U.S. DEPARTMENT OF ENERGY
BROOKHAVEN NATIONAL LABORATORY
CERCLIS Number NY7890008975

OPERABLE UNIT III
EXPLANATION OF SIGNIFICANT DIFFERENCES

February 8, 2005

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Explanation of Significant Differences
Brookhaven National Laboratory Site
Upton, New York

Introduction to the Site and Statement of Purpose

The groundwater cleanup decisions at the Brookhaven National Laboratory (BNL) Superfund site, located in Upton, Suffolk County, New York, are documented in the Operable Unit III (OU III) Record of Decision (ROD) approved by the U. S. Department of Energy (DOE) and the U. S. Environmental Protection Agency (EPA) with the concurrence of the New York State Department of Environmental Conservation (NYSDEC). The OU III ROD was approved in June, 2000 and placed in the Administrative Record.

The OU III ROD establishes the cleanup decisions for several groundwater contamination plumes at Brookhaven. However, as described in the ROD and summarized below, there were two areas in which additional characterization and investigation were required in order to determine the required remedial actions and one area where a pilot study was required before the implementation of the remedy:

Magothy Aquifer Contamination

When the OU III ROD was approved, limited characterization of the extent of the contamination in the Magothy Aquifer had been performed. High concentrations of volatile organic compounds (VOCs) were identified in the Industrial Park and south of Carleton Drive; the lateral and vertical extent of contamination was not delineated. However, delaying the ROD until further Magothy characterization was performed would also delay the start of other OU III cleanups. Therefore, the OU III ROD directed that Magothy characterization and monitoring should continue, and if necessary, a remedy developed.

Specifically, the ROD states: "At present, limited characterization has been performed in the Magothy, so additional characterization and installation of groundwater monitoring wells are planned. This work will be done during the design of the remedy, and will be included in the site records. When this characterization and monitoring is completed, the need for a remedy for the Magothy Aquifer will be evaluated by DOE, EPA, and NYSDEC. If a remedy for the Magothy Aquifer is necessary, either this Record of Decision will be modified or another decision document will establish the selected action. In either case, the public will have an opportunity to review and comment in accordance with CERCLA". Thus, the OU III ROD did not identify a remedy for the Magothy Aquifer.

Strontium-90 Groundwater Contamination

There are two strontium-90 (Sr-90) groundwater contamination plumes associated with OU III, on the BNL site: A plume downgradient of the former "Chemical Holes" disposal site, which is the source of the contamination, and a plume located in the middle of the BNL site. This plume is the result of historical leakage from the Brookhaven Graphite Research Reactor (BGRR) and the Waste Concentration Facility (WCF). The 1999 OU III Remedial Investigation and Feasibility Study (RI/FS) considered several remedial alternatives to address this contamination. "Pump and treat" using ion exchange technology was the remedy selected in the OU III ROD.

Notwithstanding the RI/FS conclusions, it was recognized that there were several technical uncertainties associated with extracting Sr-90 contamination from groundwater and the subsequent use of ion exchange technology to treat contaminated groundwater. These uncertainties are reflected in the ROD's mandate for a pilot study as a prerequisite to the final remedial design, and the recognition that the final remedy may be modified based on the results of this pilot study.

Specifically, the ROD states: "The selected remedy, alternative S5a, involves installing extraction wells and using ion exchange to remove Sr-90 from the extracted water and on-site discharge of the clean water. Details of the specific number of treatment systems and locations needed to meet the cleanup objectives will be determined during the design process. Before implementation of the remedy, a pilot treatability study will be performed to evaluate the effectiveness of extraction and treatment. The final remedy may potentially be modified based on the results of this study. Residuals that contain Sr-90 will be disposed of off-site".

Building 96 Geophysical Anomalies

Historically, the area south of Building 96 was used as a scrap yard and for 55-gallon drum storage. Because this area was a potential source of VOC contamination, soil and groundwater samples were obtained, and subsurface geophysical investigations were performed during 1999 that included ground-penetrating radar, magnetometer, and metal detector surveys. Several geophysical anomalies were identified. No conclusive evidence of underground storage tanks, buried drums, or sanitary systems were reported from the surveys. Based on these results, exploratory excavation to investigate the anomalies was recommended, and if contamination was found, conduct the required cleanup of the area.

The OU III ROD requires resolution of this potential soil contamination site: "The final remedy for potential source areas in Area of Concern (AOC) 26-B (Building 96), such as the anomalies discovered during the geophysical survey, will be documented in a subsequent ROD". The OU III ROD is otherwise silent

as to any cleanup requirements associated with the Building 96 geophysical anomalies.

As already described, the OU III ROD recognizes that the resolution of key uncertainties is a prerequisite to determining certain required remedial actions. The ROD mandates actions such as characterization, supplemental investigation, and a pilot study all directed towards resolution of these uncertainties. The ROD also anticipates additions and changes to remedial actions based on new and more complete data and information.

The purpose of this Explanation of Significant Differences (ESD) is to respond to these OU III requirements. This ESD summarizes the resolution to the remaining OU III uncertainties pursuant to the ROD. The ESD in turn documents resulting additions and changes to the OU III remedial actions as contemplated by the ROD.

Under the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA), there are several methods for making changes to approved cleanup decisions. The DOE, EPA and NYSDEC have evaluated the changes described later in this ESD in accordance with Section 117 (c) of CERCLA and Section 300.435 (c)(2)(i) of the *National Oil and Hazardous Substances Pollution Contingency Plan* (NCP) and EPA guidance (EPA 540-R-98-031) on post-ROD changes and have concluded that an ESD is the appropriate procedural pathway. The DOE has included a voluntary 30-day period of public review prior to submission of the ESD for NYSDEC concurrence and EPA approval.

This ESD and other relevant documents will become part of the Administrative Record file for the BNL site. The entire Administrative Record for BNL includes, among other things, the ROD and other relevant documents. These documents are available for review at the following locations:

Mastics-Moriches-Shirley Community Library
407 William Floyd Parkway
Shirley, NY 11967
Phone: (631) 399-1511

Brookhaven National Laboratory Research Library
Technical Information Division
Building 477A
Upton, NY 11973
Phone: (631) 344-3483

U. S. EPA – Region II Administrative Records Room
290 Broadway, 18th floor
New York, NY 10007
Phone: (21) 637-4308

SUMMARY OF SITE HISTORY, CONTAMINATION PROBLEMS, AND SELECTED REMEDY

BNL is a federal research facility owned by DOE. The 5,300-acre site is located in Upton, Suffolk County, New York, about 60 miles east of New York City. The EPA-designated sole source aquifer beneath BNL has three water-bearing units: the Upper Glacial, the Magothy, and the Lloyd Aquifers. These units serve as the primary source of drinking water for Nassau and Suffolk Counties.

In 1989, the BNL site was included on EPA's National Priorities List because of soil and groundwater contamination that resulted from past operations. The DOE, EPA, and NYSDEC then entered into a Federal Facilities Agreement that became effective in May 1992 that set the framework for the cleanup activities. The lead agency for remedial action at BNL is DOE. In addition, the Suffolk County Department of Health Services (SCDHS), while not a signatory to the IAG, has historically been and continues to be involved with cleanup work at BNL. To effectively manage remediation of the BNL site, 30 Areas of Concern (AOCs) were identified and divided into discrete groups called Operable Units (OUs). The BNL site is divided into six OUs. OU III was developed to address groundwater contamination in the central and southern portion of the site and in the off-site areas where groundwater contamination has migrated.

The 1999 RI/FS for OU III identified groundwater contaminated with VOCs on BNL property and outside BNL property, and tritium and Sr-90 in groundwater on BNL property. The cleanup objectives included in the OU III ROD to address this contamination are:

- Meet the drinking water standards in groundwater for VOCs, Sr-90, and tritium
- Achieve the goal of completing the cleanup of the Upper Glacial Aquifer in 30 years or less, and
- Prevent or minimize further migration of VOCs, Sr-90, and tritium in groundwater.

Active treatment using various treatment technologies and continued monitoring were selected to meet these cleanup objectives.

As described previously, there were two areas for which the ROD mandated additional characterization and investigation before proceeding with a remedy and one area where a pilot study was required before the implementation of the remedy:

Magothy Aquifer Contamination

When the OU III ROD was approved, limited characterization of the extent of the contamination in the Magothy Aquifer had been performed. High concentrations of VOCs were identified in the Industrial Park and south of Carleton Drive; the lateral and vertical extent of contamination was not delineated. However,

delaying the ROD until further Magothy characterization was performed would also delay the start of other OU III cleanups. Therefore, the OU III ROD stated that, when the characterization and monitoring were complete, the need for a Magothy remedy would be evaluated by DOE, EPA, and NYSDEC. The ROD went on to state that if a remedy for the Magothy Aquifer was necessary, either the ROD would be modified or another decision document would establish the selected action. In either case, the public would have an opportunity to review and comment in accordance with CERCLA.

Strontium-90 Groundwater Contamination

There are two Sr-90 groundwater contamination plumes associated with OU III, on the BNL site: A plume downgradient of the former "Chemical Holes" disposal site, which is the source of contamination, and a plume located in the middle of the BNL site. This second plume is the result of historical leakage from the BGRR and WCF. The RI/FS considered several remedial alternatives to address this contamination. "Pump and treat" using ion exchange technology was the remedy selected in the OU III ROD.

Notwithstanding the RI/FS conclusions, it was recognized that there were several technical uncertainties associated with extracting Sr-90 contamination from groundwater and the subsequent use of ion exchange technology to treat contaminated groundwater. These uncertainties are reflected in the ROD's mandate for a pilot study as a prerequisite to the final remedial design, and the recognition that the final remedy may be modified based on the results of this pilot study.

Specifically, the ROD states: "The selected remedy, alternative S5a, involves installing extraction wells and using ion exchange to remove Sr-90 from the extracted water and on-site discharge of the clean water. Details of the specific number of treatment systems and locations needed to meet the cleanup objectives will be determined during the design process. Before implementation of the remedy, a pilot treatability study will be performed to evaluate the effectiveness of extraction and treatment. The final remedy may potentially be modified based on the results of this study. Residuals that contain Sr-90 will be disposed of off-site".

Building 96 Geophysical Anomalies

Historically, the area south of Building 96 was used as a scrap yard and for 55-gallon drum storage. Because this area was a potential source of VOC contamination, soil and groundwater samples were obtained, and subsurface geophysical investigations were performed during 1999 that included ground-penetrating radar, magnetometer, and metal detector surveys. Several geophysical anomalies were identified. However, no conclusive evidence of underground storage tanks, buried drums, or sanitary systems was reported from the surveys. Based on these results, exploratory excavation to investigate the anomalies was recommended, and if contamination was found, conduct the required cleanup of the area.

The OU III ROD requires resolution of this potential soil contamination site: "The final remedy for potential source areas in AOC 26-B (Building 96), such as the anomalies discovered during the geophysical survey, will be documented in a subsequent ROD". The OU III ROD is otherwise silent as to any cleanup requirements associated with the Building 96 geophysical anomalies.

BASIS FOR THE DOCUMENT

The DOE has completed the additional characterization of the Magothy Aquifer, the investigation of the Building 96 geophysical anomalies, and the Sr-90 pilot study mandated by the OU III ROD. Several technical reports providing the detailed results and findings have been provided to the EPA, NYSDEC and SCDHS for review and comment. These reports have been finalized and are now in the Administrative Record. These results and findings have also been reviewed with the community and are summarized below:

Magothy Aquifer Contamination

The supplemental characterization of the Magothy Aquifer indicated that VOC contamination has infiltrated from the Upper Glacial Aquifer in certain locations.

