THE WEST VALLEY CITIZEN TASK FORCE

May 21, 2018

Via Email Only to: SEISWestValleySite@emcbc.doe.gov

Mr. Martin Krentz, SEIS Document Manager
West Valley Demonstration Project,
U.S. Department of Energy
10282 Rock Springs Road, AC–DOE
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RE: Comments on Scope of the Draft Supplemental Environmental Impact Statement (SEIS) for Phase 2 of Decommissioning and/or Long-Term Stewardship at the West Valley Demonstration Project and Western New York Nuclear Service Center

Dear Mr. Krentz,

These comments on the scope of the Draft Supplemental Environmental Impact Statement (SEIS) for Phase 2 of Decommissioning and/or Long-Term Stewardship at the West Valley Demonstration Project (WVDP) and Western New York Nuclear Service Center have been prepared by the West Valley Citizen Task Force (CTF).

The CTF supports the full sitewide removal alternative and recommends that this be selected as the Preferred Alternative. Our various scoping comments are set forth below.

Background

After being convened by the New York State Energy Research and Development Authority (NYSERDA) and U.S. Department of Energy (DOE), the West Valley Citizen Task Force held its first meeting on January 29, 1997. At that meeting we approved and adopted our Ground Rules. Those Ground Rules include, as a major purpose, for the CTF to "*assist in the development of a preferred alternative for the completion of the West Valley Demonstration Project and cleanup, closure and/or long-term management of the facilities at the site*."

The CTF met for approximately 18 months and, on July 29, 1998, issued a Final Report setting forth our Policies and Priorities and Guidelines for the Preferred Alternative. We draw your attention to the Final Report which is attached. Some elements of the Final Report have been implemented, such as vitrification, emptying the drum cell, removal and shipment of the spent

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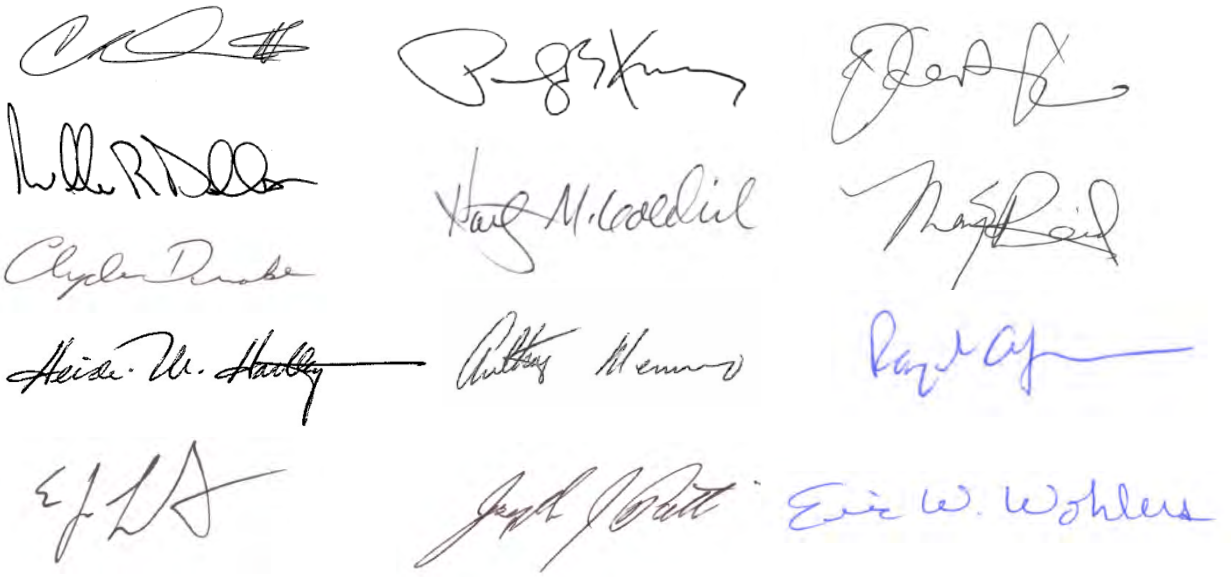
fuel assemblies, removal of the vitrified waste from the Main Plant Process Building, and the ongoing building decontamination and demolition activities. The CTF appreciates the progress to date and the work of the agencies and contractors in achieving these milestones. For the work yet to be done, we stand by the conclusions reached in our Report.

Underlying the CTF's goal that the cleanup result in unrestricted release of the Site is the assertion that the Site is not suitable for the long-term storage of long-lived radionuclides. In the years since the Site was selected and the facilities constructed, the government and the public have come to more clearly understand the dangers associated with radioactive wastes and the conditions and criteria that will maximize protection of human health and safety and the environment during the handling, management, reprocessing, storage and disposal of radioactive materials. The Western New York Nuclear Service Center Site does not meet existing U.S. Nuclear Regulatory Commission (NRC) licensing criteria. Because the Site does not meet current licensing criteria, a logical assumption is that it is not safe for the long-term storage or disposal of wastes. Therefore, the CTF maintains as a goal the release of the Site for unrestricted future use of the land, and the Site should not be used for long-term waste storage. In our understanding, onsite storage would be minimal under the sitewide removal alternative because only about 1% of the waste (by volume) would be "orphan" waste for which offsite disposal is not currently available. Offsite disposal capacity is currently considered available for about 99% of the exhumed waste. Thus, almost all of the waste "is expected to be shipped off site as it is exhumed and processed."[1]

Our detailed comments follow. Respectfully submitted,



The West Valley Citizen Task Force

[1] West Valley Exhumation Working Group, *Task 3.3: Consolidated Report – Applicability of Exhumation Working Group Findings to WVDP and WNYNSC...*, Revision 1 (September 2017), available at https://www.westvalleyphaseonestudies.org/Documents/EXWG%20Task%203.3%20Consolidated%20Report%20-%20Rev.%201.As%20Submitted.09-20-17.pdf , page 78.

Detailed Comments

I. Citizen Task Force Role and Support for Site Wide Removal

1. DOE and NYSERDA are planning "to identify a preferred alternative in the Draft SEIS."[2] According to the CTF's early ground rules, "The CTF was formed to 'assist in the development of a preferred alternative for the completion of the West Valley Demonstration Project and cleanup, closure and/or long-term management of the facilities at the site.'"[3] Thus, helping to develop DOE and NYSERDA's Preferred Alternative was – and presumably still is – an important CTF responsibility. One of the currently proposed alternatives, or possibly some other alternative, will be chosen by the agencies as their Preferred Alternative. Twenty years ago, the CTF's recommendation on the Preferred Alternative said:

> The CTF expects that the Site Managers will develop a Preferred Alternative which complies with the Policies and Priorities contained in Section III and responds to the Guidelines in Section IV."[4]

The CTF continues to expect that the Site Managers will develop a Preferred Alternative which complies with our Policies and Priorities. The sitewide removal alternative would allow unrestricted release and would comply with our Policies and Priorities. Hybrid alternatives that leave some waste onsite might do so, but we would need to see convincing evidence that our Policies and Priorities could be met. As discussed below, hybrid alternatives appear to be interim measures that would not meet CTF Policies and Priorities for final site closure.

The CTF has stated that the site does not provide a stable platform for the long term storage of radioactive waste and therefore the Sitewide Close in Place alternative is somewhat misleading. Our contention is that with the instability from extreme weather, erosion, earthquakes, etc. there is no guarantee, in the long term that the waste materials will *stay in place* in perpetuity. Our concerns with the site instability typically involves the potential for an uncontrolled release of radionuclides resulting from soil erosion or bedrock movement. An additional concern would possibly include the potential for site instability resulting in a condition which would make future management, monitoring and/or retrieval of radioactive wastes left on site impractical or impossible.

2. As we understand, most if not all county, city, town, and village governments and school districts throughout Western New York (WNY), and also the Seneca Nation of Indians (SNI), continue to support sitewide removal as the preferred alternative. In 2004 we received dozens of resolutions supporting the CTF end-state-vision resolution that we had adopted. These many communities, probably unanimously, recognize the importance of cleaning up the site and moving on. [5]

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[2] 83 *Federal Register* 7464 (Feb. 21, 2018) at 7467, column 3.
[3] Ground Rules of the Citizen Task Force, as revised and approved on January 29, 1997; CTF Final Report, p. 2, Background.
[4] CTF Final Report, p. 1, Introduction.
[5] See http://westvalleyctf.org/Key_documents/2004-01_West_Valley_Citizen_Task_Force_resolution.pdf and http://westvalleyctf.org/Key_documents/Resolutions_RCVD_as_of_040605.pdf.

