Citizens Environmental Coalition

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Mr. Martin Krentz
West Valley Demonstration Project
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Sent via email to
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lee.gordon@nyserda.ny.gov

Re: Scoping Comments: Robust and Meaningful Public Participation

Dear Mr. Krentz,

This set of scoping comments deals with multiple connected issues. What the issues all have in common is the need to improve transparency and public information in order to achieve meaningful public participation.

I The Regulatory Structure for Management of Radioactive Waste should be transparent at West Valley to enable meaningful public participation.

Since at least the 2010 EIS there has been a focus solely on NRC's License Termination Rule exclusively and no attention has been given to other applicable requirements. Yet there are multiple other regulatory requirements that pertain to the long term management and operation of the West Valley Nuclear Waste site. The EPA informed DOE and NYSERDA in a letter that 40 CFR 191 regulations would have to be applied to high level radioactive waste, transuranics and Greater than Class C waste at West Valley, and included the two disposal areas, the State Disposal area and the NRC Disposal area, because of the types of rad waste placed there.

However, DOE also has a regulatory structure that specifies how all types of radioactive waste must be managed, stored and monitored. This is found in DOE Orders 435.1 and 420.1 C, and the Radioactive Waste Management Manual (DOE M 435.1-1)

Our Primary Concern at present surrounds the Transuranic Waste, because this waste facility is not considered a Phase 2 facility and therefore not currently included for evaluation in the SEIS. We believe the new information related to the storage of transuranics at West Valley requires a full evaluation in the SEIS, regardless of the fact that it is not a Phase 2 facility.

We have major concerns surrounding the management of transuranic waste at West Valley. According to the 2003 Waste Environmental Impact Statement, DOE planned to ship TRU waste

to WIPP, the Waste Isolation Pilot Project, within 10 years. The 10 years were up in 2013, yet DOE had not taken a single step related to TRU since the 2003 Waste EIS. In 2017 was the first time we learned that steps were being taken to possibly designate the waste as Defense waste through legislation in Congress. A related and important substantive issue is that the Waste EIS failed to really discuss the proper management and storage of transuranics at West Valley. We assume that the rationale related to the fact that DOE believed there was a disposition path for the material. However, the public has not been properly informed about the storage and monitoring of transuranics at West Valley. As a consequence we have copied selective sections of the DOE Orders and the Manual. They appear following our recommendations below:

Recommendations:

1) We are recommending that the management and storage of transuranics be appropriately studied and analyzed in the SEIS in accordance with DOE requirements presented in The Radioactive Waste Manual under DOE Order 435.1and Order 420.1 C, so the public can be reassured that this radioactive material is being properly stored and managed, since there is currently no available disposition path and the Waste EIS never examined the conditions of long term storage for this material or the protective measures necessary. A detailed report should be provided in the SEIS or prior to the issuance of the SEIS that covers all the topics that pertain to transuranics in the Orders and Radioactive Waste Manual, some of which are listed in this recommendation. If corrective measures are needed they should be identified along with the planned completion date.
2) The transuranics should be sufficiently characterized as described in the manual. Compliance with performance objectives should also be demonstrated. Vents or other mechanisms to prevent pressurization of containers or generation of flammable or explosive concentrations of gases shall be installed on all waste containers. Labels should be fixed to each container identifying the contents. We learned at a QPM that a bulging container was removed from storage and sent elsewhere. If that container had been properly vented, it should not have been found to be "bulging."
3) The site and the facility design must be evaluated for their adequacy related to environmental and geotechnical considerations. A facility safety analysis should be completed that deals with waste confinement and preventing radiological releases.
4) Engineering controls and monitoring must be provided to prevent spills, leaks and overflows as well as to rapidly identify a failure of confinement.
5) Defense-in-depth principles must be incorporated where potential uncertainties or vulnerabilities warrant their use. This includes multiple levels of engineered and administrative controls to provide protection to the public, workers, and the environment.

DOE Order 420.1 C related to Facility Safety (2012)

Departmental Applicability. This Order applies to all DOE elements with responsibility for design, construction, management, operation, decontamination, decommissioning, or demolition of government-owned or government-leased facilities and onsite contractor-leased facilities used for DOE mission purposes.