Between April 2000 and August 2002, twenty-two vertical profiles and thirteen monitoring wells were installed and used to sample into the Magothy Aquifer. The results of these supplemental sampling and analysis events are illustrated in the attached Magothy Aquifer plume map (Figure 1) and summarized in Table 1. This information, along with pre-existing data (including fifteen monitoring wells), helped delineate both the horizontal and vertical extent of Magothy contamination.

Most of the areas investigated correspond to locations where the Magothy brown clay is absent (or a hole exists in the clay layer) thereby providing the mechanism for migration from the Upper Glacial Aquifer downward into the uppermost horizon of the Magothy Aquifer. The impacted groundwater in the overlying Upper Glacial Aquifer is considered to be the source of the Magothy contamination. Fate and transport modeling was also

performed to project the estimated extent and duration of VOC impacts to the aquifer over time.
Further details of the investigation results are presented in the final Magothy Characterization Report (May 2003). The final report was provided to the EPA, NYSDEC and SCDHS. The report was also placed in the Administrative Record in June 2004.

Because of the plume in the Upper Glacial Aquifer, public water hook-ups were provided for homes in the area south of BNL. However, seven homes have not been hooked-up to public water and are still operating private wells. These wells are monitored periodically. Because the Magothy Aquifer is beneath the Upper Glacial Aquifer and private wells are typically not screened that deep, it is highly unlikely that the private wells will draw contaminated water from the Magothy Aquifer (Note: The DOE formally follows-up annually with the seven known homeowners that are not connected to public water offering them free annual testing of their private drinking water wells. The SCDHS is provided a copy of the letters and will continue to be kept informed.) Based on modeling projections, no other pathway for exposure to groundwater is expected for approximately 100 years when the groundwater discharges into the Carmans River.

Strontium-90 Groundwater Contamination

Original characterization identified two Sr-90 contamination plumes on the BNL site. There is a plume downgradient of the former "Chemical Holes" disposal site. Historical leakage from the BGRR and the WCF has also resulted in an Sr-90 contamination plume located in the middle of the BNL site. The highest Sr-90 concentrations originally found in these plumes were 769 picoCuries per liter (pCi/l) and 566 pCi/l for the Chemical Holes and BGRR/WCF plumes, respectively. Sr-90 groundwater contamination has not been detected in areas off of the BNL site.

During the fall of 2003 supplemental characterization was performed to support ongoing remedial design activities. Supplemental sampling and analysis indicate that the Sr-90 contamination plumes are generally of the same size, in the same location, and at the same depth as determined after the original characterization events. However, increased concentrations were found in the Chemical Holes and BGRR/WCF Sr-90 contamination plumes: 2,540 pCi/l and 3,150 pCi/l, respectively. Again, Sr-90 groundwater contamination has not been detected in areas off of the BNL site. These results are illustrated in the attached Sr-90 plume maps (Figures 2 & 3). Detailed characterization data and information were documented in a report that the DOE provided to the EPA, NYSDEC and SCDHS in March 2004. The report was placed in the Administrative Record in June 2004.

Pursuant to the OU III ROD the DOE designed, built and has been operating the Sr-90 pilot treatment system since February 2003. The pilot study treatment system was built to treat the smaller contamination plume located downgradient of the former "Chemical Holes" disposal site. The pilot study has been highly effective in providing information

that is useful and relevant in determining a remediation plan for Sr-90 groundwater contamination on the BNL site. Major pilot study findings are summarized below:

- Sr-90 can be effectively extracted from the aquifer. Even after 14 months of operating at low flow rates, the pilot treatment system continues to extract groundwater from the aquifer with significant concentrations (125 pCi/l) of Sr-90.
- The rate of ion exchange resin usage at the elevated flow rates considered in the RI/FS was significantly higher than anticipated. Although the ion exchange resin is effective in removing Sr-90 from the extracted groundwater, the minerals and other natural impurities in groundwater, contribute to a reduction of the service life of the resin. Hence, there is a disproportionately high rate of resin usage and low-level radioactive waste (LLRW) generation in relation to relatively small quantities of Sr-90 actually removed from the groundwater.
- At the flow rates shown in the RI/FS, this increased rate of resin exchange would result in an increase in the generation, transportation, and disposal of Low Level Radioactive Waste (LLRW) from 540 cubic feet per year to 2,800 cubic feet per year.
- The original estimated life-cycle project costs in the RI/FS and ROD, including treatment system operations and maintenance totaled $6,500,000. In order to meet the same cleanup objective contemplated in the RI/FS and ROD (i.e., Alternative S5a), and driven almost exclusively by increased resin usage, and increased LLRW packaging, transportation and disposal volumes, the life-cycle project costs are now estimated at $55,700,000.

The pilot study has demonstrated that Sr-90 can be extracted from the aquifer. However, a scaled up high flow system to treat Sr-90 groundwater contamination would generate enormous quantities of spent, contaminated resin that would need to be disposed of as LLRW. It would be cost prohibitive to operate the system contemplated in the RI/FS and ROD.

The pilot study results are documented in a detailed report prepared by the DOE and provided to the EPA, NYSDEC and SCDHS in December 2003. The report was placed in the Administrative Record in June 2004.

Building 96 Geophysical Anomalies

In March 2004, twenty-one exploratory excavations were performed that found no source areas of contamination. Pieces of concrete, scrap metal, and iron-stained soils were identified. One out-of-service cesspool was found that contained debris, a tire, and pieces of concrete. An endpoint sample of the cesspool was obtained that indicated it was suitable for backfilling. SCDHS reviewed the results, the debris was removed, and the cesspool was backfilled in September 2004.

A report was prepared and provided to the EPA, NYSDEC and SCDHS in November 2004. The report is now available on the BNL website and was placed in the Administrative Record in November 2004.

DESCRIPTION OF SIGNIFICANT DIFFERENCES AND THE REASONS FOR THOSE DIFFERENCES

The proposed changes to the OU III ROD are described below:

Magothy Aquifer

The OU III ROD does not identify a remedy for the Magothy Aquifer. As a result of supplemental characterization and analyses completed pursuant to this ROD, this ESD adds a remedy for the Magothy Aquifer.

The DOE's proposed remedy adds two Magothy Aquifer extraction wells to the three wells that have already been installed at the Magothy Aquifer/Upper Glacial Aquifer interface in connection with other groundwater treatment systems. This remedy, like most other groundwater remedies included in the OU III ROD, would rely on active treatment assisted by natural attenuation. Based on groundwater modeling, the Magothy Aquifer wells are planned to operate between 5 to 10 years followed by 55 to 60 years of natural attenuation. The duration required to reach drinking standards is 65 years. The total cost of adding this Magothy Aquifer remedy to the OU III ROD is $2,345,000.

As already discussed, there are no current receptors and hence, no known human health risks associated with this contamination in the Magothy Aquifer. Nonetheless, the DOE believes that it is prudent and conservative to proactively treat high concentrations of VOCs in Magothy Aquifer for the following reasons:

- Resource preservation of the sole source aquifer (consistent with the National Contingency Plan).
- Address the high concentrations now to limit plume growth.
- Prevent substantial contamination of the Magothy, which may warrant future treatment and require a longer and more costly cleanup.
- Manage uncertainties associated with long-term modeling projections.

Three alternatives were evaluated for remediation of the Magothy Aquifer contamination. They are described in detail in the Magothy Supplemental Alternatives Analysis, dated March 2004 and summarized in Table 2 (attached).

Alternative 2 is the remedy being proposed by the DOE. This remedy includes continued operation of the existing three extraction wells as part of the Upper Glacial treatment systems that provide capture of Magothy contamination. Two additional off-site Magothy extraction wells on Stratler Drive (south of Carleton Drive) and at the Industrial Park East location were recently installed to prevent migration of high concentrations of

VOCs through the hole in the brown clay and into the Magothy Aquifer. Data from the monitoring wells will continue to be evaluated to ensure protectiveness. Table 3 describes how each of the Magothy investigation areas are addressed by the DOE's proposed Magothy Aquifer remedy.

The *Magothy Supplemental Alternatives Analysis* was provided to the EPA and NYSDEC in March 2004 and placed in the Administrative Record in June 2004.

Strontium-90

The OU III ROD relies on active "pump and treat" and continued monitoring to reach drinking water standards in 30 years. The "Alternative S5a" treatment system described in the RI/FS and adopted in the ROD relies on two extraction wells operated at high flow rates. Because of the slow rate of Sr-90 migration in groundwater, and the significantly higher concentrations and distribution of Sr-90 it is unlikely that the "Alternative S5a" remedy would meet the 30-year goal. As previously discussed, the treatment of groundwater using ion exchange technology is effective for Sr-90 removal. However, the removal of minerals and other natural groundwater impurities contributes to a reduction of the service life of the resin at high flow rates. This in turn results in a significant increase in the rate of resin usage and LLRW generation relative to the relatively small amounts of Sr-90 actively removed from the groundwater. Increased resin usage and increased LLRW waste values have resulted in an almost ten-fold increase in the original $6.5 million life cycle cost estimate with little or no improvements in the performance and effectiveness of the "Alternative S5a" remedy. The DOE has evaluated other Sr-90 remedial alternatives in light of its pilot study operating experience with the objective of mitigating these weaknesses with the "Alternative S5a" remedy.

The existing pilot study treatment system would continue to be operated for approximately ten years to actively treat the Sr-90 plume downgradient of the former "Chemical Holes" followed by 30 years of natural attenuation and radioactive decay. The total duration to meet drinking water standards for this plume is 40 years.

In view of the supplemental characterization data and pilot study findings, seven alternatives were considered for remediating Sr-90 groundwater contamination. They are described in the March 5, 2004 *Sr-90 Plume Alternatives Evaluation.* This report was provided to the EPA, NYSDEC and SCDHS in March 2004 and placed in the Administrative Record in June 2004. The alternatives evaluated by the DOE are summarized in Table 4 (attached).

At the BGRR/WCF Sr-90 contamination plume located in the center of the BNL site, DOE proposes to install five extraction wells and groundwater treatment system (ion exchange) using lessons learned during the installation, operation and maintenance of the pilot study treatment system. Based on models using the supplemental characterization data, the system would be operated for a period of approximately ten years, followed by 60 years of natural attenuation and radioactive decay. The total duration to meet drinking water standards is 70 years. Hence, the limiting duration to reach drinking water

standards is 70 years in contrast to the 30-year objective in the OU III ROD. The total estimated life-cycle cost of the Sr-90 remedial alternative is $14 million.

It should be noted that neither plume is predicted to leave BNL property above drinking water standards and that no drinking-water wells are near this plume. It should be further noted that monitoring wells and a sampling program will continue to monitor the location and extent of the plume.

Alternative 3, described above, is the DOE's proposed alternative for the following reasons:

- This alternative provides for active treatment of the Sr-90 groundwater contamination and hence would be effective in controlling plume growth.
- According to groundwater modeling, the Sr-90 contamination in the BGRR/WCF plume would not migrate south of Princeton Avenue or within 6,000 feet of the BNL site boundary above drinking water standards. The Chemical Holes plume likewise would not migrate within 1,000 feet of the BNL site boundary. Because groundwater never exits the BNL site above drinking water standards, there are no receptors and hence no human health risks.
- This alternative provides a 1,800-cubic-foot reduction per year in the packaging, transportation, and disposal of LLRW in comparison with the reference "Alternative S5a" treatment system.
- At $14 million and still more costly than the original projected $6.5 million, this alternative results in cost savings of more than $40 million in comparison with the reference "Alternative S5a" treatment system.
- There are no credible technical uncertainties and risks associated with the effectiveness of institutional controls relative to the 70-year duration required to reach Sr-90 drinking water standards.

