



**Department of Energy**  
West Valley Demonstration Project  
10282 Rock Springs Road  
West Valley, NY 14171-9799

September 5, 2008

Mr. Keith I. McConnell, Deputy Director  
Division of Waste Management and Environmental Protection  
Office of Federal and State Materials and Environmental Management Programs  
United States Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

**SUBJECT:** Response to the Additional U.S. Nuclear Regulatory Commission Staff Review of the Cover Design for the Nuclear Regulatory Commission Licensed Disposal Area

- REFERENCES:**
- 1) Letter (99363), K. I. McConnell to B. C. Bower, "Additional U.S. Nuclear Regulatory Commission Staff Review of the Cover Design for the Nuclear Regulatory Commission Licensed Disposal Area at West Valley, New York," dated May 30, 2008
  - 2) Letter CRR:98235- 439, B. C. Bower to K. I. McConnell, "U.S. Department of Energy (DOE) Supplemental Response to U.S. Nuclear Regulatory Commission (NRC) Comments on 30% Design for the Nuclear Regulatory Commission Licensed Disposal Area (NDA) Cap and Slurry Wall," dated November 6, 2007

Dear Mr. McConnell:

The U.S. Department of Energy West Valley Demonstration Project (DOE-WVDP) appreciates the reviews and comments received from the NRC staff on the NDA Cap and Slurry Wall Project. Your staff indicated that they consider that there are "no imminent risks or hazards posed by the current design," and have provided suggestions that would enhance performance of the facility (Reference 1). To that end, the following is in response to these suggestions.

As you are aware, NRC guidance NUREG 1623 was created to address permanent installations while the NDA Cap and Slurry Wall project is a relatively "short term," 30-year installation being implemented under the Resource Conservation and Recovery Act (RCRA) Corrective Action program as an Interim Measure, not a final remedy. As such, it is felt that some requirements of NUREG 1623 are overly restrictive for our project.

Regarding rock quality, DOE-WVDP agrees that specifying the rock specific density alone could allow for poor rock quality. Therefore, we will add a maximum adsorption requirement to the riprap to maintain the absorption below 0.80%. Additionally, we have been working with the U.S. Army Corps of Engineers (USACE) who have been utilizing local quarries for riprap on many of their long-term shore and stream bank protection projects in and around Western New York. Enclosed is information provided by USACE personnel regarding available rock from local quarries. It is our intent to utilize local quarries for the rock specified in this project.



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Regarding rock placement, it is DOE-WVDP's belief that the New York State Department of Transportation (NYSDOT) Section 620 requirements were not employed in the current (existing) rock placement. We believe that there is little value in testing the existing rock in the ravine leading from the NDA to Erdman Brook. This rock will be covered with the newly placed rock which will meet the above rock quality specifications. Due to the slope, limited access, and safety issues, the stone gradation, thickness, and placement will be performed to the current NYSDOT Section 620 specifications per a future revision to existing construction documents.

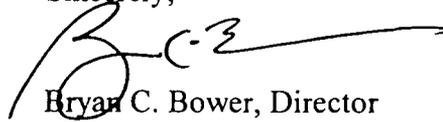
Regarding rock gradations and testing, construction specifications will be revised to incorporate specified rock gradation and gradation testing. Gradation will be specified per the local conditions based on the 30-year design life of the installation for the RCRA Interim Measure and modeled hydrologic response to ½ of the Probable Maximum Precipitation (PMP) (Reference 2).

Regarding NRC's suggestions for flood protection, the rock size that will be specified for the lower portion of the slope leading to Erdman Brook. The rock will be compatible with erosion protection requirements and assure prevention of undermining of the riprap covered slope. Based on review of the topography leading to Erdman Brook, there is limited space for a flat run-out before the water monitoring station. Rock size will be specified to minimize the potential for erosion (e.g., gullyng and head-cut concerns) over the 30-year design life of this RCRA Interim Measure. Toe protection will be provided by the placement of a sufficient quantity of launchable stone to stabilize erosion.

Upon completion of the NDA cap and slurry wall project, as-built design drawings and specifications will be issued and available for the evaluation and assessment for the future long-term performance and designs.

Should you have any questions, please contact Ms. Moira Maloney of my staff at (716) 942-4255.

Sincerely,



Bryan C. Bower, Director  
West Valley Demonstration Project

Enclosure: USACE Table, DOE WVDP Riprap Needs for NDA Floodway & Outfall to Erdman Brook

cc: P. Gardina, EPA, w/enc.  
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MPK:99737 - 439

## DOE WVDP Riprap Needs for NDA Floodway &amp; Outfall to Erdmann Brook

Quarry Samples	Lithology	Specific Gravity	Absorption %	Sodium Sulfate % [a]	L/A Abrasion (100 revs) % [b]	Schmidt Hammer [c]	Weathering [d]
Range from NUREG Table D-1:							
Upper Range for Fair to Good	Medium to Massive Bedding - Non-argillaceous	2.60 - 2.75	0.10 - 0.67	1.0 - 6.7	1.0 - 6.7	54 - 70	--
Frontier Quarry Ledgerrock (now LaFarge Lockport)	Shaly Dolomite to Shaly Argillaceous Dolomite	2.79 - 2.81	0.24 - 0.44	--	--	--	0.35 (80 cycles)
	Dolomite to Dolomitic Limestone	2.61 - 2.66	0.53 - 0.77	--	--	--	0.083 - 0.53 (80 cycles)
Niagara Stone	Dolomite	2.62 - 2.80	0.26 - 1.93	--	22.3	--	0.33 (80 cycles)
	Lockport Dolomite	2.64 - 2.72	1.07 - 1.51	--	--	--	0.024 (80 cycles)
Genstar Stone Products	Lockport Dolomite	2.67	0.846 - 1.16	--	--	--	0.099 - 0.322 (80 cycles)
Buffalo Crushed Stone	Onondaga Limestone (with Chert)	2.69 - 2.71	0.10 - 0.70	--	19.1	--	--
Buffalo Slag Company	Onondaga Limestone (with Chert)	2.64 - 2.70	0.034 - 0.21	--	18	--	0.0186 - 0.50 (80 cycles)

## NOTES:

a - Lockport Dolomite can emit sulfury odor when crushed and associated groundwater can exhibit sulfury odor from sulfate reducing bacteria; the presence of sodium sulfate is assured at unknown levels.

b - Only one test result was available for each quarry with most reporting insignificant to minor slaking; all samples were found acceptable for streambank armor stone applications.

c - These local rock formations are highly resistant to impact at Schmidt Hammer scales, especially since several members are thick bedded and crystalline rock.

d - Test is similar to L/A Abrasion; all samples were found acceptable for streambank armor stone applications and likely this interim remedy.