Contractor Requirements Documents, or its requirements, must be inserted into all contracts that require design, construction, management, operation, decontamination, decommissioning, or demolition of government-owned and government-leased facilities.

All DOE facilities must address **Natural Phenomena Hazards Mitigation.**
This is an area that we have been particularly concerned about in relation to addressing natural vulnerabilities of the site and interaction with weather events.
Design Criteria are under DOE-STD-1020-2012.
NPH (Natural Phenomena Hazards) Assessments must be reviewed every 10 years for any significant changes.
There are also provisions for seismic detection and procedures for addressing Post-Natural phenomena and accident analysis.
An integrated site-wide wildland fire management plan should be established, consistent with the relevant portions of the Federal Wildland Fire Management Policy p.4

Radioactive Waste Management MANUAL DOE M 435.1-1

Approved: 7-09-99
Change 1: 6-19-01
Certified: 1-9-07
Change 2: 6-8-11

PURPOSE. This Manual further describes the requirements and establishes specific responsibilities for implementing DOE O 435.1, *Radioactive Waste Management*, for the management of DOE high-level waste, transuranic waste, low-level waste, and the radioactive component of mixed waste. The purpose of the Manual is to catalog those procedural requirements and existing practices that ensure that all DOE elements and contractors continue to manage DOE's radioactive waste in a manner that is protective of worker and public health and safety, and the environment. p. i

Below are Selected Sections of Chapter I, General Requirements and Responsibilities, and Chapter III, Transuranic Waste Requirements in the Manual

Radioactive Waste Management. All radioactive waste subject to DOE O 435.1, *Radioactive Waste Management*, and the requirements of this Manual shall be managed as high-level waste, transuranic waste, low-level waste, or mixed low-level waste. p. 1-1
Emergency Management Program. Radioactive waste management facilities, operations, and activities shall maintain an emergency management program in accordance with DOE O 151.1, *Comprehensive Emergency Management System.*
(6) **Environmental and Occurrence Reporting**. Radioactive waste management facilities, operations, and activities shall meet the reporting requirements of DOE O 231.1, *Environment, Safety and Health Reporting*, and DOE O 232.1A, *Occurrence Reporting and Processing of Operations Information*.
(7) **Environmental Monitoring**. Radioactive waste management facilities, operations, and activities shall meet the environmental monitoring requirements of DOE 5400.1, *General Environmental Protection Program,* and DOE 5400.5, *Radiation Protection of the Public and the Environment* p.1-2
Radioactive Waste Management Basis. Ensuring a radioactive waste management basis is developed and maintained for each DOE radioactive waste management facility, operation, and activity; and ensuring review and approval of the basis before operations begin. The Radioactive Waste Management Basis shall:

(a) Reference or define the conditions under which the facility may operate based on the radioactive waste management documentation;
(b) Include the applicable elements identified in the specific waste-type chapters of this Manual; and
(c) Be developed using the graded approach process. P. 1-7

Environmental Restoration, Decommissioning, and Other Cleanup Waste. Ensuring the management and disposal of radioactive waste resulting from environmental restoration activities, including decommissioning, meet the substantive requirements of DOE O 435.1, *Radioactive Waste Management*, and this Manual. Environmental restoration activities using the CERCLA process (in accordance with Executive Order 12580) may demonstrate compliance with the substantive requirements of DOE O 435.1, *Radioactive Waste Management*, and this Manual (including the Performance Assessment and performance objectives, as well as the Composite Analysis) through the CERCLA process. However, compliance with all substantive requirements of DOE O 435.1 not met through the CERCLA process must be demonstrated. Environmental restoration activities which will result in the off-site management and disposal of radioactive waste must meet the applicable requirements of DOE O 435.1, *Radioactive Waste Management*, and this DOE M 435.1-1 I-9 7-09-99 Manual for the management and disposal of those off-site wastes. Field Elements performing environmental restoration activities involving development and management of radioactive waste disposal facilities under the CERCLA process shall:
(a) Submit certification to the Deputy Assistant Secretary for Environmental Restoration that compliance with the substantive requirements of DOE O 435.1 have been met through application of the CERCLA process; and
(b) Submit the decision document, such as the Record of Decision, or any other document that serves as the authorization to dispose, to the Deputy Assistant Secretary for Environmental Restoration for approval. P. 1-8--1-9

