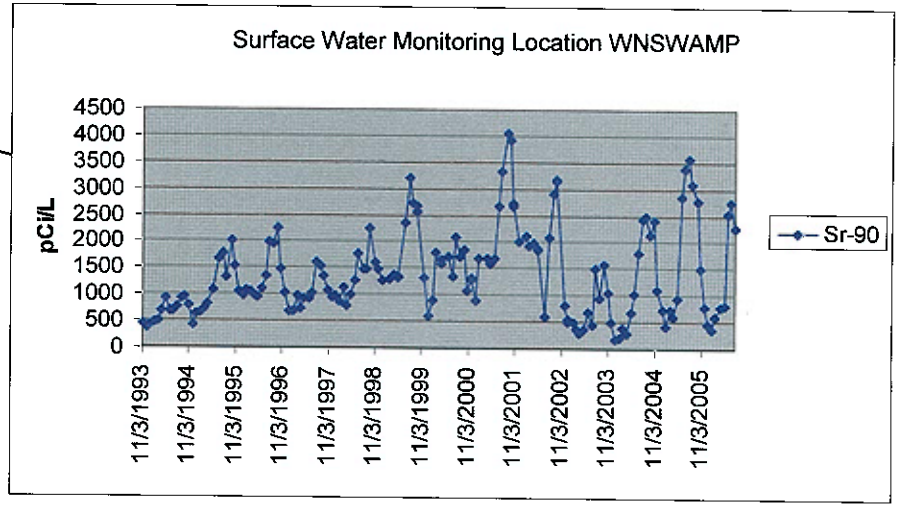


Attachment 4. Plots of gross beta concentrations in groundwater downgradient of the DOE groundwater extraction wells and PTW. Locations of the extraction wells and PTW are shown in red. Sr-90 concentrations exceed 50,000 pCi/L in some areas downgradient of the extraction wells and PTW (Note: the Sr-90 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



ure 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