Attachment 1

Poll from September 9, 2010 BNL Community Advisory Council Meeting

Five-Year CERCLA Review

Community Advisory Council Input
September 9, 2010

September Meeting Survey

The Community Advisory Council members present at the September 9, 2010 meeting provided comments on the following questions. The comments are to serve as their input into the 2010 Five-Year Review. Additionally, some CAC members also provided written comments.

1. What is your overall impression of BNL's cleanup and do you feel well informed about the cleanup activities and progress?

Member Sprintzen: He is astounded at the care and attention of cleanup at the Peconic River. The Laboratory's effort to attend to and success at it is impressive.

Member Talbot commented on the responsiveness to questions and concerns of a diverse audience.

Member Shea: The quality of charts and graphs in presentations are helpful to us in understanding what's going on.

Member Sprintzen: The progress over the last 12 years has been a remarkable success and is rare. He said there has been a transformation of culture and the contribution of knowledgeable people shows that the Lab is very responsive to the concerns of the community. The Lab has responded constructively to our comments.

Member Henagan: He would add that the Lab is open and pro-active. He commended the Laboratory on being a good neighbor.

Member Chaudhry: The work the Lab is doing on cleanup and keeping the CAC informed is good, but he would like to see the sampling at some point to see the accuracy of the information.

Member Blumer: I am impressed with the speed and responsiveness of the Lab. She sees change due to the CAC's efforts.

Member Biss: Usually the follow-up is good, but sometimes it is missed. She asked what happened to the information on the HFBR. She suggested the Lab occasionally write a letter to the general public with updated information on different topics. Perhaps the Lab could submit articles to the newspapers to get information out to the public.

Member Esposito: Overall things have been very good, she feels well informed. Her organization was looking for cleanup of existing contamination, preventing future contamination, and changing the culture at the Lab. She feels all three have been accomplished. Culture change is the most important. She said always keep transparency and an engaged stakeholder, such as the CAC. She said you need to have checks and balances. Be vigilant.

Member Shea: I would like to follow up on the idea of keeping the public informed. She said broad communication with full disclosure builds confidence.

Member Sprintzen: It is very helpful to have Reed, as the facilitator, here to find common ground and articulate what is said.

Member Guthy agreed and said the CAC and the Lab have come so far.

2. Are there any specific aspects of the cleanup that you feel should be of particular focus during the review? (e.g. Records of Decision, cleanup goals, community input, etc.)

Member Esposito: The timelines should be expedited. Particularly the 50 and70 year timelines for both groundwater and soil remediation, when and where it can be expedited; it should be.

Member Talbot: Skip Medeiros said some places need to be remediated and they are using a new approach. It's important to pursue emerging technologies.

3. Do you feel confident in BNL and DOE's management of the long-term cleanup operations of the site?

Reed said this topic has been covered thoroughly already and asked if anyone had further comment.

4. Do you have any comments, suggestions, or recommendations regarding BNL/DOE's management and communications of the cleanup?

Member Esposito: Keep an educated stakeholder entity so you don't become complacent.

Member Heil: Continue to seek monetary support from Washington D.C. It is important to continue to fund the cleanup effort.

Member Talbot: There has been a nice transition of different Lab Directors. He said site level management is moving forward consistently.

Member Chaudhry: Some community members feel that BNL has spread contamination. He would like more detailed involvement so he would be in a better place to spread accurate information to the public. Perhaps more site visits to see the actual work being done.

Member Henagan: It is important to educate the public. Summer Sundays are great, but some avenues are being missed. Perhaps half hour science shows on TV to keep the public informed and push science education from BNL.

Member Blumer: She will send her responses through the mail. She said her experience has been that many things happen that are not coordinated. She was given a chart, but still couldn't figure out how decisions are made. She is an ecologist and feels that some of the decisions lack a certain amount of concern or knowledge of the environment.

Written Reponses

The following are written responses were received from CAC members on the following four questions:

1. What is your overall impression of BNL's cleanup and do you feel well informed about the cleanup activities and progress?

2. Are there any specific aspects of the cleanup that you feel should be of particular focus during the review: (e.g. Records of Decision, cleanup goals, community input, etc.)

3. Do you feel confident in BNL and DOE's management of the long-term cleanup operations for the site?

4. Do you have any comments, suggestions, or recommendations regarding BNL / DOE's management and communications of the cleanup?

Chris Birben
Colonial Woods / Whispering Pines

Positive, impressive, successful. Responsiveness to concerns and inquiries.

Timelines – is there anywhere that the goals / time frames of the cleanup that is still ongoing can be expedited.

Yes, how can BNL and DOE continue the funding to help with the long-term management of the clean up.

The onus is one me to absorb and digest information shared and presented to the CAC, as a representative of my organization I would have appreciated more time than two or three business days to solicit individual responses of my civic community for opinion responses. For example, the prior Five-Year survey possibly could have tracked back to those individuals. Also, the knowledgeable facilitator for the CAC meetings has been invaluable.

Rita Biss
Lake Panamoka Civic Association

The cleanup appears to be going quite well and information provided especially at the CAC meetings is good. One problem is that some seem to tall through the cracks, nothing is heard about the problem for several years.

One idea to cover the lack of information would be to have an annual summary of either the entire cleanup or completed work or a statement, e.g. the work has been performed and why. e.g. time required for radiation levels to be lowered by time.

A summary of problems, with or without solutions should be presented in the yearly summary.

Local newspapers would probably accept and publish a statement or article from BNL about progress and/or problems and/or new ideas in work at BNL. The summer schedule of summer tours was good. A short published article several times a year would keep the local community informed about BNL.

Iqbal Chaudhary
Science & Technology

I think BNL has done a very good job at clean up of various pollutants that resulted from its operation over the years past. With a slower start or insufficient attention in the beginning BNL became much more attentive and responsive to addressing the problem more systematically and more scientifically in accord with acceptable industrial practices. The progress has been accelerated with the availability of additional funding from the current administration. BNL has been doing as excellent job at keeping the CAC well informed on the progress and success of its cleanup operations.