Table 5 (attached) provides a summary of the proposed change described in this ESD to the Sr-90 remedy included in the OU III ROD.

Institutional Controls for the Groundwater Remediation Program

Institutional controls will also be in place to ensure effectiveness of these and all groundwater remedies. In accordance with the BNL *Land Use Management Plan*, dated August 2003, the following institutional controls will continue to be implemented for the groundwater remediation program:

- Groundwater monitoring, including BNL potable supply systems and SCDHS monitoring of Suffolk County Water Authority wellfields closest to BNL
- Five-year reviews as required by CERCLA will be conducted until cleanup goals are met and to determine the effectiveness of the groundwater monitoring program

- Prohibitions to the installation of new supply wells
- Public water service in plume areas south of BNL
- Prohibitions to the installation of new drinking water wells and other pumping wells where public water service exists (Suffolk County Sanitary Code Article 4)
- Property access agreements for treatment systems off of BNL property (deed transfer with property ownership change)

Due to the slow migration of Sr-90 in groundwater, and the slow groundwater flow of the Magothy Aquifer, there is ample time to respond to unexpected conditions or deviations in monitoring data for both plumes. An effective groundwater monitoring well network is vital to assure that the selected remediation approaches are performing as expected and to identify deviations. Monitoring well data trends and plume movement will be evaluated on an annual basis. Several sentinel wells will help monitor plume growth over time to ensure that the Sr-90 plumes remain within BNL property. Increasing trends of Sr-90 contamination in these wells will be evaluated, and if necessary, changes would be made. Changes could include installing additional monitoring wells or adding additional extraction wells.

In addition, during the required five-year reviews, a comprehensive evaluation will be performed to ensure that the plumes are behaving as expected and that the remediation approach continues to be protective of human health. During these reviews, DOE, EPA, and NYSDEC will evaluate if modification of the remedy is needed to ensure this protectiveness.

A certification will also be included in the BNL Annual Groundwater Status Report that the institutional controls put in place for groundwater are unchanged from the previous certification. It will confirm that nothing has occurred that would impair the ability of the controls to protect human health or the environment or constitute a violation or failure to comply with any operation and maintenance requirements or BNL's Land Use Management Plan.

Building 96 Geophysical Anomalies

The OU III ROD did not identify a remedy for the geophysical anomalies. The ROD requires the investigation of these anomalies to determine whether or not they are irrelevant artifacts or true indications of soil contamination. In the event of the latter, some remedial action plan would then be required.

As already discussed, the geophysical anomalies have been investigated through exploratory excavation. There were no indications or evidence of soil contamination. In the case of the one cesspool that was discovered, soil samples were collected and analyzed for a full panel of VOCs and metals. No contamination was detected. In summary, the geophysical anomalies have been demonstrated to be irrelevant artifacts, and no further action is needed.

A report providing the details of the investigation was provided by the DOE to the EPA, NYSDEC and SCDHS in November 2004 and placed in the Administrative Record during the same month.

PUBLIC PARTICIPATION ACTIVITIES

While a public comment period is not required when issuing an ESD, DOE is interested in receiving public input on these changes. DOE will accept comments on the OU III ESD from December 15, 2004 through January 21, 2005. To submit comments, you may send an email to tellDOE@bnl.gov, fax to (631) 344-3444, or write to:

Mr. Michael Holland
Site Manager, Brookhaven Site Office
Attn: ESD
U.S. Department of Energy
P.O. Box 5000
Upton, NY 11973

Additionally, there will be a public information session about these changes on January 11, 2005 from 7 pm to 9 p.m. at Brookhaven National Laboratory's Berkner Hall, Room B. Interested members of the public are invited to learn more about the ROD changes and the cleanup projects.

The ESD is available on the web at http://www.bnl.gov/erd/groundwater.html The ESD and other relevant documents are part of the Administrative Record file for the BNL site. The Administrative Record includes, among other things, the ROD and technical documents. These documents are available for review at the Mastic-Moriches-Shirley, BNL Research, and EPA Region II libraries.

AFFIRMATION OF STATUTORY DETERMINATIONS

Considering the new information that has been developed, DOE, EPA, NYSDEC have determined that the remedy selected for the Magothy Aquifer and the Building 96 geophysical anomalies, as well as the changes to the Sr-90 remedy remain protective of human health and the environment, comply with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and are cost-effective. In addition, the remedies utilize permanent solutions and alternative treatment technologies to the maximum extent practicable for this site.

DOE, EPA, and NYSDEC believe that a change in the scope of the remedy has occurred in which a determination was made for: 1) the need for active treatment of the Magothy Aquifer and the installation of two additional off-site extraction wells, 2) additional time to achieve cleanup objectives and increased cost for Sr-90, and 3) the need to document the excavation and closeout of the geophysical anomalies at Building 96. Nevertheless, the agencies believe that this change does not fundamentally alter the remedy selected in the ROD or its appropriateness.

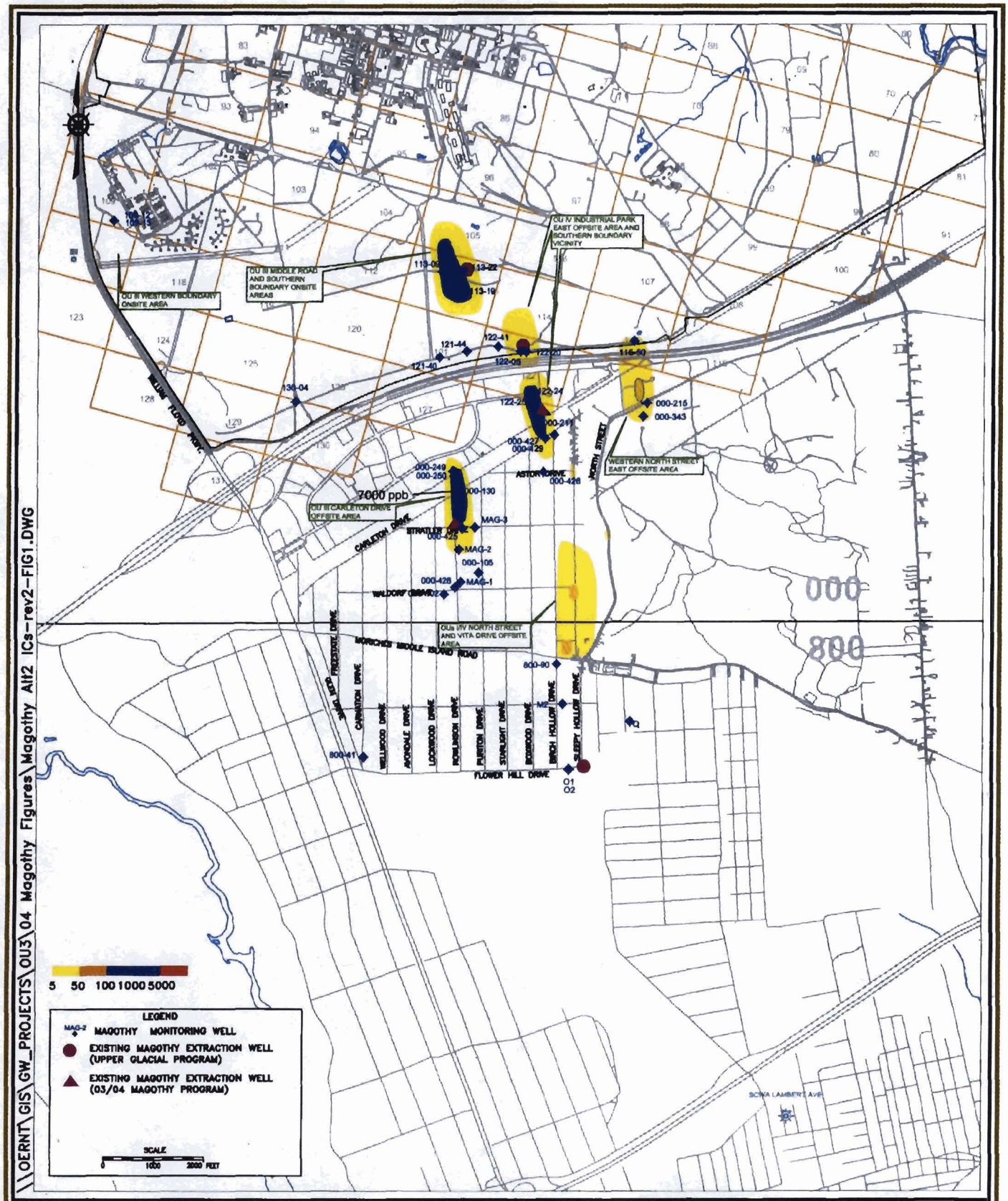
The State of New York concurs with the ESD.

AUTHORIZING SIGNATURES

February 15, 2005

Rodrigo V. Rimando, Jr. — Date
Brookhaven Project Director
Office of Environmental Management
U.S. Department of Energy

William McCabe — Date
Acting Director, Emergency & Remedial Response Division
U.S. Environmental Protection Agency – Region 2



\\OERNT\GIS\GW_PROJECTS\OU3\04 Magothy Figures\Magothy Alt2 ICs-rev2-FIG1.DWG

BROOKHAVEN NATIONAL LABORATORY GROUNDWATER PROTECTION PROGRAM	TITLE: MAGOTHY AQUIFER PLUME Alternative 2–STARTING TVOC CONCENTRATION (PPB)	DWN: DBB / VT:HZ.: – / DATE: 03/03/04 / PROJECT NO.: 07280	
		CHKD: RH / APPD: / REV.: – / NOTES: –	
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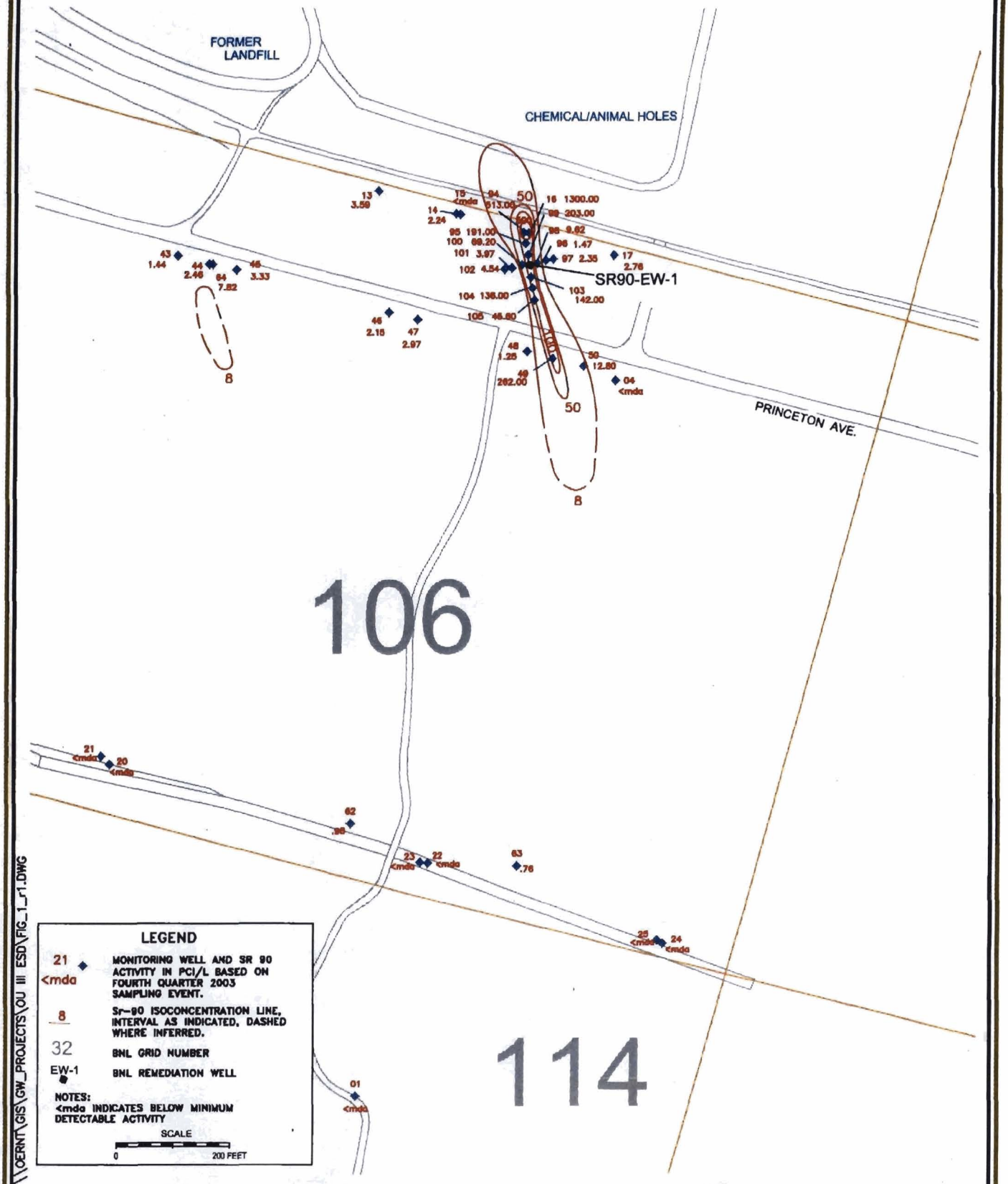