II. Issues and impacts that need to be considered if wastes are left onsite, and if site closure and license termination involve Restricted Release

3. Unrestricted release is preferred because it provides greater potential for site reuse and economic development, which in turn may serve as an economic "engine" for the local community and region.

4. Unrestricted release is preferred because it would facilitate reuse of site infrastructure improvements. Such improvements have been substantial during the course of the project and are unique for the local area.

5. Hybrid alternatives that use partial exhumation will target longer-lived radionuclides for removal and allow much of the shorter-lived cesium-137 and strontium-90 to decay in place to

essentially undetectable levels during the next 300 years or so.[6] For alternatives other than unrestricted release, DOE and NYSERDA are required to assume of loss of institutional controls at some point in the future. Depending on the alternative, passive and active controls may be included, and options such as re-routing of streams may be considered. In looking at hybrid alternatives and their impacts and costs, Neptune and Company will break down source areas into units such that a cost benefit analysis can be performed that includes selective removal or delayed removal. A hypothetical situation is a cost comparison of full removal with selective removal addressing various cost increments and improvement in performance. For example, is there a scenario where 80% of the risk could be removed for 20% of the cost? We would need to see convincing evidence that our Policies and Priorities could be met.

6. Erosion modeling (landscape evolution modeling) of the Buttermilk Creek watershed will be needed if any of the alternatives will depend on re-routing of streams. Current modeling of the Franks Creek watershed cannot support re-routing of streams into Buttermilk Creek. For example, if the headwaters of Franks Creek or Erdman Brook were re-routed away from the burial grounds and diverted into Buttermilk Creek at a point upstream from the Buttermilk-Heinz confluence, this would increase the flow rate of Buttermilk Creek past the area of active landsliding on the west bank of Buttermilk Creek, thereby accelerating the migration of the area of active landsliding toward the burial grounds. Erosion modeling (landscape evolution modeling) of Buttermilk Creek would be needed to assess how such a change in the stream networks would modify the evolution of the valley walls of Buttermilk Creek.

7. For any alternatives that involve future costs, a discount rate of *zero* should be assumed (in other words, future costs should *not* be discounted) unless a higher rate can be justified.[7] Such justification might be based, for example, on past and present estimates of clean-up costs for the

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[6] Radionuclides generally decay to negligible levels of radioactivity after 10 half-lives. The half-lives of Sr-90 and Cs-137 are both about 30 years, so the time required for these radionuclides to decay to negligible levels is about 300 years.

[7] For example, see A. Napoleon et al., *The Real Costs of Cleaning Up Nuclear Waste: A Full Cost Accounting of Cleanup Options for the West Valley Nuclear Waste Site* (Cambridge, MA: Synapse, 2008), available at http://westvalleyctf.org/DEIS-DP_Docs/Full_Cost_Study/WV_Full_Cost_Accounting_Report.pdf , pp. 9-10 and 81ff.

West Valley site. If historical estimates of site clean-up costs have grown more slowly than the rate of inflation, then a discount rate higher than zero may be justified. If not, a discount rate higher than zero would not appear to be justified.

8. For various alternatives, what if there was a substantial and/or temporary loss of federal, state or other loss of funding? Would this cause delays that would increase the total cost?

9. The SEIS process should take into account the possibility that the casks of high-level vitrified waste will remain onsite far longer than intended.

III. Potentially significant adverse impacts to Community Character from waste left onsite

10. Radiological impacts currently recognized by DOE and NYSERDA include impacts to the general population and onsite workers[8], with such impacts generally being rated against NRC's 25 millirem-per-year exposure standard for unrestricted release of the site. However, for any alternatives in which wastes are left in place, there may be significant adverse impacts to "Community Character" resulting from *radiological releases that substantially exceed background levels but do not exceed NRC's 25 millirem-per-year exposure standard for a maximally exposed individual*. Examples of such impacts are provided below. Note that effects on Community Character are a specific type of impact that must be considered under New York's State Environmental Quality Review (SEQR) requirements.[9] Such impacts would not apply to the No-Action alternative but would apply to the "actions" of any of the other alternatives.

11. For any alternative that leaves waste onsite, the Draft SEIS should address the adverse impacts on the community character of Ashford, including such impacts on the town's residents and its prospects for economic development, resulting from the stigma of radioactive waste.

12. For any alternative that leaves waste onsite, the Draft SEIS should address the adverse impacts on the community character of the Seneca Nation of Indians, including such impacts on the Nation's residents, traditional cultural practices, and prospects for economic development, resulting from any detectable above-background level of radioactive contamination moving along Cattaraugus Creek through the Nation's Cattaraugus Territory.

13. For any alternative that leaves waste onsite, the Draft SEIS should address the adverse impacts on the community character of Cattaraugus County, including such impacts on the county's residents, their enjoyment of Zoar Valley, Cattaraugus Creek, and prospects for tourism and economic development, resulting from any detectable above-background level of radioactive contamination moving along Cattaraugus and Buttermilk Creeks. The Draft SEIS should also consider impacts on the county's residents and its prospects for economic development, resulting from the stigma of radioactive waste.

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[8] 83 *Federal Register* 7464 (Feb. 21, 2018) at 7468, column 1.

[9] See NYSDEC, *The SEQR Handbook*, 3rd ed. (2010), pp. 87-89 and 204-05; also *Matter of Village of Chestnut Ridge et al. v. Town of Ramapo et al.*, 45 AD3d 74 (2d Dept. 2007) at 85-87 and 94-95.

14. For any alternative that leaves waste onsite, the Draft SEIS should address the adverse impacts on the community character of Erie County, including such impacts on the county's residents, their enjoyment of Zoar Valley and the lakeshore waterfront, and prospects for tourism and economic development, resulting from any detectable above-background level of radioactive contamination moving along the Lake Erie shoreline from Irving to Buffalo, and along the Niagara River shoreline from Buffalo to Tonawanda.

15. For any alternative that leaves waste onsite, the Draft SEIS should address the adverse impacts on the community character of the City of Buffalo, including such impacts on the city's residents, their enjoyment of the waterfront, and prospects for tourism and economic development, resulting from any detectable above-background level of radioactive contamination moving past and through the city's waterfront.

16. For any alternative that leaves waste onsite, the Draft SEIS should address the adverse impacts on the community character of other downstream communities in the U.S. and Canada, resulting from any detectable above-background level of radioactive contamination moving through their waterways or along their shorelines. For any adverse impacts from wastes left on site, the CTF should be afforded the opportunity to determine the accuracy of those impact assessments.

17. The Draft SEIS should include support for an assessment of the surrounding communities that focus on psychological/cultural/physical/spiritual impacts of living near the site. The assessment should be facilitated through the CTF in collaboration with Roswell Park Comprehensive Cancer Center, the SUNY University at Buffalo School of Public Health, and the Seneca Nation of Indians. The schedule for these assessments should be outlined in advance and performed at a minimum of every 10 years. Outcomes should include action-orientated recommendations.[10]

18. In particular and as stated in our 1998 Final Report (attached), the CTF expects the Site Managers to recommend policies that will affect, ameliorate, or replace the losses to the community from the redirection in economic activity at the Center.

IV. Other potentially significant adverse impacts from waste left onsite

19. Any alternative that leaves waste onsite may have other "non-tangible" impacts in addition to Community Character impacts. Any such "non-tangible" impacts to nearby communities and natural resources (including the Great Lakes, for example) should be identified and vetted as scoping issues for any site closure alternative other than full exhumation.

20. For any alternative that leaves or stores waste on any bedrock portion of the site which serves as a recharge area for the underlying bedrock-valley aquifer(s), (e.g., west of Rock Springs Road

[10] Johnson, J., Baldwin, J., Haring, R. C., Wiechelt, S. A., Roth, S., Gryczynski, J., & Lozano, H. (2008). Chapter 4: Essential information for disaster management and trauma specialists working with American Indians. In (Marsella, A., Johnson, J., Watson, P., & Gryczynski, J., Eds.) *Ethnocultural Perspectives on Disaster and Trauma: Foundations, Issues, and Applications.* New York, NY: Springer SBM Publishing.

and some portions of the site east of Buttermilk Creek), the SEIS process would need to include studies to characterize the underlying bedrock-valley aquifer(s), and the Draft SEIS would need to assess impacts to such aquifer(s).[11] Current characterization of this/these aquifer(s) is too sparse to support waste storage or disposal within bedrock portions of the site that serve as recharge areas.

21. For any alternative that leaves waste onsite, the Draft SEIS should include a detailed and comprehensive future plan for the detection of above-background levels of radioactive contamination that may be released. This should necessarily mean that the determined standards and background levels would remain a fixed constant throughout.