Community input should be the most important aspect of the focus during the review. Whereas the majority of Long Island residents are now reasonably satisfied with the efforts and accomplishments of the Lab there still are people who harbor concerns at the long term impact of the pollutants that might have been left untreated or ignored so far.

Yes, I have no qualms with the ability and competence of the BNL in managing the long term cleanup operations and in fact I can vouch for it from my person perspective as a member of the CAC.

I find that BNL's communications on the clean up are very competent and efficient. Perhaps more opportunities for the CAC to conduct group site visits would enhance acceptance by the community of the results achieved and reported.

Adrienne Esposito
Citizens Campaign for the Environment

Yes, the CAC is well informed about the cleanup and progress. BNL cleanups are very comprehensive.

Yes, some of the times for remediation. Many clean up plans that are planned for between 50 – 70 years – I feel this is too long. Review of emerging technology for the various cleanups.

Yes, as long as there is a vibrant, educated CAC and community input process. Every system needs accountability. Transparency of the process is key to the success of effectively managing the long-term cleanup.

Don't get lazy or complacent. Provide informative, technical presentations to CAC and don't hold back.

Don Garber
Affiliated Brookhaven Civic Organizations

I think the cleanup is proceeding extremely well. Partly do to the infusion of extra stimulus funds but mainly due to excellent organization and commitment by the cleanup groups. The Lab management directors from Marburger to Chaudhari to Aronson have shown exemplary commitment to keep the CAC and others informed on the cleanup progress.

While the ROD and the Goals are largely behind us, future meetings should focus on how well the cleanup is progressing. Earlier meetings were a good balance as the CAC needed to be informed of the problems then have its input solicited.

I feel quite confident in the present BNL and DOE management. I hope that the present Lab management continues with adequate funding to meet our joint objectives.

I think the dialog is working well. I must point out that the Lab's providing the CAC with Reed Hodgin as a moderator has been quite pivotal to the smooth working of the CAC and therefore to the constructive dialog between the Lab and the community stakeholders.

Helga Guthy
Wading River Civic Association

We have been well informed. BNL has been very responsive to our concerns. The effort of the Lab to bring in people and cover subjects we have asked about has been extremely informative.

Nothing specific that I know of, just do the thorough jobs have done in the past.

Yes, everyone has gone to extremes to furnish information and done clean up of all contamination, throughout BNL, that the CAC has been concerned about.

Continue to include community concerns, and to clean up and inform us of what is happening at BNL in the future.

James Heil
Town of Brookhaven, Senior Representative

The cleanup appears to be well managed and on schedule. The CC is well informed on the progress of the cleanup.

Unanticipated events or procedures learned that could be used under similar circumstances at other Labs should be focused on as well as advances in technologies.

Yes, I feel confident in BNL and DOE's management.

I don't have any additional comments, suggestions, or recommendations.

Pat Henagan
Ridge Civic Association

I feel very informed on the cleanup. The Lab has been very forth coming on "blemishes" that it finds in the process.

Rate of progress towards the goals should be focused on.

Yes, with the current management. I do hope that future management teams continue this level of performance.

BNL has done an excellent job of keeping the CAC informed. It is disappointing that the Lab doesn't do more public communication via available media channels. Besides the newspapers, BNL PR dept should look at the possibility of either public access channels or News12 to do a weekly program.

Beth Motschenbacher
Long Island Pine Barrens Society

We have been asking for a very long time for a summary of how each clean-up component worked out relative to expectations, time, and expense. We don't think we know this at all.

Cleanup goals relative to projected and actual expenses should be focused on.

If BNL continues open communication and modifying its practices based on lessons learned from past mistakes then the prognosis for long-term cleanup looks good.

The Lab seems to be communicating well on current operations and advising the CAC of the rare problems that have cropped up. We think communications between the Lab and the community have steadily improved.

Arnie Peskin
Brookhaven Retired Employees Association

I have a positive feeling about both the cleanup and the Lab's attempt to keep the CAC informed.

In addition to the three mentioned above, perhaps a review of Lab programs to keep the community informed (community dialogue, not just community input).

I do, but recognize this can change each time there is a change in BNL or DOE management. Who is the custodian of the “institutional memory” of commitments?

I have no other comments or suggestions, other than what I have mentioned above.

David Sprintzen
Long Island Progressive Coalition

I think that BNL has done an exceptional job on informing and responding to community input and has addressed the cleanup with responsibility, attention to detail, and concerns for health and safety.

Goals and community input – in accord with technical information concerning environmental and health and safety concerns.

So long as current management and goals remain, the answer is yes.

It is important for BNL/ DOE to provide complete and timely information of problems and strategies to the members of the CAC.

Tom Talbot
Longwood Alliance

BNL provided numerous opportunities for CAC members to request and receive information, additionally, field trips and topic specific presentation were set up and well attended.

Goal management is the most effective means of evaluating many of the issues addressed in the cleanup. Oversight should also include emerging technologies that may benefit the cleanup

Yes, and hopefully financial constraints will not be an issue, or cause the Lab to forgo their true missions in order to fund the cleanup operations.

It is a good model of how to deal with a complex set of issues and to communicate with a diverse audience. It appears that BNL management/staff have successfully implemented a culture change which will endure.

No Name

BNL’s cleanup has been vigorous, transparent, and targets stakeholder groups for input. Considerable progress has been made across-the-board.

An ongoing tally of the degree to which cleanup goals have been met would be most useful (particularly if made available online).

BNL has demonstrated its sincerity to best environmental practices and has gained the confidence of the many stakeholder groups involved in the CAC.

More on-site tours of cleanups and other items of environmental interest. And outreach to students (high school and colleges).

