UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

APR 19 1994

Project M-32

Mr. Thomas Rowland, Director
U.S. Department of Energy
Idaho Operations Office
West Valley Demonstration Project
P.O. Box 191
West Valley, New York 14171

Dear Mr. Rowland:

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION MONITORING VISIT ON SEPTEMBER 20-24, 1993

On September 20-24, 1993, a monitoring visit was made to the Department of Energy (DOE) West Valley Demonstration Project site to review the activities of the DOE contractor, West Valley Nuclear Services Company, Inc. (a Westinghouse subsidiary). The activities reviewed include the status of the contractor's radiological and non-radiological chemistry, radiological effluents, and radiological environmental monitoring programs. In addition, the contractor's organizational structure was examined to determine the effects of an August 25, 1993 reorganization. Details of these reviews are provided in Enclosure 1. Individuals present at the Exit Interview with the contractor and DOE are indicated in Enclosure 2.

As a result of this review, the Monitors determined that, in general, the contractor has established viable programs in these areas, which appear adequate to protect the public health and safety. However, as indicated in the enclosed report, the Monitors identified several program areas requiring improvement. These include: (1) inadequate reporting and independence of the Quality Assurance function as a result of a contractor management reorganization; (2) inability of the contractor to analyze particulate and charcoal cartridges during an emergency; (3) inadequate Quality Assurance program for gamma spectroscopy systems used in the Analytical laboratory; (4) inadequate calibration of instrumentation for the analysis of some non-radiological substances; and (5) disparities between the annual Radiological Environmental Monitoring Report and the source term used to characterize the wastes in tank 8D-2, 8D-1, and 8D-4.

The inspection team consisted of Joseph Furia, Team Leader; Jerome Roth, Assistant Team Leader; Harvey Zibulsky, Non-Radiological Chemistry; Nancy McNamara, Radiological Chemistry; and Dr. Jason Jang, Radiological Environmental Monitoring.

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If you have any questions about this report, call me at (301) 504-2667.

Sincerely,

Original Signed By

Gary C. Comfort, Jr.
Licensing Section 2
Licensing Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

Enclosures: As stated

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Review of the West Valley Radiological and Non-Radiological Chemistry, Radiological Effluents, and Radiological Environmental Monitoring Programs

The Monitors reviewed documentation, held discussions with cognizant DOE and contractor personnel, and observed activities in progress. The determinations of the Monitors are discussed below.

1.0 QUALITY ASSURANCE MANAGEMENT ORGANIZATION

By letter dated August 25, 1993, the contractor announced a change in organizational structure to support the transition from vitrification design and construction to vitrification operations. The Monitoring Team (MT) examined this reorganization and determined that the former Manager - quality assurance, who reported directly to the contractor's President, was reassigned to a new position and the Quality Assurance function was assigned to the Vice President and Manager - Environmental, Safety, Health and Quality Assurance. In addition, the original quality assurance organization was segmented into the separate areas of Quality Assurance and Quality Services and Project Appraisals, each reporting to the Vice President - Environmental, Safety, Health and Quality Assurance. This individual is also responsible for line functions (i.e., Environmental Compliance, Health and Safety, etc.) which must be independently audited by the QA function. Thus, he would be auditing himself.

Paragraph 1, "Organization," of NQA1-1986, which the contractor has committed to follow, states, in part, that "... persons or organizations responsible for assuring that an appropriate quality assurance (QA) program has been established and verifying that activities affecting quality have been correctly performed shall have organizational freedom to identify quality problems." Section 3.4.2 of the West Valley Nuclear Services (WVNS) Quality manual, procedure number QM-1, "President and General Manager", states, in part, that the Quality Assurance department reports to the President and General Manager.

The following observations were made on the basis of the revised organizational structure:

(1) The Manager of Quality Assurance does not report to the President, WVNS, as required.