22. For any alternative that leaves wastes on site, this necessarily should include items such as education, equipment, training, emergency response planning, redundant backup responses, medical preparedness, long-term health follow-up, environmental cleanup, and associated adequate funding for said items, for both the public and all federal, state, county, city and town agencies of Western New York, including the Seneca Nation of Indians, as well as the country that is on the northern border of Lake Erie, Canada.

V. Maximally Exposed Individual (MEI) Dose Analysis

23. The dose analysis to the Maximally Exposed Individual (MEI) should include the resident farmer or other person living on the State-Licensed Disposal Area (SDA) or NRC-Licensed Disposal Area (NDA).

24. As guidance on the magnitude of future dose to a resident farmer or other person living on the SDA or NDA, measurements should be taken during the scoping process to determine concentrations of radon, iodine and other chemically volatile radionuclides under the burial ground geomembrane covers.

VI. Probabilistic Performance Assessment (PPA) methodology issues

25. The PPA computer model runs will require *probability estimates for the input variables* (input parameters) that control or affect the predicted radiological doses. Probability distributions for these variables – potentially including variables such as rainfall, erodibility of till, or abstract variables that represent these real-world variables – are typically based on expert

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[11] See Vaughan, "Geologic and Hydrologic Implications of the Buried Bedrock Valley that Extends from the Western New York Nuclear Service Center into Erie County, N.Y.", in *Geology Reports of the Coalition on West Valley Nuclear Wastes* (East Concord, NY, 1994), available online at http://www.westvalleyctf.org/2008_Materials/2008-01-Materials/Core_Team_Issues-Vaughan_with_Appendices.pdf , at pp. 180-207 of the pdf file. See also Vaughan EIS comments §§ 50-56. [Note that citations to "Vaughan EIS comments" refer herein to the consolidated EIS comments by R. Vaughan, most of which can be found in the response-to-comments portion of the 2010 FEIS, available at https://www.wv.doe.gov/final/EIS-0226_F-Vol3-CRDPart1.pdf , on pdf pages 238-303. Some of the Vaughan EIS-comment appendices that were omitted from the 2010 FEIS volumes can be found at http://www.westvalleyctf.org/2008_Materials/2008-01-Materials/Core_Team_Issues-Vaughan_with_Appendices.pdf .]

opinion. Scientists working in this field recognize potential problems such as expert overconfidence, lack of calibration, and lack of empirical validation of such probability estimates. Various scientists have recommended procedures that can guard against errors in expert estimates.[12] Such safeguards should be incorporated into the SEIS process and should be described fully and transparently.

26. PPA computer model runs typically use Bayesian methods that require assumptions about the "prior" probability distributions of different variables.[13] Developing these "priors" or "prior distributions" can be procedurally difficult because the supporting data have not yet been applied to the distribution. Safeguards against poorly chosen "priors" should be incorporated into the SEIS process, and the safeguards should be described fully and transparently.

27. The CTF requests that one or more scientists with specialized statistical expertise be invited to speak on these issues (including expert estimates and prior distributions) at a CTF meeting or workshop in the near future.

28. The variables and assumptions in the model should be described with more transparency to the CTF and the Public. More information should be presented in the following areas:

- What are the probability distributions for variables under best and worst scenarios that have the greatest influence on the models?
- What is the tolerance of these variables and the strength of the prior data used to support these probabilities?
- Which variables are described with assumptions supported by the weakest or least prior data?
- What degree of influence do these variables have on the final models?
- What procedures were run to describe and adjust for the influence these variables with weak prior data?
- Under the worst case scenarios, what influence do these variables have on the final models?

VII. General Modeling Considerations

29. Models are being used in the SEIS process to generate estimates of erosion, radiological dose, etc., for periods extending up to 10,000 years into the future. Modeling into the distant future for any purpose is an extraordinary challenge, and *it's important to understand whether a given model is trustworthy*. It's particularly important to have a good understanding of whether a model is trustworthy in circumstances such as this, where the model results will guide a decision affecting human health far into the future.

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[12] See K. Shrader-Frechette, "Uncertainty Analysis, Nuclear Waste, and Million-Year Predictions," in S.O. Hansson and G. Hirsch Hadorn, eds., *The Argumentative Turn in Policy Analysis* (Springer, 2016), 291-303, esp. pp. 298-99, and sources cited therein.

[13] For example, R.E. Kass and L. Wasserman, "The Selection of Prior Distributions by Formal Rules," *Journal of the American Statistical Association* **91**, 1343-70 (1996); H. Chipman et al., "The Practical Implementation of Bayesian Model Selection," IMS Lecture Notes - Monograph Series **38**, 65-134 (2001), available at http://www-stat.wharton.upenn.edu/~edgeorge/Research_papers/ims.pdf .

30. The models being used to support the SEIS process include both Erosion Working Group (EWG) erosion models and PPA models. A good understanding of whether they're trustworthy is important for both types of models.

31. At the very least, models need to be accessible, reproducible, and physically plausible in order to be deemed trustworthy.

32. Trustworthy models need to be sufficiently accessible that they can be reviewed and discussed. In other words, they can't be opaque "black boxes" whose workings can't be deciphered.

33. Trustworthy models need to be reproducible, meaning *the results should be the same or similar* when different research teams run the same or similar models. In part, this means that quantitative sensitivity analyses (showing how sensitive the model results are to the various input parameters) need to be fully documented, so that small variations in input parameters don't produce unexpectedly large differences in results.

34. Trustworthy models need to be physically plausible. In part, this means that their input parameters need to be accessible, field-testable, and consistent with real-world data. If probabilistic input parameter ranges are being used, the ranges need to be reasonably broad and defensible, and the probability distributions within those ranges need to be realistic and defensible. Whenever a "surrogate" or "proxy" input parameter is used instead of a field-testable input parameter, its relationship to the field-testable parameter needs to be well-defined and quantitative, and a well-documented and quantitative sensitivity analysis is needed for each such relationship.

35. If families or "suites" of relatively similar models produce relatively similar results when they are run with identical input parameters, this may confer some limited level of assurance but cannot establish the necessary level of trustworthiness without the above criteria (accessibility to modelling interfaces and software, and compatibility with future data sets, as well as changed or additional parameters, reproducibility, and physical plausibility) being met.

36. In reviewing results from suites of relatively similar models, it's important to remember that *the accuracy of the model(s) is paramount*. Only time will tell whether a given model or suite of models is accurate – so at the present time we must usually substitute "trustworthy" for "accurate" – but it's accuracy or trustworthiness that we ultimately need to assess, rather than model attributes such as elegance or model-to-model consistency or simplifications imposed by run-time constraints. For example, consistency of results from a suite of models may appear encouraging, but trust would be unfounded if all models in the suite share a common error or weakness.

37. The EWG erosion models cannot be considered trustworthy relative to the above criteria (accessibility, reproducibility, and/or physical plausibility) based on currently available information on the EWG erosion modeling.[14] Several examples are provided in these comments.

[14] G. Tucker et al., *Modeling Long-Term Erosion at the West Valley Demonstration Project and Western New York Nuclear Services Center*, Final Report, April 25, 2018.

The SEIS process and related processes (such as the Phase 2 decision and NRC license-termination process) should therefore not rely on EWG erosion modeling unless and until such modeling is revised and can meet the above criteria.

38. PPA modeling being prepared to support the SEIS process is not sufficiently complete to judge its trustworthiness relative to the above criteria (accessibility, reproducibility, physical plausibility). Limited examples relating to PPA modeling are provided in these comments. It is unclear at this point whether the SEIS process and related processes (such as the Phase 2 decision and NRC license-termination process) should rely on the PPA models that are being developed. However, the current absence of trustworthy EWG erosion modeling will apparently create a major gap in the treatment of erosion in PPA modeling. Such a gap should receive immediate attention in the SEIS process.

39. If future circumstances or variables change greatly, such as an unexpected and severe precipitation or erosion event, then the Draft SEIS should include provisions for easy accessibility to modeling software to update modeling, and to revise procedures.

40. The time frame for site cleanup which is on the order of decades, and the uncertainties of institutional continuity, bring up questions about data, software, computer modeling accessibility, and hardware (equipment) integrity. For any alternative that leaves waste onsite, the Draft SEIS should include a detailed and comprehensive plan that allows for data and equipment integrity, accessibility, and interchangeability far into the future.