Attachment 2

2009 BNL Groundwater Status Report, BNL 2009 (CD Version)

(To be included in public availability version)

Attachment 3

Inspection Checklists

BNL Five-Year Review Site Inspection Checklist

I. SITE INFORMATION	
Site name: Brookhaven National Laboratory	**Date(s) of inspection:** 3/30/10 through 7/12/10
Location and Region: Upton, NY, EPA Region 2	**EPA ID:** NY7890008975
Agency, office, or company leading the five-year review: Brookhaven Science Associates (BSA) for the U.S. Department of Energy (DOE)	**Weather/temperature:** NA

Remedy Includes: (Check all that apply)

- ☒ Landfill cover/containment
- ☒ Access controls
- ☒ Institutional controls
- ☒ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other____
- ☒ Monitored natural attenuation
- ☒ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☒ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** _ Bill Dorsch, LTRA Manager_
   Interviewed ☒ at site ☒ at office ☐ by phone Phone no. _344-5186
   Problems, suggestions; ☐ Report attached _Work with on a daily basis and discuss issues weekly. ___

2. **O&M staff** Vinnie Racaniello, Eric Kramer, Adrian Steinhauff, Project Manager and Field Engineers
   Interviewed ☒ at site ☒ at office ☐ by phone Phone no. 344-5436, 8226, 2363______________
   Problems, suggestions; ☐ Report attached Work with on a daily basis and discuss issues weekly.____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

   Agency ___EPA, DEC, SCDHS, DOE _________________________
   Contact ____________________________ ___________________ _________ ____________
   Name Title Date Phone no.
   Problems; suggestions; ☒ Report attached See interview records.
   ____

   Agency ____________________________
   Contact ____________________________ ___________________ _________ ____________
   Name Title Date Phone no.
   Problems; suggestions; ☐ Report attached ____
   ____

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**
☒ O&M manual ☒ Readily available ☒ Up to date ☐ N/A
☒ As-built drawings ☒ Readily available ☒ Up to date ☐ N/A
☐ Maintenance logs ☐ Readily available ☐ Up to date ☐ N/A
Remarks: All O&M Manuals have been updated and are available on the website. The as-built drawings are available through Facility & Operations database.

2. **Site-Specific Health and Safety Plan** ☒ Readily available ☒ Up to date ☐ N/A
☒ Contingency plan/emergency response plan ☒ Readily available ☒ Up to date ☐ N/A
Remarks: Each project has a H&S Plan and Work Permit specific to that job. The operating groundwater treatment systems have a contingency/emergency plan in their O&M Manuals.
____

3. **O&M and OSHA Training Records** ☒ Readily available ☐ Up to date N/A
Remarks _Worker training records are available on the BNL training website database. __

4. **Permits and Service Agreements**
☒ Air discharge permit ☒ Readily available ☒ Up to date ☐ N/A
☒ Effluent discharge ☒ Readily available ☒ Up to date ☐ N/A
☐ Waste disposal, POTW ☐ Readily available ☐ Up to date ☐ N/A
☒ Other permits: Peconic ☒ Readily available ☒ Up to date ☐ N/A
Remarks: DEC air and SPDES equivalency permits in place for all treatment systems, as appropriate. Peconic River On-site and Off-site Supplemental Sediment Removal permit is in place. ____

5. **Gas Generation Records** ☐ Readily available ☐ Up to date ☒ N/A
Remarks: Passive gas venting only. ____

6. **Groundwater Monitoring Records** ☒ Readily available ☒ Up to date ☐ N/A
Remarks: Groundwater monitoring data is made available via the Quarterly System Operations Reports, as well as the Annual Groundwater Status Report. _________________

7. **Discharge Compliance Records**
☒ Air ☒ Readily available ☒ Up to date ☐ N/A
☒ Water (effluent) ☒ Readily available ☒ Up to date ☐ N/A
Remarks: Discharge Monitoring Reports (DMRs) for the treatment systems with SPDES equivalency permits are issued monthly to the DEC. Air compliance records are documented in the Annual Groundwater Status Reports. ___________________________________

8. **Daily Access/Security Logs** ☒ Readily available ☐ Up to date ☐ N/A
Remarks_Daily operating data sheets for the groundwater systems are available at the treatment building and the Project files.

9. **Comments** ____
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IV. O&M COSTS

1. **O&M Organization**

☐ State in-house ☐ Contractor for State
☐ PRP in-house ☐ Contractor for PRP
☐ Federal Facility in-house ☒ Contractor for Federal Facility
☐ Other: Responsibility for managing BNL's Long Term Response Actions lies with the Environmental Protection Division's (EPD) Groundwater Protection Group (GPG). ___

2. **O&M Cost Records**

☒ Readily available ☒ Up to date
☒ Funding mechanism/agreement in place
Original O&M cost estimate____________________ G Breakdown attached

Total annual cost by year for review period if available

From	Date	To	Date	Total cost	
From	10/04	To	9/05	Avg. Annual of $246K	☒ Breakdown attached
From	10/05	To	9/06	Avg. Annual of $228K	☒ Breakdown attached
From	10/06	To	9/07	Avg. Annual of $211K	☒ Breakdown attached
From	10/07	To	9/08	Avg. Annual of $203K	☒ Breakdown attached
From	10/08	To	9/09	Avg. Annual of $204K	☒ Breakdown attached

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: No unusually high O&M costs identified. FY05 was the first full year of operation for the five treatment systems beyond the BNL property. The annual costs for each system from FY2005 through FY2009 is identified in the Five-Year Review.