(2) The QA function is no longer independent of the line organization in the areas of site health and safety, analytical chemistry, laboratory, and environmental functions.

(3) The original QA assurance function has been segmented into separate Quality Assurance, Quality Services, and Project Appraisals, each reporting to the Vice President and Manager - Environmental, Safety, Health and Quality Assurance.

Considering the observations, the MT recommends that the independence of the site quality assurance functions be re-established.

2.0 NONRADIOLOGICAL CHEMISTRY EVALUATION

2.1 Procedures Reviewed

- ACP 8.2, Rev.5 - Statistical Practices
- WVNS-TRQ-055, Rev.0 - Test Request For the Characterization of Tank 8D-4 Material
- WVNS-TP-055, Rev.0 - Test Procedure - Characterization Of Tank 8D-4 Material
- ACM-2901, Rev.5 - Uranium By Fluorometry
- ACM-2701, Rev.8 - Plutonium Separation By Solvent Extraction
- ACM-2704, Rev.2 - Plutonium Analysis By Isotope Dilution Alpha Spectrometry
- ACM-1002, Rev.3 - ICP-AES Operation

Also reviewed was a WVNS audit, conducted February 19-20, 1992, of the contractor laboratory that performs the uranium and plutonium isotopic analyses. Discrepancies found were documented and were corrected by the laboratory. The laboratory was then found acceptable to perform the required analyses.

2.2 Measurement Control Program

The measurement program reviewed reflected practices by the staff of Analytical and Process Chemistry.

The inductively coupled plasma (ICP) emission source, which is used to analyze for cations, was evaluated by the MT. The ion chromatograph (IC), which is used to analyze for anions, was not evaluated at this time.

Calibration of the ICP was performed with a reference standard and was verified by an independent control standard. A two point calibration was performed that was not able to identify nonlinearity in the calibration curve. This was evident in the comparison of the results of the WV laboratory with the NRC standards (Table I). Control charts were generated, but not plotted, and were reviewed for out-of-control conditions, trends, and systematic biases. The Monitors recommend that the contractor use more calibration points at the low end and high end of the curve to identify the nonlinearity of the curve and to plot the control chart rather than list the results. This would enable the analyst to see, at a glance, if a trend is developing, a systematic bias exists, or if an out-of-control condition has developed.

Table I

Element	NRC Result	WV Result	Statistical Difference
Silicon	12.17 ± 0.13	8.54 ± 0.68	Significant
	14.24 ± 0.37	13.24 ± 0.37	Insignificant
	30.07 ± 0.50	29.24 ± 1.23	Insignificant
Iron	39.80 ± 0.40	40.72 ± 0.17	Insignificant
	19.90 ± 0.20	19.78 ± 0.40	No Bias
	79.50 ± 0.70	79.60 ± 0.28	No Bias
Nickel	40.00 ± 0.40	40.18 ± 0.89	No Bias
	19.90 ± 0.20	18.94 ± 0.18	Significant
	80.00 ± 0.80	76.92 ± 0.38	Significant
Chromium	40.20 ± 0.40	40.23 ± 0.86	No Bias
	20.00 ± 0.20	18.96 ± 0.15	Significant
	80.40 ± 0.70	78.00 ± 0.04	Significant
Copper	40.30 ± 0.40	40.15 ± 0.77	No Bias
	20.20 ± 0.20	19.28 ± 0.09	Significant
	81.00 ± 1.00	78.09 ± 0.66	Significant
Sodium	5.32 ± 0.18	5.41 ± 0.02	Insignificant
	10.20 ± 0.30	10.76 ± 0.08	Insignificant
	15.50 ± 0.40	15.92 ± 0.12	Insignificant
Lithium	4.93 ± 0.07	5.29 ± 0.08	Significant
	12.40 ± 0.20	13.21 ± 0.02	Significant
	24.30 ± 0.30	24.94 ± 0.25	Insignificant
Boron	1049 ± 11	1158 ± 35	Significant
	1049 ± 11	1069 ± 21	Insignificant
	1049 ± 11	1069 ± 80	Insignificant