VIII. Erosion modeling issues and the related need for extending the Draft SEIS comment period

41. The 10-year time step that is reportedly used by Tucker et al. in the EWG erosion modeling (landscape-evolution modeling) runs is unacceptably long; it introduces an unrealistic rainfall intensity-frequency distribution[15] into the EWG modeling runs that will be used in the SEIS process to support the Phase 2 decision.[16]

42. Any and all such modeling runs need to have *recognizable* rainfall intensity-frequency distributions. Independent experts and the public must be able to review the rainfall intensity-frequency distributions and must be able to compare them to realistic current rainfall distributions and to defensible estimates of paleo (post-glacial) and future (climate-change-adjusted) rainfall distributions.[17]

43. The EWG erosion modeling runs reportedly do not have directly recognizable rainfall intensity-frequency distributions; they reportedly use surrogate inputs to represent such distributions. Whether independent experts and the public will be able to translate such

[15] Note that the term "intensity" in the widely used phrase "intensity-frequency distribution" corresponds to rainfall "depth" – particularly the "depth" of 24-hour rainfall with a certain recurrence interval or probability – in the terminology of Tucker et al.
[16] For overview, see Vaughan 6-28-17 CTF presentation, slide 10; Vaughan 9-27-17 CTF update presentation, slides 3 and 6-7.
[17] Regarding paleo and future rainfall distributions, see Vaughan EIS comments §§ 166-71.

surrogates into rainfall intensity-frequency distributions in a clear cut and undisputed manner remains to be seen. Such a "translation" effort has just begun with the release of the EWG erosion modeling report and supporting data files in late April, and this "translation" work is likely to take weeks or months. Given the complexity of this important issue and the difficulty of determining prior to the May 25, 2018 deadline whether or not the model runs are using reasonably reliable rainfall distributions, we are likely to have additional comments beyond the May 25 deadline.

44. The various erosion modeling runs employ *other* input parameters in addition to their direct or indirect rainfall-distribution parameters. These other input parameters must likewise be reviewable, such that independent experts and the public can compare them to realistic field-tested or field-testable parameters. If any of these other parameters are not directly recognizable and field-testable, the type of "translation" process described above will be needed[18] and will encounter the same time constraints, thus making it likely that we will have additional comments beyond the May 25 comment deadline.

IX. Site stability & integrity issues relating to seismic activity (earthquakes)

45. Evidence of two deep-seated faults – one at Sardinia and one at the north end of the US 219 bridge over Cattaraugus Creek near Springville – was released in 2001 in the Bay Geophysical seismic study,[19] but no follow-up work has been done to identify or clarify the strike of these faults, their geographic extent, their surface expression (if any), and their likelihood of reactivation. Such follow-up investigation is needed in the SEIS process in order to understand long-term seismic risks to site stability and containment integrity.[20]

46. The Sardinia fault identified by the Bay Geophysical seismic survey is particularly relevant because it is aligned with, and may be part of, the seismically active Attica Splay of the Clarendon-Linden Fault. The SEIS process needs to investigate and determine whether the Sardinia fault connects with the Attica Spay at/near Varysburg and also needs to investigate and determine whether it extends southwestward toward the West Valley site – and if so, how closely it approaches the site.

47. Earthquakes pose a risk to slope stability. Extreme examples were seen in the 1964 Alaska earthquake,[21] while quakes of lesser magnitude will have similar but less dramatic effects on unstable or quasi-stable slopes. Relevant slopes at the West Valley site include the same valley walls, ravine walls, and gully walls that are subject to erosion and slumping. Thus, given the fact that seismic events will accelerate the overall loss of site integrity by causing large-scale

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[18] Vaughan 9-27-17 CTF update presentation, slide 8.
[19] Bay Geophysical, *Seismic Reflection Survey to Identify Subsurface Faults near the West Valley Demonstration Project*, report prepared for West Valley Nuclear Services Company (Traverse City, MI: Bay Geophysical, 2001).
[20] Vaughan EIS comment § 57A.
[21] For example, see W.R. Hansen, "Effects at Anchorage," in *The Great Alaska Earthquake of 1964* (Washington: National Academy of Sciences, 1971), available online at http://www.westvalleyctf.org/2008_Materials/2008-01-Materials/Core_Team_Issues-Vaughan_with_Appendices.pdf , at pp. 30-140 of the pdf file.

landsliding, slumping, and mass wasting,[22] and given the apparent lack of any seismic component in the recently completed EWG erosion modeling runs, *those erosion modeling runs need to be re-done with intermittent (probabilistic) seismic "jumps" incorporated into the model(s)*.

48. An example of how seismic effects on slope stability can be modeled can be found in Appendix C-5 of an engineering report for the proposed expansion of a hazardous waste facility.[23] Applying such a model to slopes on the West Valley site would require site-specific values for soils and glacial fill materials, and would also require site-specific seismic information based on characterization of the Sardinia Fault, its relation to the Attica Splay, and other fault structures in the vicinity of the site.

49. Soil liquefaction may in some cases contribute to seismically induced slope failures; however, in other cases a slump-prone slope may fail in an abruptly accelerated episode of slumping without observable liquefaction. In any case, liquefaction of onsite soils adjacent to existing slopes needs to be investigated in the SEIS process and incorporated into landscape-evolution modeling.[24]

X. Site stability & integrity issues relating to possible aseismic movement of rock or soil

50. Aseismic (non-seismic) horizontal movement of large blocks of either *bedrock* or *overlying fill and soil* may be occurring on the site. Any such movement of either rock or soil would be a type of topographic instability with potentially serious but currently uncharacterized effects on long-term site stability and containment integrity. The probability of such movement appears low but cannot be ruled out without further investigation. The SEIS process needs to engage in such investigation and needs to treat horizontal movement of either *bedrock* or *overlying fill and soil* as a low-probability but potentially high-consequences phenomenon in accordance with environmental review requirements such as 6 NYCRR 617.9(b)(6)(iii).

51. If investigation shows horizontal movement of large blocks of bedrock, fill, and/or soil, the Draft SEIS should quantify and document the rate(s) of movement and associated implications or impacts on long-term site stability and containment integrity. Alternatively, if investigation shows that horizontal movement of large blocks of bedrock, fill, and/or soil can be ruled out, the Draft SEIS should document this conclusion and how it was reached.

52. *Horizontal bedrock movement?* Evidence of aseismic horizontal bedrock movement at one location in Western New York comes from a paper by the late Prof. Wm. Brennan of SUNY Geneseo.[25] Brennan reported horizontal offset (partial blockage) in the steel casing of brine

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[22] Vaughan EIS comments §§ 103-04.
[23] Arcadis, RMU-2 Engineering Report (Rev. Nov. 2013), http://modelcity.wm.com/RMU/06-RMU-2%20Engineering_Report_Revised_November_2013.pdf .
[24] See especially Vaughan, "Geologic and Hydrologic Implications of the Buried Bedrock Valley…", *op. cit*., available online at http://www.westvalleyctf.org/2008_Materials/2008-01-Materials/Core_Team_Issues-Vaughan_with_Appendices.pdf , esp. pp. 203-207 of the pdf file.
[25] W.J. Brennan, "Stress-Relief Phenomena Observed During Solution Mining in Western New York," presented at Fall 1996 Meeting, Solution Mining Research Institute, Cleveland, Ohio.

wells in the Wyoming valley near Wyoming and Warsaw, NY. The offset occurred at the depth of the thalweg of the adjacent bedrock valley, implying an essentially horizontal detachment surface or decollement in the local shale at the depth of the thalweg, with the movement of the overlying bedrock block driven by the prevailing regional compressive stress. Given the regional extent of this ENE-WNW-oriented tectonic stress, and given the fact that the Buttermilk valley's NNW-SSE alignment is even more favorably oriented (essentially perpendicular to the regional compressive stress), it is reasonable to investigate whether the type of bedrock movement observed by Brennan is also occurring in the West Valley site's injection wells which have remained inactive since about 1970. Some of the West Valley injection wells are known to be blocked by grout, but others are considered grout-free and could/should be checked for offset and/or casing blockage at the approximate depth of the adjacent bedrock-valley thalweg.

53. Effects of regional compressive stress in Western New York bedrock are well-known to at least two members of the Phase 1 Studies Erosion Working Group (Fakundiny and Young), both of whom have written about such horizontally-oriented stress and its role in causing observable displacement of bedrock.[26] Fakundiny and coauthors have noted, for example, that "Foundation instability, produced by lateral expansion of rock into excavation voids, prevails throughout western New York and the Niagara Peninsula of Ontario, Canada…and is generally thought to be the result of regional stresses acting with a high, horizontal compressive component oriented in a generally east-west to northeast-southwest direction at shallow depths in the earth's crust…"[27]

54. *Horizontal soil/till movement?* Soils and tills are typically plastic materials that may undergo slow creep toward unbuttressed voids such as valleys, potentially including the Buttermilk valley. Possible evidence of such movement immediately southeast of the West Valley site has been described by Vaughan, EIS comments, § 105 and Figure 4. The work currently being done by Neptune risks missing such movement if any/every horizontal discrepancy in airphotos (relative to LiDAR maps) is assumed to be from airphoto distortion. The SEIS process should investigate whether horizontal soil/till movement is occurring, document the findings, and address the implications and impacts if any such movement is detected.