BROOKHAVEN NATIONAL LABORATORY

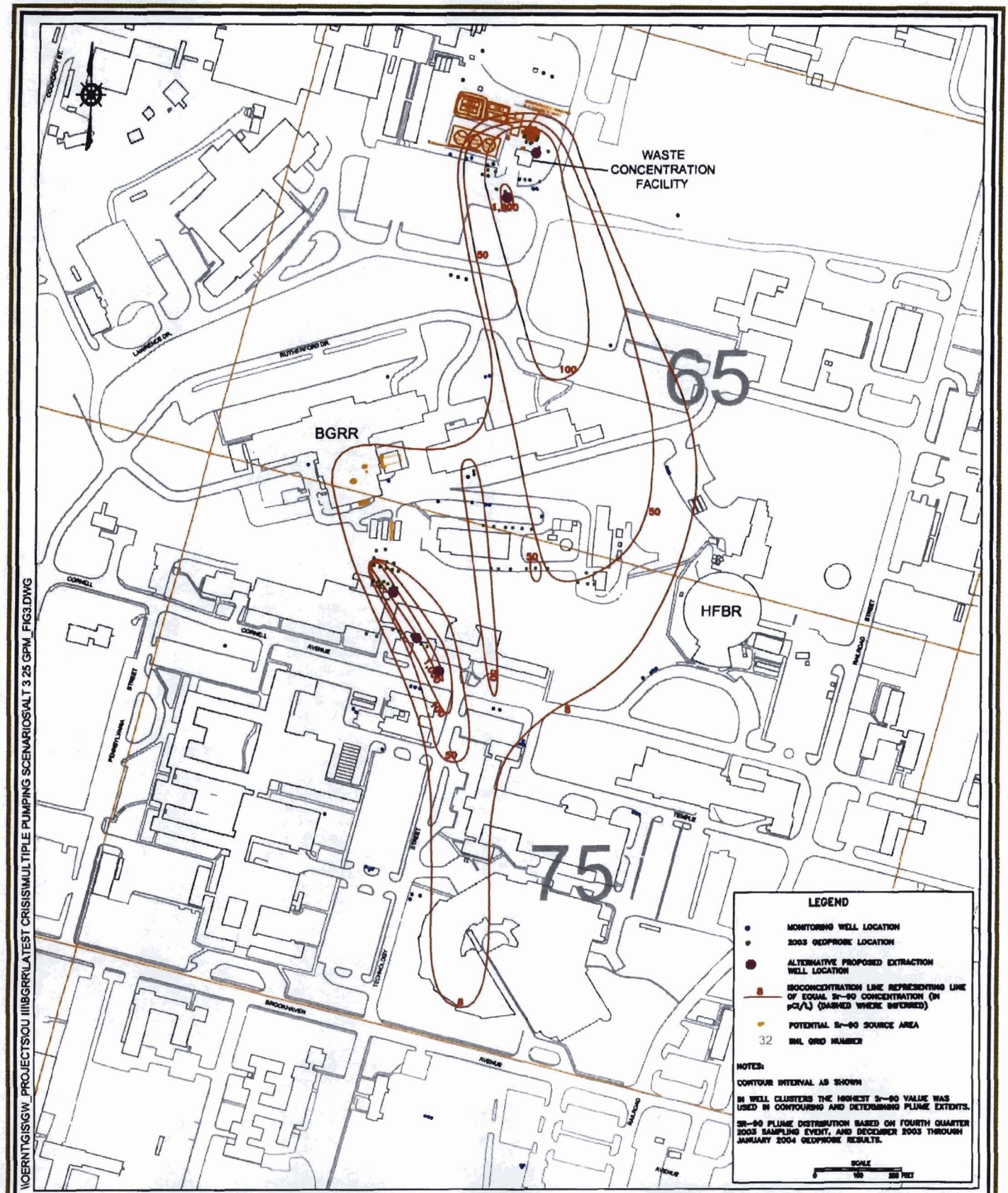
GROUNDWATER PROTECTION PROGRAM

TITLE:

CHEMICAL/ANIMAL HOLES
Sr-90 2003 PLUME DISTRIBUTION
OU III Explanation of Significant Differences

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
ALR	–	06/01/04	07176
CHKD:	APPD:	REV.:	NOTES:
WRD	WRD	–	–

FIGURE NO.: 2



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BROOKHAVEN NATIONAL LABORATORY

GROUNDWATER PROTECTION PROGRAM

TITLE:

OU III BGRR Sr-90 GROUNDWATER MODEL ALTERNATIVE 3 25 GPM

DWN:	VT: HZ.:	DATE:	PROJECT NO.:
KCK	–	02/13/04	07183
CHKD:	APPD:	REV.:	NOTES:
DBB	TMB	1	draft
FIGURE NO.:			
3			

Table 1

Magothy Aquifer Contamination

Location	Max. TVOC[a] (ppb[b])	Primary VOCs	Results
western boundary on-site	<5.0	NA	Magothy not impacted. Two monitoring wells serve as adequate outpost/sentinel wells for Suffolk County Water Authority William Floyd wellfield.
Middle Road and south boundary on-site	340	PCE, CCl4	VOCs identified in upper 20 to 40 feet of Magothy at Middle Road area where brown clay is absent. TVOCs also detected at approximately 2,000 ppb in 1999 in lower portion of Upper Glacial. VOCs not detected at south boundary beneath the clay.
North Street off-site	50	TCE	Low TVOC concentrations have been detected in localized areas in the upper 30 feet of Magothy below hole in brown clay and downgradient near Vita Drive where clay exists. Leading edge of contamination is around Moriches Middle Island Road.
North Street East off-site	30	11-DCA, 11-DCE	Low TVOC concentrations have been detected at the BNL south boundary to North Street below the brown clay at approximately 40 to 150 feet in the upper Magothy. Tritium also co-located with VOCs upwards of 4,660 picoCuries/liter (pCi/l) (13,600 pCi/l detected in 1998).
Industrial Park East off-site and south boundary	570	TCA, CCl4	Lower VOC concentrations on-site (less than 50 ppb) and higher (more than 500 ppb) off-site in the Industrial Park where brown clay is absent. Magothy and Upper Glacial contamination is contiguous in Industrial Park.
South of Carleton Drive offsite	7,200	CCl4	High VOC concentrations just south of Carleton Drive where brown clay is absent. Contamination is contiguous between Magothy and Upper Glacial Aquifer.

[a] Total Volatile Organic Compounds
[b] **parts per billion**

Table 2

Magothy VOC Alternatives

Alternative Number	Alternative Description	Years to Reach MCLs[1]	Capital Cost (in $K)	O&M[2] Cost (in $K)	Total Cost (in $K)
1	Existing three* Magothy wells and additional monitoring	110	400	1,100	1,500
2	Existing three* wells Plus two additional Magothy wells, and monitoring	65	825	1,520	2,345
3	Existing three* wells plus seven additional Magothy wells, and monitoring	30	3,900	11,290	15,190

[1] – Maximum Contaminant Level
[2] – Operations and Maintenance

* Note: Costs for the three existing Magothy extraction wells are not included here (they were previously covered in the OU III ROD costs as part of the Upper Glacial systems)

Table 3

Proposed Magothy Remedy

	Area Investigated	Alternative 2 Selected Remedy
1	Western boundary onsite area	Good well network in place. Continue monitoring and evaluate data.
2	Middle Road and south boundary onsite area	Continue operation of the Magothy extraction well at Middle Road, as well as the two Upper Glacial systems. Continue to monitor the three Magothy monitoring wells at Middle Road and three at the south boundary. An additional monitoring well (121-44) at the south boundary was installed in 9/03.
3	North Street off-site area	Continue operation of the two existing Upper Glacial extraction wells on Sleepy Hollow Drive and North Street to prevent further Magothy contamination. Four additional wells (M-2, O-1, O-2, Q) were installed in 2003 to help integrate the North Street and Airport system's monitoring well network. Continue monitoring and evaluate data.
4	North Street East offsite area	Good well network in place. Continue monitoring and evaluate data.
5	Industrial Park East offsite area and south boundary	Continue operation of the partial Magothy extraction well at the southeast boundary. Include an additional extraction well at the interface of the Upper Glacial and Magothy Aquifers for the Industrial Park East treatment system. This will prevent migration of high concentrations of VOCs through the hole in the brown clay and into the Magothy Aquifer. The extraction well was installed January 2004. Continue monitoring and evaluate data.
6	South of Carlton Drive offsite area	Modify the LIPA/Airport treatment system to include an additional extraction well at the interface of the Upper Glacial and Magothy Aquifers on Stratler Drive. This will prevent migration of high concentrations of VOCs through the hole in the brown clay and into the Magothy Aquifer. The extraction well was installed in March 2004. Three additional monitoring wells (Mag-1, Mag-2, Mag-3) were installed in 12/03 and 1/04. Continue monitoring and data evaluation.