2.3 Analysis of NRC Standards

Standard chemical solutions were provided to the WVNS laboratory personnel for analysis. The standard solutions were prepared by the Oak Ridge National Laboratory for the NRC. The standards were analyzed using routine methods and equipment. WVNS personnel used an inductively coupled plasma instrument to make the analysis. The Monitors used the analysis of the standards to verify the contractor's capability to monitor chemical parameters in the various plant systems and to evaluate the contractor's analytical procedures with respect to accuracy and precision.

The cations analyzed by the contractor were those controlled and monitored in the THOREX process waste.

The results of the analyzed standards demonstrated that the analytical procedures were adequate, although a weakness was found in the use of two-point calibration. The contractor was not able to identify nonlinearity at the low and high ends of the calibration curves. This was demonstrated in the analyses of nickel, chromium and copper. The mid-point on the calibration curve was statistically acceptable but the low and high points were biased low. For the analysis of silicon, the low calibration point was statistically biased low and for lithium, the lower part of the calibration curve was statistically biased high.

Using more calibration points at the low and high parameters of the curve would identify the nonlinearity and would help eliminate biased results.

3.0 RADIOLOGICAL EFFLUENTS AND ENVIRONMENTAL MONITORING

3.1 Review of Annual Reports

The Monitors reviewed the 1992 West Valley Demonstration Project Site Environmental Report. This annual report was submitted by WVNS and included: (1) site history; (2) environmental monitoring program information; (3) radiological environmental monitoring results for all media, such as air and water; (4) meteorological monitoring results; (5) direct radiation monitoring results (using thermoluminescent dosimeters (TLDs)); (6) radiological dose assessment results to the public; (7) non-radiological monitoring results; (8) quality assurance program; and (9) requirements and compliances.

During review of the 1992 annual report, the Monitors determined that the annual report was overall very good. However, the following observations and recommendations for the clarification of its contents were made.

3.1.1 Observation/Recommendation: Addition of the Minimum Detection Level

If the uncertainty was greater than the value itself [e.g., (4.33±6.51)E-5 μCi/cc], the result was below the minimum detection level (MDL). The reporting value for this case was listed as <6.51E-5 μCi/cc in the annual report. The Monitors noted that even though quarterly analytical results were MDLs, WVNS added all MDLs to calculate the total amount of annual release from the site.

In discussions with WVNS about the addition of MDLs to calculate the annual release, the Monitors were told that the value of MDL varies depending upon the sample size, counting time, counter efficiency, and background counts. That is, a very low MDL can be obtained for a sample if the above conditions are optimum. Therefore, the addition of MDLs did not reflect the actual amount of release from the site. WVNS did not agree with the Monitors, but agreed that justification of the current technique used for the reporting of MDLs should be published in the main text of the annual report, perhaps in the "Data Reporting" section.

3.1.2 Observation/Recommendation: Reporting Uranium-232

Table C-1.1 of the annual report listed that U-232 was released from Lagoon 3 to the environment. The total amount of U-232 released through this pathway was (3.40±0.29)E-4 curies in 1992. The vendor laboratory (Teledyne Isotopes, Inc.) analyzed U-232 for WVNS. The Monitors, therefore, reviewed Teledyne Isotopes' procedure and determined that it appeared to be technically sound (chemical separation of uranium using an ion exchange column and quantification of uranium using alpha spectrometry). U-232 was being used as a tracer to determine the chemical yield to quantify other uranium isotopes, such as U-233/234, U-235, U-236, and U-238. The Monitors noted that U-232 was not listed in the source term data (expected amount of radioactivity to be processed) but is listed in the annual report. WVNS had recognized this problem and stated that the positive result of U-232 in liquid effluent samples could have resulted from using U-232 as a tracer. Further investigation will be performed.