XI. Site stability & integrity issues relating to climate

55. Effects of climate change that do not appear to be adequately incorporated into the EWG erosion model runs include lake-effect rain[28] and similar weather systems driven by prevailing

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[26] R. Fakundiny et al., "Structural Stability Features in the Vicinity of the Clarendon-Linden Fault System, Western New York and Lake Ontario," in *Advances in Analysis of Geotechnical Instabilities*, (University of Waterloo Press, 1978), esp. p. 121. The decollements shown therein in Figs. 15B (p. 162) and 19-20 (pp. 169-70) may also be relevant. See also A.S. Nieto and R.A. Young, "Retsof Salt Mine Collapse and Aquifer Dewatering, Genesee Valley, Livingston County, New York," in J.W. Borchers, ed., *Land Subsidence: Case Studies and Current Research* (Association of Engineering Geologists, 1998), esp. Fig. 8 and pp. 322-23.

[27] Fakundiny et al., *op. cit*., p. 121.

[28] CTF memo entitled "Actions Needed Related to Potential [Climate] Change Impacts," July 27, 2015, available at http://westvalleyctf.org/2015_Materials/07/2015-07-27_Memo-Climate_Change_Considerations_Incorporation_in_Decisionmaking.pdf , esp. p. 6.

winds off Lake Erie and associated precipitation in the "shadow" of the lake. The SEIS process should investigate such precipitation and whether it is changing over time, including whether the winds and precipitation levels have changed in the past 1,000 years or so.

56. Erosion modeling for the West Valley site (both EWG and PPA modeling) needs to recognize and incorporate rapidly moving, organized thunderstorm systems, sometimes called *derechos* or mesoscale convective system (MCS)-organized convective storms. Two examples are the July 1942 storm in Smethport, PA (~30 inches rainfall in 4.75 hr), and the July 1996 Redbank storm near Brookville, PA (~5 inches in 4 hr), that have been reviewed and analyzed by Smith et al.[29] Both locations are on the western margin of the central Appalachians, less than 100 miles south of the West Valley site. While the orographic relief of these Pennsylvania sites is not identical to that of the West Valley site, there are similarities not only in topography but in the occurrence of "trains" of storms that stream generally eastward along a relatively stationary track for many hours, delivering exceptional rainfall accompanied by intense lightning. The Redbank storm, for example, "consisted of a system of multicellular thunderstorms that moved rapidly from Lake Erie across western Pennsylvania," involving a "multiple storms that tracked over Redbank Creek," with cloud-to-ground lightning flash densities ranging up to 2-3 strikes per square kilometer. This type of powerful "training" storm system was apparently involved in both the Smethport storm[30] and the August 2009 West Valley derecho or storm.[31] Storms of this type need to be incorporated into EWG and PPA erosion modeling.

57. An article by Prein et al.[32] finds that MCS-organized convective storms with a size of ~100 km are poorly represented in traditional climate models yet are increasing in frequency and intensity. For the West Valley area, these authors show a 50% to 70% increase in the frequency of MCSs (expressed as track density difference) relative to current conditions.[33] This trend, discussed by Feng as a "near doubling" of severe storms,[34] needs to be incorporated into EWG and PPA erosion modeling.

58. Climate experts at the August 2012 WVDP climate workshop noted that "Climate Scientists have high confidence that extreme precipitation intensity will increase in the future due to the increases in ocean temperature as greenhouse gas concentrations increase in the atmosphere...[and] that maximum water vapor concentration in the atmosphere will substantially increase during the 21st Century in western New York. For a high greenhouse gas emissions scenario, these increases were in the 20 to 30 percent range by 2100. Although other factors (frequency and intensity of meteorological systems that cause extreme precipitation) could have enhancing or moderating effects on future design storm values, there are no comprehensive studies that assess the magnitude of such influences. As a first order approximation, design storm

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[29] J.A. Smith et al., "Extreme rainfall and flooding from orographic thunderstorms in the central Appalachians," *Water Resources Research* **47**, W04514 (2011).
[30] Id.
[31] C.O. Szabo, W.F. Coon, and T.A. Niziol, *Flash Floods of August 10, 2009, in the Villages of Gowanda and Silver Creek, New York*, USGS Scientific Investigations Report 2010-5259.
[32] A.F. Prein et al., "Increased rainfall volume from future convective storms in the US," *Nature Climate Change* **7**, 880-86 and Supplementary Information (Dec. 2017), esp. Supplementary Fig. 2(e).
[33] Id., Supplementary Fig. 2(e).
[34] Z. Feng, "Near doubling of storm rainfall," *Nature Climate Change* **7**, 855-56 (Dec. 2017).

precipitation totals (see Table 1) may increase by approximately 25 percent by 2100."[35] They also noted that, "During the early part of the 21st century, the frequency of extreme precipitation events has increased by as much as 74% across the Northeastern United States compared to the late 1950s to early 1960s."[36]

59. Evidence continues to grow that intense storms will become more frequent, and that their intensity will increase. For example, a recent article by Prein et al.[37] shows hourly extreme precipitation in the West Valley area increasing by 35% to 49% as a result of climate change in both winter (Dec.-Jan.-Feb.) and summer (June-July-Aug.), where "extreme" precipitation, defined as the 99.95th percentile of hourly precipitation, corresponds to the maximum precipitation that occurs on average once every season.[38] The same article shows the exceedance probability of hourly extreme precipitation increasing by about 130% (winter) and 165% (summer) in the West Valley area, relative to a 2000 to 2013 control period.[39] Such effects of climate change, including larger temperature fluctuations and the resulting changes in both direct rainfall and runoff from snowmelt, and also including periods of increasing drought interspersed with increased storminess, need to be adequately and transparently incorporated into EWG and PPA erosion modeling.

60. The EWG erosion models are employing unrealistically and unacceptably low levels of future climate change. The Multivariate Adaptive Constructed Analogs (MACA) climate scenarios that are being used to represent climate change in the EWG erosion models[40] are adding relatively little intensity and frequency to the current level of intense storms. The EWG models are assuming increases of approximately 9% in mean annual precipitation, 1% in mean wet day frequency, and 12% in mean wet day intensity,[41] and the models' three "future climate scenarios" assume increases in the neighborhood of 8% to 12% in mean wet day precipitation.[42] These trivial increases are inconsistent with the increases outlined in the preceding paragraphs. Incorporation of climate change in the SEIS process must be more than a token effort; it needs to reflect current science. Modeling runs that do not adequately represent climate change need to be re-done.

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[35] Enviro Compliance Solutions Inc., "Climate Guidance for Phase 1 Studies" (Nov. 2012), pp. 9-10.
[36] Id, p. 2.
[37] A.F. Prein et al., "The future intensification of hourly precipitation extremes," *Nature Climate Change* **7**, 48-52 (Jan. 2017). The authors are using a pseudo global warming (PGW) approach to "perturb the lateral boundary conditions of ERA-Interim with a high-end scenario (RCP8.5) 95-year ensemble monthly mean climate change signal from 19 Coupled Model Intercomparison Project Phase 5 Models" (CMIP5).
[38] Id., Fig. 1 and related text.
[39] Id., Fig. 2 and related text.
[40] G. Tucker, "Modeling long-term progressive erosion at the West Valley site," 2/28/18 QPM presentation, esp. slides 19-20.
[41] Id., slide 19, where values interpreted from the currently available version (a paper copy of the slide) are 1250/1150 = 109%, 0.48/0.475 = 101%, and 7.0/6.25 = 112%.
[42] Id., slide 20, where values interpreted from the currently available version (a paper copy of the slide) are 6.72/6.25 = 108% and 7.0/6.25 = 112% for RCP-4.5 and RCP-8.5, respectively.

61. The EWG erosion models assume no further climate change beyond year 2100.[43] This is inconsistent with the August 2012 WVDP climate workshop where it was noted that, "Although, as a first-order approximation, design storm values may increase by approximately 25 percent by 2100, this approximation certainly does not represent an upper limit beyond 2100."[44]

62. Genuine uncertainties in numerical values that represent climate change need to be handled probabilistically in a robust and transparent manner. While this should go without saying in PPA modeling, it is also an important point in the EWG erosion modeling that will guide the PPA modeling. Specifically, EWG erosion model results based on erroneous or unsupported inputs cannot be accepted as inputs into PPA modeling.