Table 4
Strontium-90 Alternatives

Alternative	Flow GPM	Pumping Wells	Years To Reach DWS	Pumping Years	Monitoring Years After Pumping	Capital	O&M	Total
1	0	0	118 yrs	0 yrs	118 yrs	$ 251,511	$ 3,282,480	$ 3,533,991
2	15	3	94 yrs	10 yrs	84 yrs	$ 1,682,338	$ 7,108,884	$ 8,791,222
3	25	5	67 yrs	10 yrs	57 yrs	$ 1,742,338	$ 7,716,027	$ 9,458,365
4	43	5	67yrs	10 yrs	57 yrs	$ 1,742,338	$ 9,839,670	$ 11,582,008
5	73	7	63yrs	10 yrs	53 yrs	$ 1,802,338	$ 18,852,388	$ 20,654,726
6	118(10 yrs) 55 (10 yrs)	9 9	44 yrs	10 yrs +10 yrs	20 yrs		$ 22,340,260 $ 12,794,976	
				20 yrs		$ 1,862,338	$ 35,135,236	$ 36,997,574
7	128 (10 yrs) 55 (20 yrs)	10 10	30 yrs	10 yrs +20 yrs	0 yrs		$ 24,043,163 $ 24,686,966	
				30 yrs		$ 1,892,338	$ 48,730,129	$ 50,622,467

Table 5

Strontium-90 Remedy Summary

	OU III ROD	ESD
Scope	BGRR/WCF Plume: Pump and treat system using two wells Prevent or minimize plume growth Meet drinking water standards within 30 years Chemical Holes Plume: Pump and treat system using one well Prevent or minimize plume growth Meet drinking water standards within 30 years	BGRR/WCF Plume: Pump and treat system using five wells Prevent or minimize plume growth Meet drinking water standards within 70 years Chemical Holes Plume: Pump and treat system using one well Prevent or minimize plume growth Meet drinking water standards within 40 years
Performance	BGRR/WCF Plume: Meet drinking water standards in the aquifer through active remediation Chemical Holes Plume: Meet drinking water standards in the aquifer through active remediation	BGRR/WCF Plume: Meet drinking water standards in the aquifer through active remediation Chemical Holes Plume: Meet drinking water standards in the aquifer through active remediation
Cost	$6.5 million (The present worth value is $5,800,000) $55.7 million (latest revised estimate based on ROD assumptions)	$14 million

Responsiveness Summary
For the Operable Unit III Explanation of Significant Differences

In June 2000, the Operable Unit III (OU III) Groundwater Record of Decision (ROD) was made final by the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (DEC). This ROD documented how groundwater remediation would be undertaken and completed. The process of reaching this ROD included, over the course of several years, extensive public discussion of groundwater remediation alternatives among the DOE and the Brookhaven National Laboratory Community Advisory Council (CAC), the Brookhaven Executive Round Table (BER), elected officials, local civic associations, and community members.

The OU III ROD identified three aspects of groundwater remediation that required further investigation and consideration. These were: (1) further characterization of the Magothy Aquifer to better understand the extent and magnitude of volatile organic compound (VOC) contamination and, if needed, determine the needed cleanup action; (2) a pilot study of pump-and-treat technology to determine its effectiveness on remediating two on-site plumes of Strontium-90 (Sr-90); and, (3) investigation of underground anomalies found in a former storage yard at Building 96 to determine if cleanup is needed.

This Explanation of Significant Differences, or ESD, shares the results of the DOE's investigations and, considering public input, includes the final cleanup plans for the Magothy Aquifer, the Sr-90 plumes, and the Building 96 scrap yard. The DOE conducted a public comment period for the draft ESD from Wednesday, December 15, 2004 to Friday, January 21, 2005. It was announced by publishing public notices and display advertisements in regional newspapers, conducting mass information mailings including about 2,300 interested community members, posting a notice on the BNL web page, and conducting interactive discussions at CAC and BER meetings. Two public information sessions were held on Tuesday, January 11, one at midday for BNL employees and one that evening for the general public.

The CAC represents a cross section of the community and its meetings are a forum through which public opinion is provided to BNL. The CAC was closely involved in consideration of the ESD. Specifically, during its scheduled meetings, the CAC was given a detailed presentation on May 13, 2004 and again on December 9, 2004. A special question-and-answer session was held for the CAC on January 6, 2005 and the CAC's final discussions occurred during its monthly meeting on January 13, 2005.

This Responsiveness Summary provides the DOE's response to comments received during the public comment period. Comments received include a survey of opinions of the CAC members (17 supported the ESD, 4 opposed it, and 1 abstained), three letters and three emails. Public comments are grouped in five areas of interest:

1. Protection of human health

2. Cleanup timeframe
3. Cost of cleanup
4. Waste generated by cleanup
5. Monitoring and contingency planning

All community comments are included at the end of this Responsiveness Summary and are part of the Administrative Record. The DOE's responses to these comments follow.

Risk to human health: These comments addressed the risk posed to people by the groundwater contamination and/or the remediation itself. One commenter stated their concern that the presence of contamination in the groundwater in and of itself constituted a threat to public health. Five commenters stated that, because the contaminated groundwater is inaccessible, the public's health is protected because no contact is made. Three commenters expressed concern that the process of remediating the Sr-90 plumes generates radioactive waste and poses even greater risk to workers and public health. Two commenters expressed concern over the adverse impact of "air-stripping" technology on the environment if it were used to clean up the Magothy.

The DOE believes that the proposed remedies are protective of human health and the environment. The cleanup remedies maintain and ensure the complete separation and isolation of contamination from people. The plumes are well away from public drinking water sources on and off of the BNL site and will be continually monitored to assure this separation. Should a plume act differently than anticipated, this monitoring program would detect the change far enough in advance to allow corrective action.

Additionally, the DOE provided public water hook-ups for homes in the area south and southeast of BNL which are above the VOC groundwater plume. The Magothy Aquifer is beneath the Upper Glacial Aquifer and begins at about 250 feet below land surface. Private wells typically are far shallower. As an added precaution, the DOE annually offers free testing of the private drinking water wells of the seven known homeowners in the area who are not connected to public water. Further, based on extensive computer modeling projections, there is no other pathway for exposure to groundwater for approximately 100 years, when the groundwater discharges into the Carmans River. Virtually all VOC contamination would be gone from the groundwater by then.

It should be noted that the ROD was silent regarding a timeframe for cleanup of the Magothy Aquifer. However, based on the lack of receptors and no risk to human health from this contamination, the remedy proposed for the Magothy Aquifer is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective.

The process of removing Sr-90 from groundwater involves pumping contaminated water from the ground and then processing it through a closed-loop system equipped with a series of filters designed to entrap Sr-90. The filtered water, which is free of Sr-90, is then re-injected into the ground. The filters with the entrapped Sr-90 are eventually

removed in their entirety, transported, and disposed of appropriately at an off-site disposal facility.

Finally, removing VOCs from Magothy groundwater at off-site locations will be accomplished using a closed-loop, carbon-filter technique. The VOCs freed from the groundwater by the carbon filter will be captured there as the clean groundwater is returned to the ground.

Cleanup timeframe: These comments addressed the amount of time likely needed to complete groundwater remediation. Eight felt that the timeframe was too long and, in the case of Sr-90 remediation, that the cleanup timeframe had been inappropriately extended beyond what the ROD originally estimated. Fifteen others felt the timeframe was appropriate. One commenter, believing that no active remediation was necessary, felt the cleanup timeframe should have been longer. Five commenters asked that, regardless of the cleanup timeframe, the DOE constantly be alert to new remediation methods and technologies that might accomplish cleanup sooner.

The DOE believes that the proposed remedies are appropriate because they are protective of human health and the environment and they minimize plume growth. The plumes are expected to remain separated and isolated from public drinking water sources on and off of the BNL site, and this will be regularly checked by a network of groundwater monitoring wells. Should a plume act differently than anticipated, this monitoring program would detect the change far enough in advance to allow DOE to change the cleanup remedy, when necessary.

Also, the ROD was silent regarding a timeframe for cleanup of the Magothy Aquifer. However, based on extensive computer modeling projections, the first possible exposure pathway would occur in about 100 years, when the Magothy groundwater reaches the Carmans River. Virtually all VOC contamination would be gone from the groundwater by then. Because of the absence of receptors for the contamination, the Magothy remedy is protective of human health and the environment, complies with Federal and State requirements that are applicable or relevant and appropriate to this remedial action, and is cost-effective.

The OU III ROD recognized that the remedy for Sr-90 remediation may need adjusting. As the OU III ROD was developed, little was known about the technical viability and effectiveness of remediating Sr-90 in groundwater. The ROD acknowledged this uncertainty and required DOE to conduct a pilot study to more directly address these uncertainties. The ROD estimated that it would take about 30 years at a cost of $6 million to cleanup up the Sr-90-contaminated groundwater.

Pilot study results showed that the cost and time needed to remediate the Sr-90 plumes had been underestimated in the ROD. The pilot study showed that to achieve cleanup in 30 years, the treatment system would have to operate at a very high rate of groundwater flow through the system. At that high flow rate, groundwater filters would be exhausted and require replacement much more frequently than estimated. This meant that more

waste would be generated. The combined cost of frequent filter replacement and disposal of greater volumes of waste increased the original cost estimate in the ROD by a factor of 10.

The DOE assures the protectiveness and the effectiveness of the cleanup remedies through a groundwater monitoring program that continually observes groundwater conditions and behavior. This existing monitoring program will detect a change in groundwater conditions and/or behavior and allow ample time to change the cleanup method, if necessary to keep it protective of human health and the environment. The DOE has the responsibility to make such a change. Also, there are five-year remedy reviews required by EPA. These are used to evaluate the effectiveness of the cleanup action and to determine corrective actions, if needed.

DOE also will watch for more effective and efficient remediation techniques and operations to apply here.

Cost: Some commenters were concerned with the availability and "best use" of remediation funds. One commenter expressed concern about the long-term availability of cleanup funds and asked if the total amount of required funds could be ascertained now. Three commenters expressed their concern that any action that would increase the cost of remediation would keep those funds from being more beneficially applied to a more critical need.

The environmental cleanup at BNL is being conducted under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Records of Decision established under CERCLA are enforceable by Federal law. In entering into a ROD, the DOE is legally bound to execute and complete the cleanup plan outlined in that ROD.

The U.S. Congress funds DOE cleanup on an annual basis. While the planning for the use of these Federal funds occurs continually and looks many years into the future, those funds are only available in the year they are to be used (spent). As such, DOE develops a budget, which includes remediation at its Superfund sites including BNL.

The DOE believes that the cleanup described in the OU III ROD and ESD is protective of human health and the environment, responsive to and accommodating of CERCLA cleanup criteria, and the best use of remediation funds.

Waste generated by cleanup: These comments were related to the amount of waste generated during remediation of the Sr-90 plumes. Two commenters expressed the concern that by reducing the amount of time to cleanup the Sr-90 plumes (i.e., operate the groundwater treatment system at a high rate of groundwater flow), the amount of Sr-90-contaminated waste would be increased to an unacceptable level (i.e., filters would need to be replaced more frequently).

The DOE believes that groundwater contaminated with Sr-90 can be remediated in a manner protective of human health and the environment, while simultaneously minimizing waste generation. As mentioned earlier, the DOE will, as requested by the community, remain alert to new remediation techniques and technologies, as well as more operational efficiencies, that might accomplish cleanup sooner and with less waste generation.

Monitoring and contingency planning: Eight commenters sought assurances concerning monitoring activities, contingency planning, and public communication and participation.

Nine commenters asked that cleanup progress be verified through an ongoing and dynamic monitoring program. They asked, as previously noted, that the DOE remain alert to new remediation techniques and technologies that might accomplish cleanup sooner and with less waste generation. They asked that a cleanup remedy be changed if the need for a change is identified and verified. Finally, they asked that the community, in general, and the CAC, in particular, be kept informed of results of ongoing annual and/or five-year reviews.

The DOE agrees that these are appropriate components of the cleanup process and valuable to maintaining community trust and understanding. The DOE commits to honoring these requests.