3.1.3 Observation/Recommendation: Reporting of Iodine-129

The Monitors noted that the total amounts of I-129 released during 1992 through water and airborne pathways were 1.74E-4 and 7.5E-6 curies, respectively, as a result of supernatant processing. A large amount of supernatant was processed during 1992 using zeolite, which has high cation/anion exchange capacity, to remove Cs-137.

A comparison of annual reports from 1984 (pre-operation) to 1992 (operation) was made, and I-129 was found to be released through water and airborne pathways since 1984. For example, during 1984, 1.06E-3 and 9.35E-5 curies of I-129 were released through Lagoon 3 and the main vent stack, respectively. The Monitors stated that the source term data and the expected amount of I-129 radioactivity to be processed using the vitrification system should be re-evaluated to validate the source term and the release pathways during normal and emergency operations.

3.2 Procedure Review

Selected procedures were reviewed as part of the assessment for the Environmental Laboratory (E-Lab). A subcontractor (Dames and Moore) was responsibile for operation of the E-Lab for WVNS. The Monitors also interviewed the E-Lab staff in the areas of statistics, measurement techniques, and philosophy of the environmental monitoring program.

The following E-Lab procedures were reviewed:

- EM-8 Calibration Procedure for Air Flow Rate Rotameters and Totallizer Gas Meters
- EM-7 Thermoluminescent Dosimeter (TLD)
- EM-15 Purifying Sr-90 and Other Beta-Emitting Nuclides
- EM-51 Routine Collection of Ambient Air Samples

The Monitors noted that the above procedures were detailed and well written to allow performance of all necessary steps. It was noted that procedure EM-15 could not be used to determine Sr-90 activity because the daughter isotope (Y-90) was not measured. The procedure was adequate for other beta emitting radionuclides; however, this procedure was not being used for Sr-90 analyses, because all Sr-90 environmental samples were sent to a subcontractor, Teledyne Isotopes.

The Monitors also reviewed TLD intercomparison results. The E-Lab participated in the 10th International Environmental Dosimeter Intercomparison Project in 1992/1993. The expected values and random uncertainty (2 sigma) for the Field, Low Gamma, and High Gamma were 237±14, 227±11, and 637±17 microGrays (μGy), respectively. The E-Lab's measurement results for the Field, Low Gamma, and High Gamma were 259, 227, and 561 μGys, respectively. The Monitors stated that the comparison results for the intercomparison study were in good agreement.

During interviews with the E-Lab staff, the Monitors noted that the staff had very good knowledge in the areas of (1) importance of QA/QC; (2) protection of the public health and the environment; (3) limitation of the I-129 analysis with the current gamma spectrometry; and (4) TLD program.

3.3 Radiological Dose Assessment

During this visit, the Monitors reviewed the WVNS's radiological dose assessment capability through discussions with the contractors and by reviewing their computer codes, CAP88-PC for the airborne pathway and LADTAP II for the waterborne pathway.

The CAP88-PC code was developed by the U.S. Environmental Protection Agency for the U.S. Department of Energy and the "User's Guide for CAP88-PC" was published in March 1992. CAP88-PC is composed of modified versions of AIRDOSE-EPA and DATATAB. The CAP88-PC code was designed to calculate the effective dose equivalent (both organ dose equivalent and pathway effective dose equivalent) to the maximally exposed individual and also the total population dose due to radionuclides in radioactive airborne effluent releases from a fuel facility. The contractor compared assessment results between the AIRDOSE-EPA and CAP88-PC prior to implementing CAP88-PC in 1989. The comparison results were good, as expected. The LADTAP II code is used to calculate effective dose equivalent to the maximally exposed individual and also the total population dose due to radionuclides in radioactive waterborne effluent releases from the site.