63. The paleo climate needs to be reconstructed based on the best available evidence and needs to be adequately and transparently incorporated into EWG and PPA erosion modeling[45].

64. The period of approximately 4,000 years of minimal Buttermilk Creek downcutting (between about 10,000 and 6,000 years before present), as identified by the EWG report by Wilson and Young, needs to be linked to causal factors such as reduced rainfall and other climatic and non-climatic factors.

65. It is not that clear that the sensitivity analyses for the EWG erosion modeling runs cover the range of rainfall rates (including a cessation or at least a greatly reduced rate of rainfall) for the period between about 10,000 and 6,000 years before present when Buttermilk Creek downcutting was minimal.[46] While there are various possible explanations for this period of minimal downcutting, one such explanation would be a prolonged "paleo drought" (a near-absence of rainfall) during the 4,000-year period. Sensitivity analyses showing the sensitivity of EWG model results to the rainfall assumed during calibration runs for this 4,000-year period – including results for the limiting case in which no rainfall occurs in any time step during this period – must be provided. These sensitivity results must also be appropriately incorporated into PPA model runs.

66. Genuine uncertainties in numerical values that represent paleo climate need to be handled probabilistically in a robust and transparent manner. While this should go without saying in PPA modeling, it is also an important point in the EWG erosion modeling that will guide the PPA modeling. Specifically, EWG erosion model results based on erroneous or unsupported paleoclimate inputs cannot be accepted as inputs into PPA modeling.

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[43] Id., slide 20.
[44] Enviro Compliance Solutions Inc., op. cit, p. v.
[45] Vaughan EIS comments §§ 166-68.
[46] G. Tucker, op. cit., slide 6, does not show such a sensitivity analysis, nor is it clear from other slides whether uncertainty in paleo climate is considered an important source of uncertainty (via calibration runs which in turn affect model results for 1,000 or 10,000 years into the future). It's unclear whether this sensitivity analysis is provided elsewhere.

67. It is not that clear that the sensitivity analyses for the EWG erosion modeling runs cover the intensity-frequency increases for intense storms.[47] Sensitivity analyses for these intensity-frequency increases, and for the incorporation of such increases into models employing relatively long (e.g., 10-year) time steps, need to be defensibly and transparently incorporated into the SEIS process.

XII. Site stability & integrity issues relating to stream piracy or capture

68. Stream capture, including stream capture initiated by seepage and piping, needs to be incorporated into EWG and PPA erosion modeling.[48]

XIII. Protection of water resources and air quality

69. For any alternative that leaves waste onsite, the scoping process should address attainment of water-resource goals such as "fishable, swimmable, drinkable," other measures of ecological protection,[49] as well as other measures intended to protect public health, safety, and enjoyment of affected waterways such as Zoar Valley and Lake Erie.

70. For any and all exhumation, demolition, or remediation scenarios, there should be an extensive network of equipment to perform real-time monitoring of air and water for possible radionuclide releases, both on- and offsite.

XIV. Anticipating Future Technological Capability and Changing Economic Circumstance

71. The DOE and NYSERDA will be making a decision on a path forward for the West Valley Demonstration Project based upon available technology, economics and safety. The preferred alternative selected as a result of the SEIS process could be sitewide removal, sitewide closure in place, or a hybrid solution. Sitewide removal would meet the CTF's recommendations for a Preferred Alternative. A hybrid solution, if chosen over sitewide removal, would likely be based upon the technical complexities associated with sitewide removal, the expense associated with sitewide removal, or the relative safety of partial waste removal. However, these criteria are not static. With the timeframes discussed for implementation of the next phase of site closure, new technology to address the removal of wastes will become available. The economics of a hybrid preferred alternative will also change in time. Lastly, in time, several factors will significantly impact both site worker safety *and the safety of long term on site storage*. Consequently, a decision to implement a hybrid solution for waste removal at the West Valley site cannot be deemed to be a final decision, but only another interim step or Phase 2. Therefore, reassessment

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[47] G. Tucker, op. cit., slide 6, does not show such a sensitivity analysis. It's unclear whether this sensitivity analysis is provided elsewhere.

[48] Vaughan EIS comments §§ 187-88.

[49] Newly completed New York Natural Heritage riparian assessment: See http://buffalonews.com/2018/03/23/watersheds-in-cattaraugus-county-among-healthiest-in-new-york-state-data-shows/ and http://www.nynhp.org/treesfortribsny

of the preferred alternative plan of action, relative to the three criteria identified, would have to be completed again sometime in the future.

72. As described above, the likelihood that new technology will become available is important to consider for any interim hybrid alternative. A useful comparison can be found in the "technology-forcing" provisions of the Clean Air Act. These provisions have allowed enforceable deadlines to be set for *reducing air emissions below levels that could be met with current technology*, the idea being that the deadline would encourage and support the development of new air pollution control technology capable of meeting new emissions standards. By this logic, sitewide removal is a better choice than a hybrid alternative because it would encourage and support the development of new cleanup technology, rather than simply waiting for new technology to appear.

73. The Features, Events, Processes and Scenarios (FEPS) Analysis prepared by Neptune and Company says that: "Deliberate and intentional intrusion scenarios are difficult FEPS to consider in terms of probability. There is no precedent to draw upon (e.g., there has been no known deliberate removal of waste from closed permanent waste disposal facilities). Regardless, intentional intrusion would not be expected to result in appreciably different doses than many unintentional intrusion scenarios involving direct waste exposure (e.g., mining and drilling). Additionally, all of the unintentional intrusion FEPS that are applicable at a waste disposal facility assume that institutional and societal knowledge of wastes has been lost. If such knowledge has been lost, then logically it is highly unlikely that any sort of intentional intrusion would occur (i.e., a potential intruder would have no knowledge of buried wastes). Conversely, if institutional/societal knowledge is not lost, then none of the unintentional intrusion FEPS would be applicable (e.g., it is highly unlikely that a known radioactive waste disposal facility would be mined for gravel). As all regulatory frameworks and previous PAs [performance assessments] assume loss of institutional/societal knowledge and focus on unintentional intrusion, the choice is made here to also focus on this. Therefore, all intentional intrusion FEPS are globally excluded." (5.2.4.4.1, Intentional Intrusion) Given the fluctuations and upheavals seen throughout history in social/civic/ethical attitudes and governance structures, it appears unprotective to assume that intentional intrusion can be entirely ruled out. Recent historical examples of such fluctuations and upheavals can be seen, for example, in parts of Europe in the 1930s, parts of Southeast Asia in the 1970s, and parts of the Middle East at the present time. Intentional intrusion should be included in the scope of the SEIS process.

XV. Conclusion

74. All parties are reminded that the original Citizen Task Force, following nearly two years of study and deliberation in preparation of the 1998 Final Report to help guide decisionmaking for the long term management and cleanup of the WVDP site, came to the unanimous conclusion that the site is in no way suitable for the long term, permanent storage or disposal of long-lived radionuclides. Unlike arid regions of the West which are geologically stable and better suited for storage and disposal of nuclear waste, the West Valley site receives excessive precipitation annually causing routine flooding and rapid erosion events, and is less stable from geologic and seismic forces. Large and small population centers downstream of the site rely on our water resources for drinking water, fishing and other water-oriented recreation, traditional cultural

practices, and aesthetic enjoyment by local residents and tourists alike. The ensuing twenty years of additional study and monitoring, documentation of recurring severe storm and erosion events, plus a better understanding of the future effects of climate change on Western New York weather, only serve to reinforce that the West Valley Demonstration Project site is simply unsuitable for the permanent storage or disposal of any radioactive wastes. Based on this primary tenet, current Citizen Task Force members are likewise unanimous in their belief that the only Phase 2 decision which can ensure public health and safety for decades and centuries into the future is the eventual sitewide removal of all wastes.

West Valley

C I T I Z E N
T A S K
F O R C E

West Valley
Citizen Task Force
Final Report

July 29, 1998

West Valley
Citizen Task Force
Final Report
July 29, 1998

TABLE OF CONTENTS

Acknowledgments

The West Valley Citizen Task Force members wish to acknowledge the participation of two members who were unable to remain with the Task Force until the completion of these recommendations.

The Task Force dedicates this Report to the memory of Elaine Belt, who passed away in June 1998. Elaine Belt contributed greatly to the success of the Task Force; her enthusiasm and dedication to the community will be remembered.

The Task Force also extends its appreciation to Richard Timm, former Supervisor of the Town of Concord, for his participation and support.