V. ACCESS AND INSTITUTIONAL CONTROLS ☒ Applicable ☐ N/A
A. Fencing
1. **Fencing damaged** ☐ Location shown on site map ☐ Gates secured ☐ N/A Remarks: See Current Landfill inspection forms for needed repair to gate. _
B. Other Access Restrictions
1. **Signs and other security measures** ☐ Location shown on site map ☐ N/A Remarks: Identification signs are in place for all of the on-site and off-site groundwater treatment systems. DOE notification signs are in place for all treatment facilities located beyond BNL's property boundary. There are BNL security personnel at the site 24 hours per day. For the systems located beyond the BNL boundaries, security cameras are present that communicate with BNL's security personnel. Restricted use signs are posted at former soil cleanup areas including the Former Hazardous Waste Management Facility, former Meadow Marsh, Landfills, Ash Pit, former Chemical Holes, Bldg. 96, Bldg. 650 Sump Outfall, and Bldg. 811. ______________________________
C. Institutional Controls (ICs)
1. **Implementation and enforcement** Site conditions imply ICs not properly implemented ☐ Yes ☒ No ☐ N/A Site conditions imply ICs not being fully enforced ☐ Yes ☒ No ☐ N/A Type of monitoring (*e.g.*, self-reporting, drive by): Routine walkdown inspections of landfills, former soil cleanup areas, and groundwater treatment systems. ____ Frequency: Varies from almost daily for treatment systems, monthly for landfills, semi-annual former soil cleanup araes. ____ Responsible party/agency: BSA under contract with DOE. ____ Contact: William Dorsch — BSA GPG Manager — 3/21/05 — (631) 344-5186 Gail Penny — DOE Project Manager — 3/21/05 — (631) 344-4363 Name — Title — Date — Phone no. Reporting is up-to-date ☒ Yes ☐ No ☐ N/A Reports are verified by the lead agency ☒ Yes ☐No ☐ N/A Specific requirements in deed or decision documents have been met ☒ Yes ☐ No ☐ N/A Violations have been reported ☐ Yes ☒ No ☐ N/A Other problems or suggestions: ☐Report attached Remarks: There are seven access agreements in place among BSA/DOE and various property owners to allow for operation of BNL's groundwater remediation systems for plumes that have migrated beyond the BNL property. Each agreement has terms and conditions that must be adhered to. A license agreement is also in place among BSA/BHSO/Suffolk County for the supplemental sediment cleanup for the Peconic River in 2010/2011.___________________________________
2. **Adequacy** ☒ ICs are adequate ☐ ICs are inadequate ☐ N/A Remarks: The Land Use Controls Management Plan and institutional controls website and fact sheets continue to be updated, as needed to reflect the most recent IC's for each project. ___

D. General		
1.	**Vandalism/trespassing** ☐ Location shown on site map ☒ No vandalism evident Remarks_There has been some vandalism in the past at some of the treatment systems located beyond the BNL property. However, additional precautions have been implemented such as security cameras, motion detectors, and fencing to help minimize the potential risk. ____________	
2.	**Land use changes on site** ☒ N/A Remarks: None____	
3.	**Land use changes off site** ☒ N/A Remarks: None____	
VI. GENERAL SITE CONDITIONS		
A. Roads ☒ Applicable ☐ N/A		
1.	**Roads damaged** ☐ Location shown on site map ☒ Roads adequate ☐ N/A Remarks____	
B. Other Site Conditions		
	Remarks: ____	

VII. SOIL CLEANUP REMEDIES ☒ Applicable ☐ N/A	
A. Project OU I AOC 2F Ash Pit 6/24/10	
1.	**Soil Excavation Complete** ☒ Yes ☐ No Remarks ________
2.	**S&M Documents** ☒ S&M Plan ☒ Readily available ☐ Up to date ☐ N/A ☒ Completion/Closeout Report ☒ Readily available ☒ Up to date ☐ N/A ☐ Maintenance logs ☐ Readily available ☐ Up to date ☒ N/A Remarks: Final Closeout Report for the Ash Pit OU I AOC 2F, dated 2/5/04. Section 4.0 of the Closeout Report identifies LTRA requirements (i.e., annual inspection). _
3.	**Settlement** (Low spots) ☒ Location shown on site map ☒ Settlement not evident Areal extent ________ Depth________ Remarks: None ________
4.	**Erosion** ☒ Location shown on site map ☒ Erosion not evident Areal extent________ Depth________ Remarks: None. ________
5.	**Vegetative Cover** ☒ Grass ☒ Cover properly established ☒ No signs of stress ☒ Trees/Shrubs (indicate size and locations on a diagram) Remarks: Trees surround the pit area. Excellent native grass growth. ________
6.	**Wet Areas/Water Damage** ☒ Wet areas/water damage not evident ☐ Wet areas ☐ Location shown on site map Areal extent________ ☐ Ponding ☐ Location shown on site map Areal extent________ ☐ Seeps ☐ Location shown on site map Areal extent________ ☐ Soft subgrade ☐ Location shown on site map Areal extent________ Remarks: None. ________
7.	**Monitoring Wells** (within the excavated area) ☒ Properly secured/locked ☒ Functioning ☐ Routinely sampled ☒ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A Remarks________ ________
8.	**Other Site Conditions**
	Remarks: Inspection attendees include W. Dorsch, R. Howe, K. Conkling, D. Hanley. ____

VII. SOIL CLEANUP REMEDIES ☒ Applicable ☐ N/A

A. Project OU I AOC 8 Meadow Marsh 6/28/10

1. **Soil Excavation Complete** ☒ Yes ☐ No
   Remarks

2. **S&M Documents**
   ☒ S&M Plan ☒ Readily available ☐ Up to date ☐ N/A
   ☒ Completion/Closeout Report ☒ Readily available ☒ Up to date ☐ N/A
   ☐ Maintenance logs ☐ Readily available ☐ Up to date ☒ N/A
   Remarks: Final Closeout Report for the Meadow Marsh OU I AOC 8, dated 2/6/04. Section 4.0 of the Closeout Report identifies LTRA requirements (i.e., ecological monitoring and inspection for Tiger Salamanders). Institutional controls are also identified in the Report.