Defense-In-Depth. Ensuring defense-in-depth principles are incorporated where potential uncertainties or vulnerabilities warrant their use when reviewing and approving radioactive waste management activities and documents. These principles advocate the use of multiple levels of engineered and administrative controls to provide protection to the public, workers, and the environment. P. 1-9--1-10

(10) **Oversight**. Ensuring oversight of radioactive waste management facilities, operations, and activities is conducted. Oversight shall ensure radioactive waste management program activities are conducted in accordance with a radioactive waste management basis and meet the I-10 DOE M 435.1-1 7-09-99 requirements of DOE O 435.1, *Radioactive Waste Management*, and this Manual. P. 1-9--1-10

Storage. Ensuring all radioactive waste is stored in a manner that protects the public, workers, and the environment in accordance with a radioactive waste management basis, and that the integrity of waste storage is maintained for the expected time of storage and does not compromise meeting the disposal performance objectives for protection of the public and environment when the waste is disposed.

(14) **Treatment**. Ensuring all radioactive waste requiring treatment is treated in a manner that protects the public, workers, and the environment and in accordance with a radioactive waste management basis. P. 1-10
Monitoring. Ensuring monitoring is conducted for all radioactive waste management facilities as required. Ensuring that disposal facilities are monitored, as appropriate, for compliance with conditions of the disposal authorization statement. p.1-10

Waste With No Identified Path to Disposal. Ensuring a process is developed and implemented for identifying the generation of radioactive waste with no identified path to disposal, and reviewing and approving conditions under which radioactive waste with no identified path to disposal may be generated. Headquarters shall be notified of the decisions to generate a waste with no identified path to disposal.

Corrective Actions. Ensuring a process exists for proposing, reviewing, approving, and implementing corrective actions when necessary to ensure that the requirements of DOE O 435.1, *Radioactive Waste Management*, and this Manual are met, and to address conditions that are not protective of the public, workers, or the environment. The process shall allow workers, through the appropriate level of management, to stop or curtail work when they discover conditions that pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment. P. 1-11

G. All Personnel. All personnel are responsible for:

(1) **Problem Identification**. Identifying and reporting radioactive waste management facilities, operations, or activities that do not meet the requirements of DOE O 435.1, *Radioactive Waste Management*, and this Manual, or that pose a threat to the safety of the public, workers, or the environment.
(2) **Shutdown or Curtailment of Activities**. Stopping or curtailing work, through the appropriate level of management, to prohibit continuation of conditions or activities which pose an imminent danger or other serious hazard to workers or the public, or are not protective of the environment. P. 1-11

Chapter III TRANSURANIC WASTE REQUIREMENTS

Definition of Transuranic Waste. Transuranic waste is radioactive waste containing more than 100 nanocuries (3700 becquerels) of alpha-emitting transuranic isotopes per gram of waste, with half-lives greater than 20 years…. P. III-1
Note: We understand that the Transuranic waste at West Valley is between 10 and 100 nanocuries per gram of waste. For Transuranic waste the requirements of Chapter III are in addition to the requirements of Chapter I.
Waste Characterization. Transuranic waste shall be characterized using direct or indirect methods, and the characterization documented in sufficient detail to ensure safe management and compliance with the waste acceptance requirements of the facility receiving the waste.

(1) **Data Quality Objectives**. The data quality objectives process, or a comparable process, shall be used for identifying characterization parameters and acceptable uncertainty in characterization data.

(2) **Minimum Waste Characterization**. Characterization data shall, at a minimum, include the following information relevant to the management of the waste:
(a) Physical and chemical characteristics;
(b) Volume, including the waste and any stabilization or absorbent media;
(c) Weight of the container and contents;
(d) Identities, activities, and concentrations of major radionuclides;
(e) Characterization date;
(f) Generating source;
(g) Packaging date; and
(h) Any other information which may be needed to prepare and maintain the disposal facility performance assessment or demonstrate compliance with applicable performance objectives.
P.III-4

Packaging and Transportation. The following requirements are in addition to those in Chapter I of this Manual.
(1) **Packaging**.
(a) Transuranic waste shall be packaged in a manner that provides containment and protection for the duration of the anticipated storage period and until disposal is achieved or until the waste is removed from the container.
(b) Vents or other mechanisms to prevent pressurization of containers or generation of flammable or explosive concentrations of gases shall be installed on containers of newly-generated waste at the time the waste is packaged. Containers of currently stored waste shall meet this requirement as soon as practical unless analyses demonstrate that the waste can otherwise be managed safely.
(c) When transuranic waste is packaged, defense waste shall be packaged separately from non-defense waste, if feasible.
(d) Containers of transuranic waste shall be marked such that their contents can be identified.
P. III-6.