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West Valley
Citizen Task Force
Final Report
July 29, 1998

I. INTRODUCTION

This report has been prepared and submitted by the West Valley Citizen Task Force ("CTF") to the New York State Energy Research and Development Authority ("NYSERDA") and the United States Department of Energy ("USDOE"), the Site Managers, so as to provide direction and advice on the development of a Preferred Alternative for the completion of the West Valley Demonstration Project and cleanup, closure and/or long-term management of the facilities at the Western New York Nuclear Services Center (hereafter referred to as the Center[1]).

The CTF acknowledges that the vitrification process, which is more than half completed, is of great importance to the overall safety of the Center, human health and the environment. Converting the liquid wastes to a solid and emptying the high level tank will remove a grave risk that has threatened the health and safety of the entire area. The CTF commends the Site Managers and all those who have made this possible.

The CTF expects that the Site Managers will develop a Preferred Alternative which complies with the Policies and Priorities contained in Section III and responds to the Guidelines in Section IV.

The CTF expects the Site Managers to recommend policies and criteria that will offset, ameliorate, or replace the losses to the community from the reduction in economic activity at the Center.

Upon selection of the Preferred Alternative, the CTF expects for the Site Managers to present such alternative to the CTF and the public with all supporting information. Such presentation to the CTF may precede the commencement of a formal public participation process but is not a substitute for full formal public participation and the development of a Record of Decision.

The CTF also expects that the Site Managers will continue to actively manage and monitor the Center during the development of the Preferred Alternative. The CTF further expects that the Site Managers will immediately take any steps necessary to prevent the further spread of wastes.

[1]The term "Center" refers to the 3300 acres of the Western New York Nuclear Services Center, including the West Valley Demonstration Project (WVDP) premises and the State-licensed Disposal Area (SDA). The term "Site" refers to the 200 acre-WVDP premises and SDA only.

II. BACKGROUND

On January 29, 1997, the CTF held its first meeting at the Ashford Office Complex. The CTF was convened by NYSERDA and USDOE. The CTF has met twice a month since January 1997, except for short recesses. The members of the CTF are listed in Appendix One.

The CTF was formed to *"assist in the development of a preferred alternative for the completion of the West Valley Demonstration Project and cleanup, closure and/or long-term management of the facilities at the site."*[2]

Presentations were made to the CTF regarding:

- Center history,
- applicable law, rules and regulations, administrative policies, governmental agreements, and court decisions,
- the draft environmental impact statement and the five alternatives which it considered,
- radiation hazards,
- the twelve waste management areas into which the Center was divided
- licensing issues,
- new or alternative technologies,
- institutional controls, and
- special concerns such as the North Plateau Plume.

III. CTF POLICIES AND PRIORITIES

1. The CTF expects that the Preferred Alternative will protect human health and the environment from all risks associated with the Center. Because proximity to the Center increases potential risk, the CTF believes that special attention should be paid to the long-term health and safety of people residing in the adjacent towns.

2. The Seneca Nation is an indigenous, distinct, sovereign Nation of People whose past and future existence is dependent upon, among other things, the protection and preservation of its natural resources. Closure options that may contaminate these resources to any extent (i.e., animal and fish life, herbs, plants and forest areas, water, air, and soil, including viable land for home sites), are of overwhelming concern to the Nation and its people. The CTF recognizes this concern.

3. The CTF does not believe (based on currently available information) the Site is suitable for the long term, permanent storage or disposal of long-lived radionuclides (such as carbon-14 with a half life of 5,730 years, uranium-238 with a half life of more than 4 billion years, plutonium-239 with a half life of 24,100 years, and Technetium-99 with a half life of 217,000 years). The site is in an area that has an average rainfall of 40 inches, has a relatively

[2] Ground Rules of the Citizen Task Force, as revised and approved on January 29, 1997.

high and mobile water table which is hydrologically connected to the surface and perhaps in the future to subsurface aquifers, has sand lenses that are irregularly distributed through the clay on which the site sits, is on or near active earthquake faults and is located on a tributary of Lake Erie. The population density in the area and the large number of people who rely on Cattaraugus Creek, Lake Erie, the Niagara River, and Lake Ontario for drinking water (over one million people for Lake Erie alone), fishing, recreation, etc. is of great concern. The height of the water table, the discharge of groundwater at the site, the surface geological processes at the site (such as erosion) would preclude, under current criteria, the siting of a new nuclear waste storage or disposal facility at this location[3].

4) The CTF recognizes that portions of the Center are not fully characterized and therefore cannot be judged with certainty to be either suitable or unsuitable for long-term, permanent storage or disposal of wastes under current regulations. Under present conditions, the CTF does not believe that any portion of the Center can be considered suitable for long-term, permanent storage or disposal of wastes. The CTF may reconsider its opinion of site suitability if new evidence based on site characterization is presented to the CTF in the near future.

5. The CTF recognizes that some wastes will remain at the Site for a prolonged period of time. The CTF expects that all decisions regarding such wastes will be guided by the belief that the only appropriate, final action with regard to these wastes is for them to be removed from the Site. The CTF does not believe any solution should be chosen which makes retrieval significantly harder. Thus, for instance, the CTF does not support any alternative in which a large solid, permanent "monolith" would be created.

6. The CTF expects that the logs and remaining fuel rods will be removed from the Site as soon as possible.

7. The CTF expects that, other than to the extent necessary to manage the Center safely and to achieve the Policies and Priorities of the CTF, all wastes that remain at the Site will be managed in a manner to ensure that contamination does not spread and that uncontaminated soils and other materials will be protected from contamination. The CTF does not want to have the amount of material contaminated increase, thus increasing the expense and problems associated with clean up of the Site.

8. The CTF expects that all wastes that remain at the Site, whether stored above or below ground, will be stored in a manner that allows for its monitoring to readily, safely and regularly determine if the materials are leaking or migrating .

9. The CTF expects that all wastes that remain at the Site will be stored in such a way that they can be retrieved if the containment system and/or packaging fails. Retrieval may be

[3] For instance, see comments of Center for Nuclear Waste Regulatory Analyses, August 1996, *Review of DEIS For Completion of the West Valley Demonstration Project and Closure or Long-Term Management of the Facilities at the Western New York Nuclear Service Center,* beginning at page 3-1.

necessary as part of the ultimate disposal plan or due to a gradual (slow erosion) or dramatic (earthquake or rapid erosion from a flood) reduction in the integrity of the containment or packaging system. The CTF expects that an alternative storage system will be developed so as to be readily available should the primary containment system fail.

10. The CTF expects that all wastes will be isolated from ground water. In order to achieve this goal, the CTF acknowledges the slightly higher risk to intruders (trespassers) and site personnel that accompanies the storage of wastes above ground in structures.

11. The CTF prefers that all wastes be excavated and placed in a structure where monitoring and retrieval for repackaging and recontainment, if necessary, will be relatively easy. The CTF recognizes that for some wastes excavation and storage may not be appropriate in the near term. For such wastes the CTF expects that the Preferred Alternative shall describe when and how such wastes shall be excavated.

12. The CTF expects that any structures built in the ground or above the ground at the Site to contain wastes will be constructed to withstand severe natural events such as tornadoes, earthquakes, and the hazards of flooding and erosion.

13. The CTF expects that the risks and costs associated with the Center will be borne in large part by our generation. The CTF wants to limit, as much as possible, the extent to which future generations bear the risks and costs of the Center, and its monitoring and cleanup.

14. The CTF expects that the Preferred Alternative will comply with all applicable local, state, and federal laws, rules, and regulations including the provisions of the West Valley Demonstration Project Act (Public Law 96-368) , Article 29 of the New York State Environmental Conservation Law and subparagraph a of paragraph 1 of Section 1854-a of the New York State Public Authorities Law which prohibits the location of a low level waste repository at the Western New York Nuclear Services Center.

15. The CTF expects that the Preferred Alternative will not rely upon man made structures over a long period of time. The CTF believes that over a prolonged period of time nature's processes will prevail over engineered solutions.

16. The CTF expects that the Preferred Alternative will include the restoration of the Center to alternative uses (such as educational, industrial, commercial or recreational uses) as much as is possible and as soon as possible.

17. The CTF expects that cost considerations will not be a primary factor in the development of the Preferred Alternative.

18. The CTF expects that the Preferred Alternative will provide for a continuing presence by USDOE so long as Project wastes as defined by the West Valley Demonstration Project Act remain at the Center. As such, USDOE will continue to participate in the management of the Center and in the funding of activities associated with implementation of the Preferred Alternative. In addition, the CTF requests that USDOE remain on the Center so long

as any waste remains at the Center, especially waste from federal defense activities and from federal research, development and defense contracts.