3. **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident
   Areal extent______________ Depth____________
   Remarks

4. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
   Areal extent______________ Depth____________
   Remarks

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☒ No signs of stress
   G Trees/Shrubs (indicate size and locations on a diagram)
   Remarks: Native grasses planted adjacent to the pond.

6. **Wet Areas/Water Damage** ☐ Wet areas/water damage not evident
   ☐ Wet areas ☐ Location shown on site map Areal extent______________
   ☒ Ponding ☐ Location shown on site map Areal extent______________
   ☐ Seeps ☐ Location shown on site map Areal extent______________
   ☐ Soft subgrade ☐ Location shown on site map Areal extent______________
   Remarks: The remediated area is a pond for the Tiger Salamanders.

7. **Monitoring Wells** (within the excavated area)
   ☒ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
   Remarks

8. **Other Site Conditions**
   Remarks: Inspection attendees include R. Howe, D. Hanley.

VII. SOIL CLEANUP REMEDIES ☒ Applicable ☐ N/A

A. Project OU I AOC 6 Bldg. 650 Sump Outfall 6/29/10

1. **Soil Excavation Complete** ☒ Yes ☐ No
   Remarks ______

2. **S&M Documents**
   ☒ S&M Plan ☒ Readily available ☐ Up to date ☐ N/A
   ☒ Completion/Closeout Report ☒ Readily available ☐ Up to date ☐ N/A
   ☐ Maintenance logs ☐ Readily available ☐ Up to date ☒ N/A
   Remarks: Draft Final Closeout Report for AOC 6 Bldg. 650 Sump and Sump Outfall, dated 1/02.

3. **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident
   Areal extent______ Depth______
   Remarks: The entire area is graded and a drainage swale exists that routes surface runoff to the ponded sump. The pond has been staying wet year round.

4. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
   Areal extent______ Depth______
   Remarks: ______

5. **Vegetative Cover** ☒ Grass ☐ Cover properly established ☒ No signs of stress
   ☒ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks: Some trees surround the sump. Good native grass cover.

6. **Wet Areas/Water Damage** G Wet areas/water damage not evident
   ☐ Wet areas ☐ Location shown on site map Areal extent______
   ☒ Ponding ☐ Location shown on site map Areal extent______
   ☐ Seeps ☐ Location shown on site map Areal extent______
   ☐ Soft subgrade ☐ Location shown on site map Areal extent______
   Remarks: Pond is Tiger Salamander habitat

7. **Monitoring Wells** (within the excavated area)
   ☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition
   ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
   Remarks:

8. **Other Site Conditions**
   Remarks: Inspection attendees include W. Dorsch, V. Racaniello, R. Howe. Replace institutional control sign at pond. Fence partially surrounds the former sump outfall (no restrictions for entering area).

VII. SOIL CLEANUP REMEDIES ☒ Applicable ☐ N/A
A. Project OU I AOC 16S Landscape Soil Areas 6/22/10
1. **Soil Excavation Complete** ☒ Yes ☐ No Remarks ______
2. **S&M Documents** ☒ S&M Plan ☒ Readily available ☐ Up to date ☐ N/A ☒ Completion/Closeout Report ☒ Readily available ☒ Up to date ☐ N/A ☐ Maintenance logs ☐ Readily available ☐ Up to date ☒ N/A Remarks: Final Closeout Report for AOC 16 Landscape Soils, dated 4/10/01.
3. **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident Areal extent______ Depth______ Remarks______
4. **Erosion** ☐ Location shown on site map ☒ Erosion not evident Areal extent______ Depth______ Remarks______
5. **Vegetative Cover** ☒ Grass ☒ Cover properly established ☒ No signs of stress G Trees/Shrubs (indicate size and locations on a diagram) Remarks______
6. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident ☐ Wet areas ☐ Location shown on site map Areal extent______ ☐ Ponding ☐ Location shown on site map Areal extent______ ☐ Seeps ☐ Location shown on site map Areal extent______ ☐ Soft subgrade ☐ Location shown on site map Areal extent______ Remarks______
7. **Monitoring Wells** (within the excavated area) ☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A Remarks______
8. **Other Site Conditions**
Remarks: Inspection attendees include W. Dorsch, R. Howe, K. Conkling, D. Hanley. Due to the construction of the Interdisciplinary Science Building (ISB), landscape soil from the Bldg. 355 area was excavated in March 2010 and transferred to the former HWMF to be used as fill (per attached ISB Letter to Regs 11/10/09). Three confirmatory soil samples identified remaining Cs-137 concentrations below 0.5 pCi/g. Recommendations: Update the Landscape Soil LUIC Factsheet to include that the Bldg. 355 soils were removed and confirmatory samples obtained. The area is now the location of the ISB construction site. No further inspections are necessary.

Landscape Soil From Bldg. 355

	
3/4/10 – Building 355 excavated landscape soil area at ISB construction site	3/2/10 – Excavated landscape soil transferred to former hazardous waste management facility for use as fill