Survey of comments provided by the Brookhaven National Laboratory Community Advisory Council on the Explanation of Significant Differences for the Strontium-90 and Magothy Aquifer cleanup.
January 13, 2005

Anthony Graves: I found BNL's explanation last month creditable. It made sense to me. I'm still interested in of course the details in monitoring the cleanup as it continues but I felt fairly confident that the analysis done was done reasonably and that strontium-90 contamination would not move off the Lab site. It would stay well within the borders, could be monitored and I am comfortable with being updated on that. It made more sense to me to do it that way then to take the contamination out of the ground and create potential exposure pathways and also raise expenses. I understand the nature of the pilot project, that's what pilot projects are for and the way the resin was filling up faster than anticipated made sense to me. It also made sense that it was attracting substances that were chemically similar to the contaminants and filling up that way, so I felt that the Explanation of Significant Differences was reasonable and I think it's something that the Town can accept.

Mark Walker: I'd like to agree with a lot of what Anthony said. The only thing I'd like to add is I'd like to see the Lab to somewhere commit to continuing to look for ways around the problems with the resins and the resin filters filling up with the calcium instead of the Strontium-90. I just can't help feeling that's an avenue that should be actively pursued to attempt to make things work a little faster.

Bob Conklin: I second Mark and Anthony and just about everything they've said. The concern that I have in relation to this is with some of the technologies to be used. I'm very hesitant with air stripping. I'd like to know, and I'm talking about the VOC plume now, when you get into the technology of the carbon filter versus an air stripper, which is cheaper and which is more effective. I'm not opposed to air strippers but I just haven't received an explanation of what happens to these VOCs when they're stripped off and go into the air. It doesn't seem that they're being changed to any extent. They're just taking a poison, if you will, in one source, which is water and its being placed into another source which is air. Being a resident of the Town of Riverhead we are in direct airflow from Brookhaven National Lab and carbon filters solve the problem for me completely. If you're going to use air filters, I really would like to know the technology of what happens once these things have been stripped and put into the atmosphere and are blown away. What happens from that point on? To date, I haven't gotten an explanation that makes me happy about that. That's the only part of this whole process that bothers me.

Mary Joan Shea: I wasn't here for the last meeting so I'd like to listen to the others first then comment.

Ed Kaplan: Based upon our previous discussions and presentations and the minutes I'm satisfied that this group has gotten as much information as we possibly can. Bob raises a very interesting point that I've been discussing for years now with classes. You take something out of the ground and you put in it the air, it's in the air. That's the answer. It doesn't do anything, just dilutes into the air. But I don't think that's going to have a significant impact on the Town of Riverhead or anyone else around here. I was happy to read in the minutes that the EPA gave an explanation last time concerning its view on this and how it allows something to go forth. My only concern is something I've raised here before. Unfortunately the regulations allow for activities to go on, changes to be made to the plan, as it's happening under certain circumstances, and I don't feel comfortable with that. I would rather that kind of information come to us first before any activity is allowed.

Jim McLoughlin: I've missed the last several meetings so I'm certainly not up to speed on the subject so I'm just going to listen, rather then comment.

Mike Giacomaro: Our main concern has been the Magothy Aquifer. What we had looked at last year was not doing anything -- a zero option. What they're saying now is Option #1, where it will take 110 years, was an option without doing any pumping. Now they're going to Option 2 which is what they're proposing -- the Preferred Alternative. While it reduces the number of years, it doesn't add any more safety to the community because it's water that will never be used. So we do have a difference of opinion. If I were to look at it, I would go with No. 1 for the Magothy Aquifer for the option and continue what you're doing. I have no problem with anything else that was proposed.

Jean Mannhaupt: I wasn't at the last meeting but drinking water has been upper most in my mind for a number of years. I've read the ESD. I went back and revisited part and parcel of the OU III ROD and also some of the information that got captured in the Groundwater Monitoring Plan. There were updates that went from the baseline study back in 1992 where we increased Areas of Concern or AOCs and captured more information about groundwater and contamination of water in and around the site. I support the ESD document. I think the ROD itself acknowledged that we had to deal with these issues. It was flexible enough that we could deal with them. The pilot study was done. I know the low flow is more efficient but I'm very concerned about waste products in the future and coming years and that's looked at, how that's handled. I'd also like to make sure that within the ESD and moving onward with any of the cleanup issues, that EPA's policy of revisiting things every five years is also taken into account.

David Sprintzen: I don't have anything to add to what Jean or the others have said. I'm quite comfortable with the analysis and the revisions as proposed. I really would be concerned about doing something that would actually increase the availability of the Strontium-90 to the public so I think that the proposals are quite acceptable.

Rita Biss: I guess my only problem is that people are interlacing VOCs and Strontium-90. They're two completely different subjects. I guess I've been following more of the Strontium-90 and I can see why you can't pump that very fast because you get too much water in and it uses up the filters. The only thing I have to keep saying is "do it dynamically." When things go down a little bit, make sure they've gone down for real and it just hasn't moved 200 feet south of the well. Follow it dynamically, don't think it's a static condition and you can just leave the wells where they are now.

John Hall: On behalf of the 660 members of the Peconic River Sportsmen's Club we support the Lab in all their efforts to cleanup the environment. We support the decisions that the Lab has made in the past.

Graham Campbell: It seems to me that prime issue in the ESD is the stretch out in time that it takes to cleanup. I feel quite comfortable with the Strontium-90 cleanup and the stretch out for that because it seems like there's no pathway to cause serious troubles. It's well understood and that seems like a quite reasonable approach given the significant increase in expense in trying to keep to the original schedule. I'm less sure of the VOC cleanup issue. And it might be because I don't understand that well enough. There's nothing I can particularly point to that makes me uncomfortable about it, I'm just somewhat less sure. I feel quite confident the Strontium-90 cleanup changes will work out fine. And furthermore, given the nature of Sr-90, if things don't happen as people anticipate, it's much easier to detect a change that's happening there then it would be with the VOCs.

Sarah Anker: I have a couple of comments. I'm uncomfortable; I would like to see the cleanup done faster for both the Magothy and Upper Glacial. I'd like to see the whole thing done faster because the longer that it's there, is the longer that it will have to disperse. When something spills the quicker you clean it up, I think the more efficient it can be cleaned up. I understand about the filters and I went to the meeting last week and it was better explained to me. But again, my concern is that it is not going to be cleaned up fast enough.

Adrienne Esposito: I know you won't find this shocking, but our organization opposes the 70-year plan for cleaning up the Strontium-90 and we oppose the 65-year plan to cleanup the Magothy. I think that what Rita said was exactly right. I think that if we can look at these as two completely differently issues because in fact they are. And I agree with what Graham said. I think they deserve to be taken differently because the Sr-90 does move slower. The reason we oppose 70 years is because we do feel that it's too long, it's two generations out.

I did speak with the EPA, they did a little research, they didn't give me a definitive answer, I don't want to misrepresent them but to the best of their knowledge and to the best of their search they couldn't find another 70-year ROD in the nation and this may be a first. He was very clear saying he doesn't know that for a fact. There may be other ones out there, but he "just couldn't find them." I don't exactly know what that means but I think 70 years is out there.

Sixty-five years for the Magothy? I don't think this committee has ever agreed to a 65-year ROD for VOCs for the Magothy. VOCs as we know, do move quicker then Strontium-90. The current plan does a lot to stop the migration of VOCs off of the Lab property. We've never supported that in the past. I don't know what the difference is today than June 2000 when we decided not to allow that to happen. Everyone wants to save money. If you start weakening these cleanup RODs, will you weaken the one that comes next month? That will save money. Let's do that. I think you have to hold the line somewhere. Sixty-five years to do the Magothy cleanup. I think that's outrageous.

Richard Amper: This is really the saddest night that I have had since I came to the CAC. It is really unimaginable. We've all been very understanding of the Laboratory for so long. We didn't understand exactly what these threats were. The Laboratory responded very, very well and went above and beyond the call. I think part of our complacency tonight is based upon the fact that the Lab has done so well. This is not its finest hour. I am of the notion that we're pushing this off two generations, 35 Congressional sessions, I think we're going to find that the cost of paying for this is far greater than we think in the budget of 2065 then it is today. I don't believe that the economies are what is being represented.

I agree with Rita and Graham and Adrienne and Sarah that the Magothy problem is not the same thing as the Strontium problem. But I try to balance these things and I try to be fair. We've been very supportive of what the Lab has done up to this point so I try to remember when I felt best about the CAC and I have to go back a few years. It was when we ran into the process of how much it was going to cost to clean this place up and how long it was going to take. Everybody was very negative then, and they were very concerned about how much money was available. We went to Washington and we talked to people in the Executive Branch and we were not very encouraged and then we went to Senator Schumer. The Senator brought the Secretary of the Department of Energy here and cut the time it took to clean this place up in half and produced money that we didn't even know was there. I think we're cheapin' out on this. I think that if this CAC stands up and says we don't want to make this concession, we want the Lab to have a perfect record from having done it right and having obtained the support that is needed to get it right, that we will get it. That's why we got it last time. We all stuck together. People at the Lab worked with people in the civic community, people who don't see this as a big

threat worked with people who do think it was a big threat and Senator Schumer delivered for us and the Department of Energy delivered for us. I think we're selling our friends in Washington short if we don't say let's do it right. That's what makes us feel good about our service. That's why the Pine Barrens Society honored this organization because when it had a chance to do it right or wrong, it has always done more not less. We stand here prepared to go in a different direction and I don't want to see us do that. We don't have to do that. We'll have the support that we need to do it right if we stick by our guns and stand together and have the help that we need to do it right. Let's not make any concessions that we don't need to make, let's not have a problem that was created by this generation get passed to another generation. Let's do what we said we should do. There is no new evidence. There is no different problem. There is no different set of circumstances that we face. What we thought was right when we wrote the ROD is just as right today.

Anthony Graves: Do you feel the same way about the VOCs and the Strontium??

Amper: I think they should be approached differently. I'm more concerned about the VOCs because one of the things we've done is that we've tried to contain the stuff and we've listened to George and we've listened to David and I'm not casting any aspersions, we're playing by the rules. We have different views as to whether we have this cost/risk factor or whether we ought to get it right. The one thing we've stuck with is what's here stays here, we don't let it migrate. There is some evidence that the Strontium-90 won't migrate, there is overwhelming evidence that the VOCs will. I don't think we should sit for that.

Helga Guthy: Unfortunately I have the privilege of following a few people who I really can't agree with. I have to agree with Anthony and Mark and so many others. I haven't heard anything that would make me think that this is an immediate problem. I think they seem to have looked at everything and have it under control. It will take longer and just rushing it to me is going to disturb more. It is not only costing more money, but it's taking more out of the ground than needs to be taken out to make it safe. The Lab did do more with the Peconic River cleanup than we had initially thought was necessary. We went along with that. I don't see any reason to change this. In that case there were people that would have been exposed and environmental exposures - fish and fishermen and so on. No one has any information that anyone would be exposed to this. We have been assured that if they find anything different and there were changes, that the plan will be changed. So if things go faster or further I do believe that it will be taken care of.

Jean Jordan- Sweet: I basically agree with the document. The thing that struck me was that for both the Magothy and Strontium-90, the Lab recommendation was to go backwards. You'd spend far more money to decrease the level of the contaminants by half and that just doesn't seem very reasonable to me especially for the Strontium-90 that isn't really going to be going anywhere. As for the Magothy to punch twice the number of holes through the clay layer to get the less contaminated plumes, I don't think is really worth it either.