During discussions with WVNS, the Monitors noted that the subcontractor, Dames & Moore, had an excellent knowledge in the areas of (1) dispersion models; (2) effective dose equivalent and organ dose; (3) dose factors; (4) strengths and weaknesses of AIRDOSE-EPA and CAP88-PC; (5) strengths and weakness of LADTAP; and (6) site-specific parameters, such as dilution factors and meteorological parameters.

Based on the above discussions, the Monitors determined that WVNS had an excellent radiological dose assessment capability.

3.4 Radiation Monitoring Systems: Main Stack and Permanent Vent System

The Monitors reviewed the most recent calibration results for the main stack and the permanent vent radiation monitoring systems. The main stack radiation monitoring systems are equipped with the Eberline Model ALPHA-5A, Alpha Air Monitor and the Eberline Model AMS-3A, Beta Air Monitor, known as continuous air monitors (CAMs). However, these monitoring systems are not designed to monitor for instantaneous release readings. The permanent vent radiation monitoring systems are equipped with the Nuclear Research Corporation Alpha and Beta Monitoring systems.

During the reviews of calibration results, the Monitors noted that weaknesses were identified in the areas of (1) conversion factor (μCi/counts per minute) and utilization of the conversion factor; (2) calculation of the conversion factor using a statistical method; and (3) saturation phenomenon of detectors used. Monitoring efficiency calculation results for a beta detector (beta-scintillation) of the permanent vent system radiation monitor are listed in Table II.

As illustrated by Table II, the beta detector efficiencies fluctuated. A discussion of calibration techniques took place with the responsible individuals, using this table as an example. The Monitors stated that the fluctuation of efficiencies appeared to be due to calibration source activities rather than the monitoring system. As shown in Table II, the highest activity source (11.9649 μCi) responded with the lowest efficiency (43.30%), indicating that the detector was saturated. The Monitors concluded that the selection of the right sources and activities is a very crucial step to avoid the aforementioned problems. The Monitors also demonstrated use of a statistical analysis, using the linear regression method, to obtain the best conversion factor for the expected monitoring range.

Table II

Efficiency Calculations for Beta Check Sources

April 21, 1993

Source	Activity	Counts/minute	Efficiency
Sr/Y-90	8.79E-6 μCi	1,060	54.32 %
Sr/Y-90	8.99E-2 μCi	114,000	57.13 %
Sr/Y-90	11.9649 μCi	11,500,000	43.30 %

4.0 CONFIRMATORY MEASUREMENTS

A review was conducted of the analytical and environmental laboratories for the purpose of assessing WVNS's capability to measure the radioactivity of in-plant and environmental samples. This review was conducted, in part, using the NRC Region I Mobile Radiological Measurements Laboratory for the analysis of various effluent, process, and environmental samples which were split with WVNS for the purpose of intercomparison. Joint analyses of actual samples were used to verify WVNS's capability to measure the radioactivity of effluent and other samples. The review was also conducted through interviews with laboratory personnel; review of records, reports, and procedures; and observations of laboratory operations and sampling techniques.

The results of the comparisons for all the sample results that were available are presented in Table III and indicate that all of the measurements were in agreement under the criteria for comparing results.

4.1 Organization

The Analytical & Environmental Laboratory (A&EL) Manager has complete oversight of both the Environmental Laboratory and the Analytical Laboratory (AL) as well as other areas. Both the Environmental Laboratory (EL) Manager and the Analytical Laboratory Manager reports to the A&EL Manager. The A&EL QA Coordinator reports directly to the A&EL Manager and performs QA reviews of the Analytical Laboratory. Beginning January 1994, the QA Coordinator will also have QA oversight of the Environmental Laboratory.

4.2 Environmental Laboratory

Various routine on-site and off-site water and soil samples were split and analyzed by the E-Lab and the NRC. Most of the results were less than MDL and, therefore, an intercomparison of the sample results could not be made. For one on-site soil sample with measurable activity, the intercomparison results were in agreement, as shown in Table III.