VII. SOIL CLEANUP REMEDIES ☒ Applicable ☐ N/A
A. Project OU I AOC 1 Hazardous Waste Management Facility (HWMF) 6/28/10_________
1. **Soil Excavation Complete** ☒ Yes ☐ No Remarks:
2. **S&M Documents** ☒ S&M Plan ☒ Readily available ☐ Up to date ☐ N/A ☒ Completion/Closeout Report ☒ Readily available ☒ Up to date ☐ N/A ☐ Maintenance logs ☐ Readily available ☐ Up to date ☒ N/A Remarks: The OU I Soils and OU V Long-Term Monitoring and Maintenance Plan, dated May 2006. The Final Closeout Report for the Former Hazardous Waste Management Facility, dated 9/29/05.
3. **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident Areal extent______________ Depth____________ Remarks:
4. **Erosion** ☐ Location shown on site map ☒ Erosion not evident Areal extent______________ Depth____________ Remarks: __
5. **Vegetative Cover** ☒ Grass ☒ Cover properly established ☐ No signs of stress ☒ Trees/Shrubs (indicate size and locations on a diagram) Remarks: Some trees remain.
6. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident ☒ Wet areas ☐ Location shown on site map Areal extent_small_________ ☐ Ponding ☐ Location shown on site map Areal extent______________ ☐ Seeps ☐ Location shown on site map Areal extent______________ ☐ Soft subgrade ☐ Location shown on site map Areal extent______________ Remarks: Two small slightly wet areas in yard. Not significant since vegetation is well established. Backfill was added to these lower areas from the Bldg. 355 landscape soils (see Landscape Soil inspection). The wetland area immediately to the northwest of the FHWMF was slightly wet. _____
7. **Monitoring Wells** (within the excavated area) ☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition ☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A Remarks:
8. **Other Site Conditions**
Remarks: Inspection attendees include R. Howe, D. Hanley. BNL RadCon completed the annual survey of the fixed contamination on several of the concrete foundations 6/15/10. No loose contamination detected. An Environmental Restoration Project (ERP) Radioactive Material Storage Area is located just outside the main gate and the postings extend slightly into the FHWMF. ERP to remove materials from the Waste Loading Area and fence and piping debris just outside the FHWMF yard. Following completion of ERP reactor waste shipping, perform Exit Readiness Evaluation for transfer of ownership to BNL Environmental Protection Division. Recommendation: Update LUIC Factsheet to reflect the identification in 2009 of the fixed contamination on five of the concrete foundations. They are rountine inspected and monitored by BNL and there should be no disturbance op these areas without BNL RadCon notification.

VII. SOIL CLEANUP REMEDIES ☒ Applicable ☐ N/A

A. Project OU V AOC 30 Peconic River 7/12/10

1. **Soil Excavation Complete** ☒ Yes ☐ No

Remarks: The original 2004/2005 is complete, however, procurement is underway to perform supplemental sediment remediation of three small areas in 2010. ___________________

2. **S&M Documents**

☒ S&M Plan ☒ Readily available ☐ Up to date ☐ N/A
☒ Completion/Closeout Report ☒ Readily available ☒ Up to date ☐ N/A
☐ Maintenance logs ☐ Readily available ☐ Up to date ☒ N/A

Remarks: The OU I Soils and OU V Long-Term Monitoring and Maintenance Plan, dated May 2006. Surface water, sediment, and fish monitoring requirements are identified in this Plan.

Final Closeout Report for Peconic River Remediation Phases 1 and 2, 8/25/05.

3. **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident
Areal extent______________ Depth____________
Remarks: __________

4. **Erosion** ☐ Location shown on site map ☒ Erosion not evident
Areal extent______________ Depth____________
Remarks____
____

5. **Vegetative Cover** ☒ Grass ☒ Cover properly established ☒ No signs of stress
☒ Trees/Shrubs (indicate size and locations on a diagram)
Remarks:

6. **Wet Areas/Water Damage** ☐ Wet areas/water damage not evident
☒ Wet areas ☐ Location shown on site map Areal extent______________
☒ Ponding ☐ Location shown on site map Areal extent______________
☒ Seeps ☐ Location shown on site map Areal extent______________
☒ Soft subgrade ☐ Location shown on site map Areal extent______________
Remarks: This is all indicitative of the River and wetland environment.

7. **Monitoring Wells** (within the excavated area)
☒ Properly secured/locked ☒ Functioning ☐ Routinely sampled ☒ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A
Remarks: Most wells are in good condition.

8. **Other Site Conditions**

Remarks: Inspection attendees include T. Green, R. Howe, W. Dorsch, D. Hanley.

VII. SOIL CLEANUP REMEDIES ☒ Applicable ☐ N/A	
A.	**Project OU I AOC 10** Building 811 UST and Soils 6/29/10________________________
1.	**Soil Excavation Complete** ☒ Yes ☐ No Remarks: Excavation complete in 2005.
2.	**S&M Documents** ☒ S&M Plan ☒ Readily available ☐ Up to date ☐ N/A ☒ Completion/Closeout Report ☒ Readily available ☒ Up to date ☐ N/A ☐ Maintenance logs ☐ Readily available ☐ Up to date ☒ N/A Remarks: Final Closeout Report for AOC 10 Waste Concentration Facility, 9/05. The OU I Soils and OU V Long-Term Monitoring and Maintenance Plan, dated May 2006.
3.	**Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident Areal extent_______________ Depth_____________ Remarks: Excavation and restoration is complete.
4.	**Erosion** ☐ Location shown on site map ☒ Erosion not evident Areal extent_______________ Depth_____________ Remarks: ___________________
5.	**Vegetative Cover** ☒ Grass ☒ Cover properly established ☒ No signs of stress ☐ Trees/Shrubs (indicate size and locations on a diagram) Remarks: Native grasses established. _____________
6.	**Wet Areas/Water Damage** ☒ Wet areas/water damage not evident ☐ Wet areas ☐ Location shown on site map Areal extent_______________ ☐ Ponding ☐ Location shown on site map Areal extent_______________ ☐ Seeps ☐ Location shown on site map Areal extent_______________ ☐ Soft subgrade ☐ Location shown on site map Areal extent_______________ Remarks____
7.	**Monitoring Wells** (within the excavated area) ☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☒ Needs Maintenance ☐ N/A Remarks: All of the BNL monitoring wells are secured and locked. Cracked well casing for flush mount monitoring well 065-161 awaiting repairs once AB waste line remediation project is complete.
8.	**Other Site Conditions**
	Remarks: Inspection attendees include W. Dorsch, V. Racaniello, R. Howe.