Iqbal Chaudhry: Unfortunately I was not able to attend the last meeting and I missed the two handouts that were available for reading and review. I think this problem is really related to what they call groundwater hydrology. Groundwater hydrology is not a very precise science. You state that Strontium-90 travels 35 feet a year and groundwater travels 300 feet a year. It can be way off from these figures depending on the soil, the aquifer, and the underground layers and the clay layers. But I just tend to believe based on the explanations that BNL has put in a lot of effort and I think they have made an effort to do the best job possible. We can keep on asking questions and trying to pin them down. I think it's very realistic to expect very, very accurate figures from BNL. While it's important to know the time frame, at the same time let's give some leeway to BNL for the practicalities. Having said all that I believe that I am satisfied

the road BNL is taking is acceptable and I recommend that we should go with their recommendation.

Tom Talbot: Certainly Strontium-90 and VOCs are in fact two very different issues. It appears to me that given the location of the current Strontium plume, the projected movement, and the half- life, you could almost go with Alternative 1 that is basically do nothing and it will never leave the property. I don't have access to all the technical modeling the Lab has, but Strontium is by far more defined, and is less a concern to me. The VOCs, I'm a little bit fuzzy on because there are some things that I'm just not as clear on. The phrase in the ESD says there are no current receptors and hence no human health risks associated with the contamination of the Magothy Aquifer. The word current is a concern to me. I'm relying on the Lab's contact with the community and the monitoring to keep the word current accurate and I'm a little bit concerned with the fact that there are no known human health risks because we do have health risks of things that we previously believed to be safe. We read about these every day. Things that have been previously approved by the FDA all of sudden become poison. In a perfect world we would get all this stuff, contamination taken out tomorrow at zero cost, but we're not in a perfect world. But from my technical background I also have to be willing to consider cost and risk assessments. I was involved in that for many, many years in the nuclear power industry. Every decision that was made, in designing plants and the day-to-day operation, there was a risk with everything that we did so I'm relying on the Lab's expertise and research. At this point, I am inclined to support both of the Lab's published recommendations.

Barbara Henigin: The Longwood Central School District also feels comfortable with Brookhaven National Laboratory's proposal. Sitting here each month and listening to the presentations and the depth of the reports I don't feel that there's a reason to go with any of the other alternatives.
Thank you.

Mary Joan Shea: I think I have a lot of questions about changing the time for the cleanup, you're just about doubling it. Several people around the table here have mentioned the uncertainties of the health risks from the VOCs. I also feel that in the current political climate that we're in that money that's available now even though it's never enough, in the future there may be even less money for cleanup so we don't know what we're facing in the future. I feel that the best thing to do right now is to go ahead with No. 3 because that would guarantee that within a reasonable period time that we would know what's going on with the cleanup and nothing is more important to the health of people than the water that they drink and the air that they breath. So I think that the key issue, the main reason why I'm here as part of this group, is because I am so concerned about the water for the future and the air that we breath.

George Proios: I'll probably be redundant with some of the things I've said in past. (Some comments were made that were not picked up by the recording equipment.) We have a lot of good strong built-in safety factors in playing with numbers, and a lot of unknowns, but people tonight are talking about time. This planet has been around for four billion years and whether we're talking 65 years, 100, 65 thousand, six thousand years, 65 years is not a long time in the history of this planet. It's not a long time in our own history. I don't think time is the element to use for criteria to make a decision. Our criteria should be public health and the impact on the environment. I've said this a million times before, if it doesn't come in contact with you, if you don't breath it, you don't drink it, you don't eat it, the fact that it's there doesn't pose a health risk. There has to be a route for human exposure in order for that health risk to exist. Simply being in the groundwater does not create that condition. We're not drawing water from a bathtub, the lines are very specific, they're singular, we know exactly where these plumes are coming from because we've got more monitoring wells at Brookhaven than we have anywhere else in the country in terms of monitoring a single site. The fact that it's under our ground...

(tape switched)

It's just a fact of life. Radiation is with us, and it's always going to be with us. You have to ask if this project is going to impact any water people will be drinking. I can conceive no way that's going to happen. There's no way that a public water supplier is going to locate a well down gradient. If they do and they see contamination, they can't pump it unless they treat it. So I haven't seen any way that we're going to be exposed. The fact that it's down there doesn't create the problem by itself. You have to stick a well down there, draw it up and pump it to people's homes for them to drink in order to create a health threat. Now, should we be doing things based on money? Sure we should because the simple fact is that we don't have money to do everything that needs to get done to protect public health. There was news on the radio today saying there are chemicals that this country manufactures that have never been tested. Some are simple things like plastic that we use, Pampers, other things that we put next to babies. So if we have extra money to spend, there are things that we come in contact with in our daily lives every day that may pose a health risk that we haven't tested. On some microscopic particles of material thousands of feet below us in groundwater again doesn't seem to pose a threat to other things, I would be more concerned about these things that we do eat and ingest everyday as opposed to these other things that are just there, that we can monitor but will not in any way be taken into our bodies. So that's why I think this proposal is reasonable. I think there should be an escape clause - we're going to be doing monitoring so if something comes out in the future, yes, if we find something is different than what we expected, we should revisit it. But for the fact that right now there's no evidence that shows we have any kind of potential health threat, I don't see why we need to waste money when there are other more important things that the Lab needs to spend money on right now in order to make this site clean.

Emailed comments from Don Garber on behalf of the Affiliated Brookhaven Civic Organizations (ABCO) read into the record:

"While it is usual that ABCO's representative casts our vote without consultation, in this case a concerted effort to garner another position was mounted. Therefore, at the recent ABCO board meeting held earlier this week, the ABCO board voted eight (8) to two (2) not to oppose BNL's attempt to relax the cleanup goal timetables. While I (Don Garber) was not present at that board meeting, other CAC members were present and argued their position. The majority position is also my position. Members of the minority position were also present and they argued their position forcefully. Therefore, we vote to not oppose the cleanup relaxation of the Strontium 90 cleanup proposal and Magothy Aquifer cleanup proposal."

Carter, John T

From: jempress [jempress@optonline.net]
Sent: Saturday, January 15, 2005 3:05 PM
To: Carter, John T; D'Ascoli, Jeanne H
Subject: send comments

Untitled Attachment

NEAR ESD Revised Comments 1-15...

Mrs. Jean E. Mannhaupt
Neighbors Expecting Accountability & Remediation @ the Brookhaven National Laboratory
Project Administrator, USEPA Technical Assistant Grant Program under Superfund
Six Beatrice Court Manorville, NY 11949
631-395-1589 (home) 631-696-6700 (work) Email: nearorg@optonline.net

January 14, 2005
REVISION January 15, 2005

Honorable Senator Charles E. Schumer E-mail- Senator@schumer.senate.gov	145 Pine Lawn Road - Suite 300 Fax: 202-228-3027 and	Melville, NY 11747 631-753-0997
Honorable Senator Hillary Rodham Clinton E-mail-Senator@clinton.senate.gov	155 Pinelawn Road - Suite 250 North Fax: 202-228-0282 and	Melville, NY 11747 631-249-2847
Honorable Congressman Timothy H. Bishop http://wwwc.house.gov/timbishop/Default.htm	3680 Route 112 - Suite C Fax: 202-225-3826 and	Coram, NY 11727 631-696-4520
Honorable Senator Kenneth P. Lavalle http://senatorlavalle.com/send_email.asp	325 Middle Country Road - Suite 4 Fax: 518-426-6826 and	Selden, NY 11784 631-696-2307
Honorable Assemblywoman Patricia Acampora Email: acampop@assembly.state.ny.us	400 West Main Street - Suite 201 Fax: 518-455-4740 and	Riverhead, NY 11901 631-369-3869
Honorable Assemblyman Fred Theile Email: thielef@assembly.state.ny.us	2302 Main Street - POB 3062 Fax: 518-455-5963 and	Brideghampton, NY 11932 631-537-2836
Honorable County Executive Steve Levy county.executive@suffolkcountyny.gov	H. Lee Dennison Bldg. 100 Veterans Memorial Highway Fax: 631-853-4818	Hauppauge, NY 11788

To all my Elected officials:

In 1999, I became the lead coordinator for an EPA Technical Assistance Grant through a grant proposal sent to the EPA by interested community members who formed a group called NEAR – Neighbors Expecting Accountability and Responsibility. One of the specific areas that the TAG proposal focuses on is the groundwater contamination at Brookhaven National Laboratory. I, along with the TAG's technical consultant, have thoroughly reviewed the ESD and its implications to the community and the long-term welfare of Long Island. In addition, I have been an active voice for the community starting in the mid-80's before the Lab was put on the National Priorities List to the present as an active member of the Lab's Community Advisory Council since its initiation in 1998. Therefore, through my role as a community activist and advocate, I have an excellent understanding of the broader community concerns.

The Explanation of Significant Differences Document is currently in a public comment period. It appears that some of those who are speaking about the document are missing important information needed to help make a better-informed decision. Allow me to fill in the blanks on the Magothy Aquifer Contamination:

1. Due to the flexibility of the original Record of Decision, and the foresight of all parties involved, the Laboratory commenced upper glacial treatment and cleanup and left supplemental characterization of the Magothy until additional sampling could take place. Between 2000 and 2002, with adding 22 vertical profiles and 13 monitoring wells, the horizontal and vertical contamination in the Magothy was finally defined.

2. The proposed remedy ADDS two (2) Magothy extraction wells to the three (3) wells that have already been installed at the Upper Glacial/Magothy interface which is already being treated and cleaned-up. There will never be any receptors to this contamination (provided the DOE runs the site for the next 100 years).

3. It is very important to understand here that BNL/DOE is proposing a remedy that has a focus on TOTAL Volatile Organic Compounds, not singular compounds. For example, on the analysis where 7000 ppb was found of VOCs, it must be understood that this parts per billion number represents the sum of all individual compounds or TOTAL VOCs. The primary compound was Carbon Tetrachloride, and could have been the ONLY target compound for cleanup focus. However, isn't BNL supposed to clean it all up? This has been the precedent as per these past years for all interested parties collectively striving for best practices. I point this specifically out because under areas of environmental law(s), they (BNL) can be selective. But we as a community have demanded a more stringent cleanup and apparently it is working well.

4. Based on groundwater modeling the Magothy wells are and will continue to operate for 10 years pulling out 90% of the highest levels of contamination during this time. In treatment and cleanup, water pumping and recharge is a constant art in and of itself - to not jeopardize the hydro-geological flow contours - particularly since the BNL site sits over one of our County's most sensitive water recharge zones.

5. Modeling is a tool to anticipate what will happen regarding flow and dispersion of contamination. A 65-year cleanup and monitoring process will ensure there is a mechanism in place to receive FUNDING if the cleanup is not meeting the set goals. This I believe is critical to weigh with much consideration.

6. Within the total number of years to complete the cleanup, Institutional Controls must be in place by CERCLA, which includes a five-year mandated review, yearly trend reporting on monitoring well data and plume movement until clean-up goals are met. Lastly, the Laboratory is subject to the oversight by the EPA, NYSDEC, and the Suffolk County Department of Health Services.

I have come to learn that representatives from some elected officials' offices, although present and clearly hearing all the polling remarks of the members of the CAC, walked away with a skewed version of information. For the record, I would like to make the following points regarding the role of the CAC and the outcome of last night's meeting:

- The CAC has been held up as a model by many organizations in the nation. The reason for its effectiveness includes the openness of the Lab, the value the Lab places on hearing diverse opinions, and the willingness of all segments of the community to work and be involved in helping the Lab make better decisions.

- At last night's CAC meeting, each CAC member gave their input on the ESD recommendations. I have requested from the Lab a verbatim print out of the individual feedback from CAC members and they are being forwarded under separate cover so that you can learn first hand of the position of the members and the organizations they represent.

- You will note that although some CAC members have concerns that include monitoring, radiological waste disposal and the need for this process to remain dynamic, 16 of the 20 members who gave input support the preferred alternative recommended in the ESD.