IV CTF GUIDELINES FOR PREFERRED ALTERNATIVE

1. The Preferred Alternative shall to the maximum extent possible achieve the CTF Policies and Priorities contained in Section III of this report.

2. The Preferred Alternative shall state the applicable law(s) under which it has been developed, and if the Preferred Alternative complies with such law(s). In particular, the Preferred Alternative shall indicate if the "decontamination and decommissioning" requirements of the West Valley Demonstration Project Act[4] will be achieved.

3. The Preferred Alternative shall detail all licensing issues including a statement of any licenses that will be required, the standards that will apply and if the Preferred Alternative complies with current licensing requirements. In addition, the Preferred Alternative shall indicate if any special variances or special licensing issues will be sought. In particular, the Preferred Alternative shall indicate if policies of the Nuclear Regulatory Commission regarding reliance upon "institutional controls" can be achieved.[5]

4. The Preferred Alternative shall detail the role of other state and federal agencies including New York State Department of Environmental Conservation (NYSDEC), NYS Department of Health (NYSDOH), NYS Department of Labor (NYSDOL), and Army Corps of Engineers.

5. The Preferred Alternative shall detail the extent to which "institutional controls" and "active maintenance" will be relied upon and shall identify the associated specific actions.[6] This shall include the extent to which a continued human presence at the Center is required to provide monitoring, site control and restoration of protective features.

6. The Preferred Alternative shall detail the extent to which structures and other engineered solutions are relied upon. The Preferred Alternative shall not use incineration at the Center.

7. The Site Managers shall indicate when the logs, rods and other materials that are the results of the vitrification process will be removed from the Site. This shall include who is responsible for the removal action, what steps will be taken to insure removal in a timely fashion and how and where these wastes will be stored until removal. The Site Managers shall indicate if this schedule will affect the development and implementation of any alternative.

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[4] Public Law 96-368- October 1, 1980, Section 2(a)(5)

[5] See 10CFR§20.1403(e) and §61.59(b)

[6] See West Valley Draft EIS, January 1996, Glossary, page A-9 and 10CFR§61.2.

8. The Preferred Alternative shall provide a detailed statement of how the costs and responsibilities for implementing the Preferred Alternative will be divided between the Site Managers. This shall include a statement of who will be responsible for management of the Center, statutory authority for such management activities, and who will be responsible for the costs of implementing the Preferred Alternative and for long term management of the Center, and for all future funding including but not limited to planned and emergency remedial and removal actions and for insuring compliance with the CTF Policies and Priorities and Guidelines.

9. The Preferred Alternative shall provide a reliable method to assure that funding will be available whenever necessary, but particularly over the long term, to carry out all remediation, relocation (pending appropriate environmental review) on Center premises, monitoring, institutional controls, and removal.

10. The Preferred Alternative shall provide a reliable method of review and implementation to assure that all issues are reopened at regular intervals and to monitor the success at achieving the goal of eventual removal of all wastes from the Site. This method, or "trigger," to cause a review and appropriate action should be automatic after the passage of a certain time period and also discretionary if circumstances at the Center change or new technology is developed.

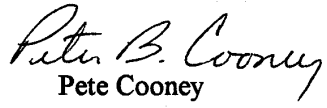
11. The Preferred Alternative shall specify how immediate or emergency issues will be dealt with such as the sudden deterioration of protective features, the migration of the North Plateau Plume and other issues that require prompt action. This shall include a statement of who will be responsible for decision making, statutory authority for such decision making, and in what way there will be readily available funds to carry out any action that may be required.

12. The Preferred Alternative shall specify the extent to which local emergency response will be required over the long and short term. If emergency response is required, the Preferred Alternative shall state the extent to which it will be required and identify a source of funding to acquire and maintain equipment and to provide the necessary training and planning for emergency response.

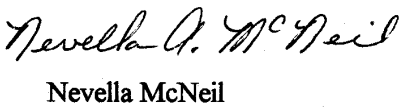
13. The Preferred Alternative shall specifically detail a comprehensive plan for addressing the North Plateau Plume, including the source area, and shall clearly establish the authority under which the plan will be implemented over the long term.

Respectfully Submitted, July 1998

West Valley Citizen Task Force Members


Pete Cooney


Bill King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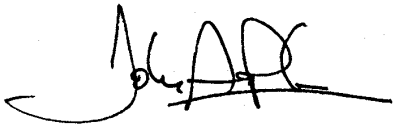
Joseph Patti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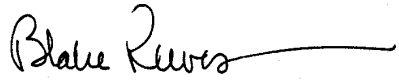
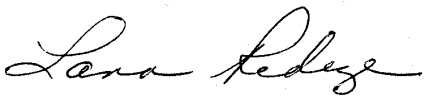
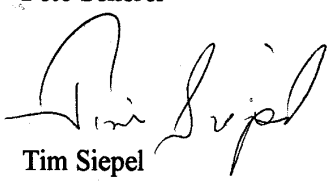

Blake Reeves

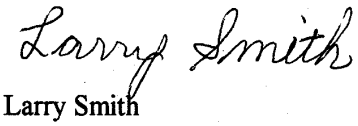

Murray Regan


Lana Redeye

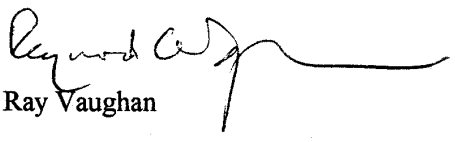

Pete Scherer

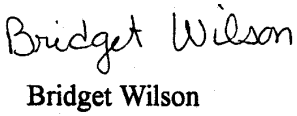

Warren Schmidt

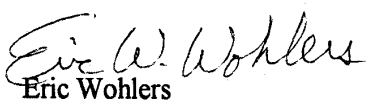

Tim Siepel


Larry Smith


Richard Tobe


Ray Vaughan


Bridget Wilson


Eric Wohlers

APPENDIX 1

CTF Membership

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Appendix 2

Seneca Nation of Indians

President - Michael W. Schindler
Clerk - Geraldine Huff

1490 ROUTE 438
IRVING, NEW YORK 14081

Tel. (716) 532-4900
FAX (716) 532-6272

Treasurer - Rae L. Snyder

P.O. BOX 231
SALAMANCA, NEW YORK 14779

Tel. (716) 945-1790
FAX (716) 945-1565

AT THE SPECIAL SESSION OF COUNCIL THE SENECA NATION OF INDIANS HELD ON JULY 23, 1998, AT THE G.R. PLUMMER BUILDING ON THE ALLEGANY INDIAN RESERVATION, SALAMANCA, NEW YORK 14779

EXECUTIVES PRESENT:	PRESIDENT	MICHAEL W. SCHINDLER
	CLERK	GERALDINE HUFF
	TREASURER	RAE L. SNYDER

WEST VALLEY TASK FORCE / APPROVAL

Motion by Lanny Bennett, Seconded by Karen Bucktooth, that Tribal Council approve the following resolution:

WHEREAS, the Seneca Nation of Indians has a vested interest in the future of the West Valley Nuclear Services Center; and

WHEREAS, Lana Redeye was appointed to represent the Seneca nation of Indians at the west Valley Citizen Task Force; and

WHEREAS, the Citizen Task Force Draft Report incorporates the viewpoints and concerns of the Seneca Nation and its people, provided the following additions are made to Section III item 2:

The Seneca Nation is an indigenous, distinct, sovereign Nation of People whose past and future existence is dependent upon, among other things, the protection and preservation of its natural resources. Closure options that may contaminate these resources to any extent (i.e., animal and fish life, herbs, plants, forest areas, water, air, and soil, including viable land for home sites) are of overwhelming concern to the Nation and its people. The CTF recognizes this concern.

Appendix 2

SPECIAL COUNCIL SESSION
JULY 23, 1998
PAGE 2

WEST VALLEY TASK FORCE / APPROVAL, (CONTINUED)

NOW, LET IT BE RESOLVED, that the Seneca Nation of Indians concurs with the policies, procedures and guidelines contained in the Citizen Task Force Draft Report and authorizes Lana Redeye to sign the report as the Seneca Nation's representative.

ALL IN FAVOR MOTION CARRIED

CERTIFICATION

I hereby certify the foregoing extract is a true and correct copy from the minutes of the Special Session of Council of the Seneca Nation of Indians held on the Allegany Indian Reservation, original of which is on file in the Clerks Office of the Seneca Nation of Indians.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and cause the seal to be affixed at the William Seneca Administration Building on the Cattaraugus Indian Reservation, Irving, New York on the 28th day of July 1998.

ATTEST:

(S E A L)

GERALDINE HUFF, CLERK
THE SENECA NATION OF INDIANS