VII. SOIL CLEANUP REMEDIES ☒ Applicable ☐ N/A
A. Project OU III AOC 26B Building 96 7/7/10______________________
1. **Soil Excavation Complete** ☒ Yes ☐ No Remarks: PCB soil excavation complete in 2005. Planning is underway for the excavation of a localized area of high concentrations of PCE in soil that is scheduled to be excavated in August 2010.
2. **S&M Documents** ☒ S&M Plan ☒ Readily available ☐ Up to date ☐ N/A ☒ Completion/Closeout Report ☒ Readily available ☒ Up to date ☐ N/A ☐ Maintenance logs ☐ Readily available ☐ Up to date ☒ N/A Remarks: OU III Building 96 PCB Soil (AOC 26B) Excavation Closeout Report, 3/05. The OU I Soils and OU V Long-Term Monitoring and Maintenance Plan, dated May 2006.
3. **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident Areal extent______________ Depth____________ Remarks: Excavation of PCB soils is complete. ____
4. **Erosion** ☐ Location shown on site map ☒ Erosion not evident Areal extent______________ Depth____________ Remarks: BNL Facility and Operations cleaned-out vegetation to adjacent culvert that is covered with asphalt, since it is impeding flow to Recharge Basin HS.________________________
5. **Vegetative Cover** ☒ Grass ☒ Cover properly established ☒ No signs of stress ☐ Trees/Shrubs (indicate size and locations on a diagram) Remarks: Native grasses established. ____________
6. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident ☐ Wet areas ☐ Location shown on site map Areal extent______________ ☐ Ponding ☐ Location shown on site map Areal extent______________ ☐ Seeps ☐ Location shown on site map Areal extent______________ ☐ Soft subgrade ☐ Location shown on site map Areal extent______________ Remarks____ ____
7. **Monitoring Wells** (within the excavated area) ☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☐ Good condition ☐ Evidence of leakage at penetration ☒ Needs Maintenance ☐ N/A Remarks: All of the BNL monitoring wells are secured and locked. Cracked well casing for flush mount monitoring well 065-161 awaiting repairs once AB waste line remediation project is complete.
8. **Other Site Conditions**
Remarks: Plastic cover over PCE-contaminated soils in good condition. Inspection attendees include R. Howe.

VII. SOIL CLEANUP REMEDIES ☒ Applicable ☐ N/A

A. Project OU I AOC 2B,C Chemical/Animal/Glass Holes 6/21/10________________________

1. **Soil Excavation Complete** ☒ Yes ☐ No

Remarks: Soil excavation complete in 2005.

2. **S&M Documents**

☒ S&M Plan ☒ Readily available ☐ Up to date ☐ N/A

☒ Completion/Closeout Report ☒ Readily available ☒ Up to date ☐ N/A

☐ Maintenance logs ☐ Readily available ☐ Up to date ☒ N/A

Remarks: Animal/Chemical Pits and Glass Holes Remedial Action Closure Report Addendum, 9/05. The OU I Soils and OU V Long-Term Monitoring and Maintenance Plan, dated May 2006.

3. **Settlement** (Low spots) ☐ Location shown on site map ☒ Settlement not evident

Areal extent______________ Depth____________

Remarks: None.

4. **Erosion** ☐ Location shown on site map ☐ Erosion not evident

Areal extent______________ Depth_<1 foot___________

Remarks: BNL Facility and Operations to repair the one erosional area and seed.__________

5. **Vegetative Cover** ☒ Grass ☒ Cover properly established ☐ No signs of stress

☐ Trees/Shrubs (indicate size and locations on a diagram)

Remarks: Native grasses established. ____________

6. **Wet Areas/Water Damage** ☒ Wet areas/water damage not evident

☐ Wet areas ☐ Location shown on site map Areal extent______________

☐ Ponding ☐ Location shown on site map Areal extent______________

☐ Seeps ☐ Location shown on site map Areal extent______________

☐ Soft subgrade ☐ Location shown on site map Areal extent______________

Remarks____

7. **Monitoring Wells** (within the excavated area)

☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition

☐ Evidence of leakage at penetration ☐ Needs Maintenance ☐ N/A

Remarks: None.

8. **Other Site Conditions**

Remarks: Rehung the LUIC sign near the former Glass Holes area which was found on the ground nearby.

Recommendations: Modify the LUIC Factsheet to state that the former Glass Holes area is currently being used for site composting operations. A fabric liner was installed on the existing grade to ensure there is no disruption/penetration into the soil.

Inspection attendees include R. Howe, J. Burke, W. Dorsch, R. Lee, E. Kramer, D. Hanley, T. Kneitel.

Location (AOC): Sewage Treatment Plant
Date of Inspection: 7/12/10___________________________________
Name of Inspector(s): R. Howe, W. Dorsch, T. Green, D. Hanley
Purpose of Inspection: ☒ Routine (Scheduled Freq. of 2x/yr) ☐Heavy Rainfall ☐Reported Incident

A. Inspection Checklist

	Component	Observed Condition: Excell.	Fair	Poor	Not Applic.	Further Action Req'd: Yes (describe)	No
1.	**Landfill Cap/SoilCover:**						
	Vegetation (e.g. grass)	X					X
	Soil (Cap/Cover/Fill)	X					X
	Other: _________________________						
2.	**Drainage Structures:**						
	Standing Water				X		X
	Toe Drain				X		X
	Drainage Channels				X		X
	French Drains/Outfalls				X		X
	Subsurface Drainage	X					X
	Pipes/Outfalls				X		X
	Manholes				X		X
	Berms				X		X
	Roof Drains	X					X
	Recharge Areas						
	Other: ________________________						
3.	**Monitoring System:**						
	Soil Gas Wells				X		X
	Groundwater Wells	X					X
	Gas Vents				X		X
	Other: ______________________						
4.	**Site Access:**						
	Asphalt Access Road				X		X
	Crushed-concrete Access Road		X				X
	Fence	X					X
	Gates/locks	X					X
	Radiological Postings				X		X
	Other:						

5. Evidence of unauthorized work activities and/or unauthorized access has occurred? ☐ Yes ☒ No
If yes, describe evidence:

B. Description of Other Observations

Observed Conditions/Recommendations: No issues at STP. No unauthorized work visible at the abandoned sewer line area. No erosion of soil cover. Cover installed on sand trap located between the sand filters and the plant outfall. LUIC Fact Sheet Changes: Delete section of sewer pipe on figure that is south of East Fifth Ave. Under Remedial Action, add, Sludge was removed from manholes and a sewer line was capped and replaced with a new line. Under Admin. Controls, add control to prevent excavation or damage to the buried sewer line.