- A most important note would be to understand that the community of East Yaphank and the lead the East Yaphank Civic Association has taken in this process is paramount to who IS the affected community. I should stress that those residents and particularly the members of East Yaphank Civic are and have been disturbed, intruded upon and abused in the whole cycle of this process. With this ESD proposed plan no more trenching has to be done as the last two (2) wells supporting this proposed plan have been installed with cost savings already earned. If a 30-year ROD is pushed down this community's throat, so to speak, it means at least two (2) more wells will be installed with 8 to 10,000 feet of pipe to be laid, approximately 2 more miles of intruding, disrupting and safety again becomes a great issue for children, homeowners,

workers, etc… For what? Remember there are no receptors or pathways that exist. Then they also lose a financial advantage within CERCLA that will allow for continuous monitoring and community oversight well into the next generation focused specifically on their homes. Unfortunate as it may be due to the site's historic values, the East Yaphank homeowners are NOW forced into the position of Guardians to the water supply within their community. The proposed plan allows for comprehensive review into the future of federal folly, if such mind-sets were to return. This proposed plan, in my considered opinion gives their Civic Association and homeowners the teeth and power into the future to ensure their property and its value singularly and collectively. They are the true stakeholders in this review.

I support the proposed cleanup. It supports CERCLA mandates, moves proactively forward, puts mechanisms in place in a way that assurances will be there, both short and long-term to review for efficiency of the cleanup. It also actively puts us in a position to receive money appropriations for the future of 55 to 60 years. This is above and beyond my expectations. Most natural attenuation clean-up projects do nothing to be this comprehensive or this flexible. To have financial ability with Federal and DOE budgets for this proposed plan's components considered for the next generation, is frankly political correctness at its highest degree. This is incredible and I am very much in full support. It was more than I hoped or ever advocated for the community.

Most of my comments and judgment on the Explanation of Significant Differences Document are in keeping with the majority of the CAC members and their organizations.

If my elected officials choose to discount the voices of many for a few, why should I as an unpaid volunteer continue to serve in this capacity? I am hoping that you, as my representative, will base your decisions on sound feedback from a cross section of your constituency.

There are several things I can recommend acting on:

1. Call an immediate meeting of the CAC and hear firsthand what they have to say about the ESD.
2. Perhaps a polling of the homeowners of the East Yaphank area should be considered
3. Perhaps obtain an independent third-party review of the ESD should you feel you do not have enough information to come to a decision

I await your reply.

Sincerely and with regard,

Jean E. Mannhaupt

cc: Via Fax & Email Transmission to:
M. Holland-DOE 631-344-3444, J. Dascoli – BNL CAC Liaison 631-344-3654, NEAR Members
Elected Officials: Senator Shumer, Senator Clinton, Congressman Bishop, Senator Lavalle, Assemblywoman Acampora, Assemblyman Theile, County Executive Levy

From: Lirrcomm@aol.com [mailto:Lirrcomm@aol.com]
Sent: Monday, January 17, 2005 10:10 AM
To: tellDOE@bnl.gov
Cc: JdSouthold@aol.com; gdsnfec@optonline.net; AEsposito@citizenscampaign.org
Subject: BNL Water Contamination Clean Up - Comments

Dear Mr. Holland,

I just read the article in Sunday, January 15, Newsday, regarding the contamination of the aquifer system at BNL with "strontium-90" and I am shocked and appalled to think anyone believes Mr. Bebon comments that "this contamination poses no danger to the public." Do you think anyone believes that statement? Surely you don't. Statistically, what is the cancer rate in and around BNL? What percentage of employees ***past and present*** have come down with an incurable illness? This is your proof...read it and weep!

By denying the seriousness of this contamination does not make it go away, nor does it solve the problem. In as much as the clean up may ultimately cost taxpayers $50 million dollars, is it not worth it? You reap what you sow!

George Bush's inauguration party is costing $4 million...Mr. Bush would have us believe this is the price we pay for freedom. Well, this is the price we pay for BNL's neglect and the price we MUST pay for a clean environment!! Let's not make the price of this clean up about Political Agendas or profits. It's about the people who pay your salaries, it's about the taxpayer, it's about our families, it's about humanity! Lastly, it's about having a conscious!!!

I am sadden to hear only one person showed up for BNL's meeting, perhaps there wasn't ample notification regarding this meeting. If I were aware, I would have been there along with others who would have attended.

My question to the BNL & DOE is, after we have successfully polluted this plant, where do we go for clean air and clean water? Who will answer this question?

We have 1 aquifer system and we only have one chance to protect it. As a citizen of this planet, I demand BNL take full responsibility for this contamination and action it quickly...***thirty years is thirty years too long!!***

Should you need to speak to me directly, please feel free to contact me.

Marie Domenici
330 Oldfield Court
Mattituck, NY
631 298 7103

NEW YORK STATE LEGISLATURE

January 18, 2005

Mr. Michael D. Holland, Area Manager
Attn: ESD
U.S. Department of Energy, Brookhaven Area Office
P.O. Box 5000
Upton, New York 11973

Dear Mr. Holland:

As members of the New York State Legislature representing Eastern Long Island, we write to convey to you our growing concerns over the announcement by the Department of Energy (DOE) to extend onsite cleanup efforts for radioactive strontium 90 and volatile organic compounds (VOC) to 70 and 65 years, respectively.

As you know, we continue to maintain a strong interest in protecting Long Island's resources, especially the Peconic River and land onsite of the Brookhaven National Laboratory. While we applaud the current efforts of the DOE to aggressively pursue cleanup offsite in the Peconic River corridor, we feel that this same level of effort must be applied to the onsite cleanup efforts as well.

As you know, VOC's have the capability to move rapidly and we feel that by extending their cleanup by 35 years, it is inevitable that there will harm to the surrounding environment, namely the area's groundwater supply. We should be able to ensure that there will not be any future contamination.

Although we acknowledge that strontium 90 moves at a much slower pace, we still feel that allowing 70 years for cleanup is not acceptable. At this time we would support the completion of VOC cleanup within 30 years and 50 years for the cleanup of the strontium 90.

We thank you for your attention to this matter. Again, we implore you to re-assess the remediation process after review of the concerns of the environmental and local community.

Sincerely yours,

Kenneth P. LaValle	Fred W. Thiele, Jr.	Patricia L Acampora
Member of Senate	Member of Assembly	Member of Assembly

CITIZENS CAMPAIGN FOR THE ENVIRONMENT

Protecting the environment and working for a healthy community.

❑ 225A Main Street • Farmingdale, New York 11735
Tel: 516-390-7150 • Fax: 516-390-7160
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❑ 3144 Main Street • Buffalo, New York 14214
Tel: 716-831-3206 • Fax: 716-831-3207
❑ 466 Westcott Street, 2nd Floor • Syracuse, New York 13210
Tel: 315-472-1339 • Fax: 315-472-1179

Mike Holland
Site Manager, Brookhaven Site Office
U.S. Department of Energy
PO Box 5000
Upton, NY 11973

January 18, 2005

Re: ***Explanation of Significant Differences (ESD) to Groundwater Record of Decision***

Dear Mr. Holland,

Citizens Campaign for the Environment (CCE) is an 80,000 member, not-for-profit, non-partisan advocacy organization working for the protection of public health and the natural environment in New York and Connecticut. The protection of drinking water and public health is of the utmost importance to CCE. As you aware, CCE has served on Brookhaven National Laboratory's Citizens Advisory Council since its inception in 1998.

CCE offers the following comments regarding the proposed changes to the OUIII ROD and the ***Explanation of Significant Differences to Groundwater Record of Decision.***

1. CCE does not support a remediation plan that relies on natural attenuation as a clean up method. CERCLA includes a strong preference for the use of treatment of contamination as a principle element for any remediation plan. Natural attenuation is not a treatment and therefore should not be utilized as a guiding principle for clean up. It is misleading to present natural attenuation for the Upper Glacial and the Magothy as a "clean up" plan. The proposed remedies for Strontium 90 and Volatile Organic Chemical (VOCs) relies all to heavily on natural attenuation and not enough on active, aggressive groundwater clean up.

2. **CCE is opposed to extending the cleanup of the Strontium 90 in the upper glacial aquifer from 30 years to 70 years**. The Record of Decision signed in June 2000 provided for a 30 year clean up plan. While we understand that cost of remediation needs to be considered as a factor we believe that 70 years is an unreasonable timeline. The requested 70-year time frame sets a dangerous and unnecessary state and national precedent for aquifer remediation. **We believe**

that extending the remediation plan from 30 years to 50 years will assist the laboratory in alleviating some of the financial burden of the Strontium clean up. However, a 50-year remediation plan will not create a new local, state and national clean up precedent.

3. **CCE is opposed to allowing the cleanup of the VOC contamination in the Magothy Aquifer to take 65 years. Magothy clean up should be limited to 30 years as it has in past clean up remedies.** CCE is pleased that the DOE provided additional characterization and installation of monitoring wells of the Magothy Aquifer. CCE is also pleased that the DOE agrees that remediation of the VOCs is appropriate. However, CCE believes the proposed plan to actively remediate the VOCs for only 10 years and continued monitoring for 55 years to meet drinking water standards is insufficient. Natural attenuation should be used to reduce the contamination of VOCs below drinking water standards of 5 ppb only after aggressive, active treatment measure has been utilized.

Thank you for the opportunity to comment on this important matter.

Sincerely,

Adrienne Esposito
Executive Director
Citizens Campaign for the Environment

Cc; US Senator Hillary Clinton
US Senator Charles Schumer
Congressman Bishop
Congressman Israel
Vito Minei, Suffolk County Department of Health

-----Original Message-----
From: pyquaet@aol.com
To: Carter, John T
Cc: D'Ascoli, Jeanne H
Sent: 1/19/2005 5:20 PM
Subject: ESD

To Whom It May Concern:

Since we have family and many friends living on LI in the vicinity of BNL, naturally we feel we have a stake in what happens in the area that would effect their lives and well-being. Also, we hope to eventually move to this area in the next 4 years.

We have read the comments on the Explanation of Significant Differences document that has been submitted for review by N.E.A.R., Inc. from Jean E. Mannhaupt and fully support the comments with regard to the proposed plan.

Yours truly,
Carol Culver
Raymond Eckerl

Community Health & Environment Coalition

P.O. Box 140 • Mt. Sinai, New York 11766 • 631-476-0167

January 19, 2005

Michael Holland, Site Manager
DOE Brookhaven Site Office
P.O. Box 5000
Brookhaven National Laboratory
Upton, NY 11973-500

Re: Magothy and Upper Glacial remediation

Dear Mr. Holland,

I am writing to submit public comment on Brookhaven National Laboratory's clean up of radioactive Strontium-90 in the Upper Glacial Aquifer and VOCs in the Magothy Aquifer. BLN has installed 16 groundwater treatment systems in its efforts to remediate the contamination, which is present both onsite and off-site. My comments, as mentioned at the Community Advisory Council meeting on January 13, remain the same and that is I feel the lab should expedite the remediation plans for both Upper Glacial and Magothy Aquifer.

Seventy years for clean up is much too long and may set a precedent for other decisions made regarding remediation of contaminated sites. In addition, the plumes are continually moving and may disperse contamination into uncontaminated ground water. The more BNL is expedient in it's remediation, the less likely contamination will spread.

Thank you for the opportunity to submit public comment on this important issue.

Sincerely,

Sarah S. Anker

Sarah S. Anker, Chairperson
Community Health and Environment Coalition
P.O. Box 140
Mt. Sinai, NY 11766
631-476-0167