The E-Lab was equipped with state-of-the-art instrumentation for performing radiochemical analyses and has just recently been expanded. The laboratory was adequately staffed with qualified personnel and received excellent oversight by the EL Manager.

The Monitors accompanied laboratory technicians taking environmental samples and determined that the E-Lab personnel conduct an extensive routine environmental sampling program in accordance with established procedures.

Table III

WVDP Radiochemistry Test Results

SAMPLE	ISOTOPE	NRC VALUE	WVNS VALUE	COMPARISON
		Results in Microcuries per gram		
Environmental Lab SFPR-Soil 09/23/93 1430 hrs (Detector #2)	Cs-137	(2.45±0.04)E-6	(2.86±0.07)E-6	Agreement
		Results in Microcuries per Milliliter		
Analytical Lab S-004 #89 09/22/93 1300 hrs (Detector #3) (250 ml btl)	Cs-137	(2.187±0.012)E2	(2.640±0.005)E2	Agreement
S-001 #117 09/22/93 1300 hrs (Detector #2) (20 cc vial)	Cs-137	(4.001±0.018)E2	(4.330±0.010)E2	Agreement
S-001 #117 (Detector #3) (100 ml btl)	Cs-137	(4.001±0.018)E2	(4.28±0.02)E2	Agreement
S-002 #94 Post 2nd Column 09/22/93 1300 hrs (Detector #2) (20 cc vial)	CS-137	(2.292±0.007)E1	(2.550±0.005)E1	Agreement
S-008 #114 Post Last Column 09/22/93 1300 hrs (Detector #3) (20 cc vial)	Cs-137	(8.51±0.03)E-2	(8.90±0.04)E-2	Agreement

Criteria for Comparing Analytical Measurements in Table III

The criteria are based on an empirical relationship which combines prior experience and the accuracy needs of the program. The judgement limits are variable in relation to the comparison of the NRC Reference Laboratory's value to its associated uncertainty. As the ratio ("Resolution") increases, the acceptability of a licensee's measurement should be more selective. Conversely, poorer agreement must be considered acceptable as the resolution decreases.

Resolution[1]	Ratio for Comparison[2]
<4	No Comparison
4 - 7	0.5 - 2.0
8 - 15	0.6 - 1.66
16 - 50	0.75 - 1.33
51 - 200	0.80 - 1.25
>200	0.85 - 1.18

[1] Resolution = NRC Reference Value/Reference Value Uncertainty

[2] Ratio = Licensee Value/NRC Reference Value

The Monitors reviewed Procedure EM-101, "Quality Assurance for the Environmental Laboratory and Safety and Environmental Assessment." The QA/QC procedures provided for the control of analytical performance through various mechanisms. The intra-laboratory program consisted of the use of instrument and procedure control charts. The routine review of the control charts was thorough and well documented. The interlaboratory program consisted of participation in the DOE and EPA cross-check programs in which spiked unknown samples were sent to the E-Lab for preparation and analyses. Samples from the same program were also sent to WVNS's off-site contract laboratory which performed the site-effluent radioactivity analyses.

The Monitors reviewed all cross-check data for the first two quarters in 1993. The Monitors stated that participation in these programs was a noted positive attribute to validate analytical results. Based upon this data review, the Monitors determined that the E-Lab was implementing an effective laboratory QC program.

4.3 Analytical Laboratory

Various processed effluent samples were split and analyzed by WVNS and the NRC. Where possible, the samples were actual process samples that duplicated the counting geometries used by WVNS for process sample analyses. Gamma spectroscopy and gross alpha/beta analyses were performed on liquids only. Laboratory personnel were well-trained and procedures were followed.

The Monitors reviewed the count room QA/QC program for the gamma and alpha/beta counters. The intra-laboratory program for the gamma spectrometer systems consists of the use of control charts and, on occasion, the Analytical Laboratory has blind samples submitted to technicians through plant operations. Voltage plateaus and control charts are maintained for the gross alpha/beta counters. The Monitors found the intra-laboratory program to be minimally maintained and the control charts for gamma spectroscopy to be inadequate for assessing instrument performance and providing data credibility, as described below.