(2) **Transportation**. To the extent practical, the volume of waste and number of transuranic waste shipments shall be minimized. P. III-5—III-6
Site Evaluation and Facility Design. The following requirements are in addition to those in Chapter I of this Manual.
(1) **Site Evaluation**. Proposed locations for transuranic waste facilities shall be evaluated to identify relevant features that should be avoided or must be considered in facility design and analyses.
(a) Each site proposed for a new transuranic waste facility or expansion of an existing transuranic waste facility shall be evaluated considering environmental characteristics, geotechnical characteristics, and human activities.
(b) Proposed sites with environmental characteristics, geotechnical characteristics, and human activities for which adequate protection cannot be provided through facility design shall be deemed unsuitable for the location of the facility.

(2) **Facility Design**. The following facility requirements and general design criteria, at a minimum, apply:
(a) **Confinement**. Transuranic waste systems and components shall be designed to maintain waste confinement.

(b) **Ventilation**.
1. Design of transuranic waste treatment and storage facilities shall include ventilation, if applicable, through an appropriate filtration system to maintain the release of radioactive material in airborne effluents within the requirements and guidelines specified in applicable requirements.
2. When conditions exist for generating gases in flammable or explosive concentrations in treatment or storage facilities, ventilation or other measures shall be provided to keep the gases in a non-flammable and non-explosive condition. Where concentrations of explosive or flammable gases are expected to approach the lower flammability limit, measures shall be taken to prevent deflagration or detonation. P. III-6
(c) **Consideration of Decontamination and Decommissioning**. Areas in new and modifications to existing transuranic waste management facilities that are subject to contamination with radioactive or other hazardous materials shall be designed to facilitate decontamination. For such facilities a proposed decommissioning method or a conversion method leading to reuse shall be described.
(d) **Instrumentation and Control Systems**. Engineering controls shall be incorporated in the design and engineering of transuranic waste treatment and storage facilities to provide volume inventory data and to prevent spills, leaks, and overflows from tanks or confinement systems.
(e) **Monitoring**. Monitoring and/or leak detection capabilities shall be incorporated in the design and engineering of transuranic waste storage, treatment, and disposal facilities to provide rapid identification of failed confinement and/or other abnormal conditions. P. III-7

Storage. The following requirements are in addition to those in Chapter I of this Manual.
(1) **Storage Prohibitions**. Transuranic waste in storage shall not be readily capable of detonation, explosive decomposition, reaction at anticipated pressures and temperatures, or explosive reaction with water. Prior to storage, pyrophoric materials shall be treated, prepared, and packaged to be nonflammable.
(2) **Storage Integrity**. Transuranic waste shall be stored in a location and manner that protects the integrity of waste for the expected time of storage and minimizes worker exposure.
(3) **Container Inspection**. A process shall be developed and implemented for inspecting and maintaining containers of transuranic waste to ensure container integrity is not compromised. P. III-6-7.
Monitoring. The following requirements are in addition to those in Chapter I of this Manual.

(1) **All Waste Facilities**. Parameters that shall be sampled or monitored, at a minimum, include: temperature, pressure (for closed systems), radioactivity in ventilation exhaust and liquid effluent streams, and flammable or explosive mixtures of gases. Facility monitoring programs shall include verification that passive and active control systems have not failed.
(2) **Stored Wastes**. All transuranic wastes in storage shall be monitored, as prescribed by the appropriate facility safety analysis, to ensure the wastes are maintained in safe condition. P. III-8

F. Corrective Actions. The following requirements are in addition to those in Chapter I of this Manual.
(1) **Order Compliance**. Corrective actions shall be implemented whenever necessary to ensure the requirements of DOE O 435.1, *Radioactive Waste Management*, and this Manual are met.
(2) **Operations Curtailment**. Operations shall be curtailed or facilities shut down for failure to establish, maintain, or operate consistent with an approved radioactive waste management basis.
P. III-2.

II The Full List of Studies planned to be completed and incorporated into the SEIS and future decisions should be provided to the public.

- According to the Background Information Handout provided at the Scoping Hearings:

" Phase 2 decisions will be informed by the Phase 1 and other scientific studies being performed at the West Valley Site, a long term Probablistic Performance Assessment, and an SEIS that will incorporate the above analyses as part of the evaluation of the potential environmental impacts of the range of reasonable Phase 2 alternatives proposed for the West Valley Site."

- According to the Project Overview Handout provided at the Scoping Hearings, additional scientific studies will be performed in Phase 1 that will inform Phase 2 decisions.

Recommendations: Given the dramatic cut to the Phase 1 study list and the dissolution of the Independent Science Panel, the full list of scientific studies planned for the SEIS should be provided NOW to the public, as well as more clarity regarding the scientific review process that will occur. We also recommend that the public be included in the review process as studies are completed in order to provide a substantive review process prior to the release of the Draft SEIS. See Appendix for original Phase I study list and public recommendations for additional studies.

Phase 1 may not be completed for many years, perhaps not until 2030 or later. Not even Phase 1A has been completed at this time. The SEIS is geared to providing a basis for Phase 2 decisions. Please explain exactly what additional scientific studies will be performed and when they will be completed.

Sampling and Characterization of site contamination represents an important area of study. To date we have received almost no information about the progress of this extensive task. Other work has primarily focused on 3 major facilities- the SDA, NDA and the Waste Tank Farm, but in the absence of adjacent levels of soil or creek contamination.
We need characterization of site contamination for:

- Stream sediments – on and immediately off-site
- The Cesium Prong
- The Construction & Demolition Debris Landfill
- The Non-Source Area of the N. Plateau Groundwater Plume
- All Waste Management Areas on the North Plateau
- The WNYNSC—beyond the WVDP Area (167 acres)

Recommendation: We recommend that all the sampling and characterization information be provided in significant detail in a report at least one year prior to the release of the SEIS with accompanying maps of sampling locations.

Conceptual Engineering Design Report
When queried at the Scoping Hearings about the nature of this work, we were told that engineers were tasked with doing a comparison of alternatives. We believe there are much more fundamental tasks for engineers.

Recommendation:
Prior work has demonstrated the serious vulnerabilities of the West Valley site and the impossibility of ensuring that a loss of radiological containment will not occur. See The Real Costs of Cleaning Up Nuclear Waste: A Full Cost Accounting of Cleanup Options for the West Valley Nuclear Waste Site, Synapse Energy Economics, Nov. 2008.

Despite this evidence the Agencies continue to pursue analyzing Close- in-Place alternatives as reasonable alternatives. We believe this is grossly inconsistent with the reality of the evidence concerning the site and the direction of weather extremes in this century. The Affected environment in the SEIS must include a complete description of the inadequacies of the West Valley site for the use to which it was put, and the vulnerabilities of the site to the most important long term objective--- Preventing Loss of Containment of Radionuclides. If the Agencies are going to continue to advocate any consideration of Close-In-Place Alternatives, then Engineers must be tasked with the development of the required containment, engineered barriers and monitoring that would provide the PROOF that loss of containment would not occur over the next 10,000 years.

If the Agencies cannot ensure that over time the Loss of Containment will never occur, then all the radionuclides must be dug up and secured in more robust containment with ongoing monitoring until the materials can be sent to a more secure storage site.

Recommendation: Three of the Phase I studies listed by the Agencies have not been pursued, are particularly important, and should be completed:

- Slope stability and slope failure should be fully analyzed to determine safety factors for stability. Real time monitoring could also be installed for signs of instability.
- Groundwater flow and contaminant transport are particularly important in relation to the Sole Source Aquifer that the West Valley site sits over. No studies have been done related to this aquifer.
- We have expressed serious interest in ensuring that the Great Lakes be protected from contamination by long lived radionuclides. The Agencies identified the "Catastrophic release of contamination and impact on Lake Erie" as a needed Phase 1 study, but failed to also pursue this study. This issue must be studied in the SEIS.