Control charts were maintained to trend energy shifts for gamma spectroscopy, full width at half maximum (FWHM), at 1408 keV and background checks. The control charts were established using control limits of plus and minus 10 percent. The Monitors discussed with the QA Coordinator the use of statistically based control charts, that is, control charts with warning limits of plus and minus two sigma, and control limits of plus and minus three sigma. The Monitors discussed the different methods of control chart construction and pointed out that the 10 percent limits applied to the gamma spectroscopy system control charts may not indicate whether the instruments are in a state of statistical control. Also, in reviewing the laboratory data, the Monitors noted that the daily standards were not plotted on control charts. The QA Coordinator was told that these control charts would lend additional credibility and validity to the results obtained from the instruments. It was noted that the Analytical Laboratory did not participate in any type of gamma spectroscopy inter-laboratory cross-check program. The QA Coordinator agreed to review various types of inter-laboratory programs for possible incorporation into the Analytical Laboratory QC program.

The QA Coordinator routinely reviews the count room quality control program and data. The Monitors discussed with the QA Coordinator the expansion or refocusing of these reviews for the purpose of determining and maintaining the credibility of the laboratory results.

In discussions with the individual responsible for the Analytical Count Room, the Monitors determined that automated quality control software was a part of a recently purchased spectrometry software package. However, this system was not scheduled to be in full use until January 1994. A discussion was held with the A&EL Manager concerning the augmentation of some type of quality control/assurance program until the new software system is fully implemented.

Although the QA/QC program needs to be improved, the Monitors determined through the analytical comparisons performed while onsite, that the Analytical Laboratory is fully capable of accurately measuring radioactivity in samples.

Finally, while the Monitors were reviewing both the Analytical Lab and the E-Lab, there was a concern regarding the analytical capability for measuring radioiodine and radioactive particulates in the event of a release of radioactivity through the plant stacks. Even though the E-Lab is responsible for sampling the plant stacks, the particulate filters and charcoal cartridges are sent to the contract laboratory for analyses. The Monitors determined that neither on-site laboratory was properly calibrated for a particulate filter and charcoal cartridge counting geometries on the gamma spectrometer systems. However, both laboratories have the instrumentation to perform the analyses of particulate and charcoal samples. A discussion was held with the A&EL Manager concerning the need for the E-Lab and the Analytical Laboratory to develop the capability for analyzing charcoal cartridges and particulate filters should such analyses be required during a radiological release. The A&EL Manager agreed to review this matter.

Exit Interview Participants

1. Department of Energy

   D. Cook, Project Manager, Site Projects - Phase II Engineering
   J. Desormeau, Laboratory Counterpart
   C. Eckert, Acting Environmental, Safety, Health and Quality Assurance Manager
   W. Hamel, Integrated Radwaste Treatment System/Plant Operations Manager
   W. Hunt, Vitrification Construction Manager
   B. Mazurowski, Deputy Director
   T. Rowland, Director
   J. Yeazel, Operations, Maintenance and Construction Manager

2. New York State Energy Research and Development Administration

   P. Piciulo, Program Director

3. West Valley Nuclear Services, Inc

   J. Cwynar, Project Appraisals
   J. Gerber, Project Appraisals Manager
   D. Harward, Radiation and Safety Manager
   J. Hummel, Quality Assurance Manager
   R. Humphrey, Manager - Construction and Project Administration
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   J. Mahoney, Analytical Chemistry Manager
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4. Dames & Moore

   S. Conklin, Environmental Laboratory
   W. Kean, Environmental Laboratory
   L. Roberts, Manager - Safety and Environmental Assessment
   D. Scalise, Environmental Laboratory

Enclosure 2