A Complete Safety Analysis of the On-site Dams needs to be completed.
During the extreme rainfall event in August 2009, in which more than 5 inches of rain fell in 1 hour, the overflow at on-site dams was damaged. While remediation work was done at the dams,

we have never seen a complete analysis of the safety factors for these earthen dams. In 2009 the dams contributed to the excessive water flow in Buttermilk Creek and the scouring of the valley wall that resulted in a landslide. Tons of earth were removed that moved the valley wall 15 feet closer to the State Disposal Area. An even more significant event could be triggered by a dam failure, so a safety analysis of these dams is needed.

Recommendation: A complete safety analysis of the earthen dam structure that considers the effects of extreme rainfall, an earthquake and other precipitating events.

Thank you for your attention.

Respectfully Submitted,

Barbara J. Warren
Executive Director

Appendix—Phase I studies List

from Letter sent by nine organizations to DOE & NYSERDA on March 24, 2011.

The list of "Phase I studies" contained in the supplemental agreement between DOE and NYSERDA is below:

(a) Soil erosion
(b) Groundwater flow and contaminant transport
(c) Catastrophic release of contamination and impact on Lake Erie
(d) Slope stability and slope failure
(e) Seismic hazard
(f) Probabilistic vs. deterministic dose and risk analysis
(g) Alternative approaches to and cost of complete waste and tank exhumation
(h) Exhumation uncertainties and benefit of pilot exhumation activities
(i) In-place closure containment technologies
(j) Engineered barrier performance
(k) Additional characterization needs
(l) Cost discounting and cost benefit analysis over long time periods.

Our Recommended Additions to Phase I Study List in response to Agency invitation :

- During the EIS process, DOE claimed it did not have enough data to make a full cleanup decision, so collectively the studies must provide enough scientific information to help us make a decision about exhumation.
- Real actual pilot exhumation of waste, not a paper exercise

- Climate change and severe weather events could impact items a-d in unusual ways. Climate change was assumed not to occur for 10,000 years in the recent EIS. Studies need to make up for this notable deficiency during Phase I.
- Emergency Preparedness, Prevention and Response are subjects very important to public involvement, trust and protection of the public from harm. Clear and defensible plans must be developed around likely emergencies at this site. This is a study with an immediate activity—and implementation at the site.
- Characterizing site contamination, sampling and analyses must evaluate adequately major site facilities-- High Level Waste (HLW) tanks, Nuclear Regulatory Commission Disposal Area (NDA) and State Disposal Area (SDA)-- and associated contamination issues. If phase I studies are not now planned to address these facilities, this needs to be corrected.
- Improved long-term analysis of all factors that impact containment of site radioactive materials and improved exposure and dose assumptions. Costs of Cleanup Delays. Costs of early cleanup of the spill associated with the strontium plume versus ultimate actual costs of planned cleanup and long term maintenance, including useful life and replacement of permeable treatment wall.
- Analysis of the efforts needed to adequately protect the Sole Source aquifer
- Better characterization of sediment in creeks and movement of contamination off site, particularly via the Cattaraugus Creek and impacts to the Seneca nation territory.
- More realistic estimate of long term containment costs vs. early exhumation of buried wastes
- Analysis of achieving regulatory compliance with all relevant standards including 40 CRF 191.
- All modeling must be grounded using real, on-site conditions as input parameters. We need to understand the basic conceptual models and ensure that they represent likely future conditions.
- Modeling of Groundwater and contaminant transport. The significance of subsurface contamination must be better accounted for in relation to risks to the public.
- Steps or methods in developing exposure, dose scenarios and derived concentration guideline level values for radionuclides (DCGLs) must be fully described for public understanding and all assumptions documented, to support the claim that conservative assumptions have been used.
- All radionuclides and daughter products should be included in risk estimates.
- Drinking water must be given greater importance in exposure and dose scenarios.
- The lack of conservatism in analyses thus far and the underprediction of actual and future risks is a major public concern. For example we don't believe assuming zero erosion or basing risk analysis only on existing contamination are conservative assumptions.