Location (AOC): Old Firehouse
Date of Inspection: 6/30/10______________________________________
Name of Inspector(s): R. Howe, W. Dorsch, D. Paquette, K. Conkling, D. Hanely
Purpose of Inspection: ☒ Routine (Scheduled Freq. of 1x/yr) ☐ Heavy Rainfall ☐ Reported Incident

A. Inspection Checklist

	Component	Observed Condition: Excell.	Fair	Poor	Not Applic.	Further Action Req'd: Yes (describe)	No
1.	**Landfill Cap/Soil Cover**						
	Vegetation (e.g. grass)	X					X
	Soil (Cap/Cover/Fill)				X		X
	Other: ________________________						
2.	**Drainage Structures:**						
	Standing Water				X		X
	Toe Drain				X		X
	Drainage Channels				X		X
	French Drains/Outfalls				X		X
	Subsurface Drainage				X		X
	Pipes/Outfalls				X		X
	Manholes				X		X
	Berms				X		X
	Roof Drains				X		X
	Recharge Areas				X		X
	Other: _______________						
3.	**Monitoring System:**						
	Soil Gas Wells				X		X
	Groundwater Wells	X					X
	Gas Vents				X		X
	Other: __________				X		X
4.	**Site Access:**						
	Asphalt Access Road	X					X
	Crushed-concrete Access Road				X		X
	Fence				X		X
	Gates/locks				X		X
	Radiological Postings				X		X
	Other: ________________________						

5. Evidence of unauthorized work activities and/or unauthorized access has occurred? ☐ Yes ☒ No
If yes, describe evidence:

B. Description of Other Observations

Observed Conditions/Recommendations: The area currently consists grass and trees adjacent to the east side of the NSLS. LUIC Factsheet Changes, Replace existing factsheet photo.

Location (AOC): Old Incinerator Facility
Date of Inspection: 6/24/10________________________________
Name of Inspector(s): R. Howe, W. Dorsch, K. Conkling, D. Hanley
Purpose of Inspection: ☒ Routine (Scheduled Freq. of 2x/yr) ☐Heavy Rainfall ☐Reported Incident

A. Inspection Checklist

	Component	Observed Condition: Excell.	Fair	Poor	Not Applic.	Further Action Req'd: Yes (describe)	No
1.	**Landfill Cap/Soil Covers:**						
	Vegetation (e.g. grass)	X					X
	Soil (Cap/Cover/Fill)	X					X
	Other: ____________________						
2.	**Drainage Structures:**						
	Standing Water	X					X
	Toe Drain				X		X
	Drainage Channels				X		X
	French Drains/Outfalls				X		X
	Subsurface Drainage				X		X
	Pipes/Outfalls				X		X
	Manholes				X		X
	Berms				X		X
	Roof Drains				X		X
	Recharge Areas						
	Other: ____________________						
3.	**Monitoring System:**						
	Soil Gas Wells				X		X
	Groundwater Wells	X					X
	Gas Vents				X		X
	Other: ____________________						
4.	**Site Access:**						
	Asphalt Access Road				X		X
	Crushed-concrete Access Road				X		X
	Fence				X		X
	Gates/locks				X		X
	Radiological Postings				X		X
	Other: ____________________				X		X

5. Evidence of unauthorized work activities and/or unauthorized access has occurred? ☐ Yes ☒ No
If yes, describe evidence: __________

B. Description of Other Observations

Observed Conditions/Recommendations: No soil erosional areas identified. Soil cover in good condition. LUIC Factsheet Changes: Add a Current Conditions Section that says the area consists of a grassy filed covered with at least 12" of topsoil. Delete reference and link to the OU I ROD and the Ash Pit Closeout Report. Change For Additional Information contact Bob Lee.

Location (AOC): Bubble Chamber
Date of Inspection: 6/30/10
Name of Inspector(s): R. Howe, W. Dorsch, D. Paquette, K. Conkling, D. Hanley, M. VanEssendelft, Frank Craner
Purpose of Inspection: ☒ Routine (Scheduled Freq. of 1x/yr) ☐ Heavy Rainfall ☐ Reported Incident

A. Inspection Checklist

	Component	Observed Condition: Excell.	Fair	Poor	Not Applic.	Further Action Req'd: Yes (describe)	No
1.	**Landfill Cap/Soil Covers:**						
	Vegetation (e.g. grass)		X				X
	Soil (Cap/Cover/Fill)				X		X
	Other: ______						
2.	**Drainage Structures:**						
	Standing Water				X		X
	Toe Drain				X		X
	Drainage Channels				X		X
	French Drains/Outfalls				X		X
	Subsurface Drainage				X		X
	Pipes/Outfalls				X		X
	Manholes				X		X
	Berms				X		X
	Roof Drains				X		X
	Recharge Areas				X		X
	Other: ______						
3.	**Monitoring System:**						
	Soil Gas Wells				X		X
	Groundwater Wells		X				X
	Gas Vents				X		X
	Other: ______				X		X
4.	**Site Access:**						
	Asphalt Access Road		X				X
	Crushed-concrete Access Road				X		X
	Fence	X					X
	Gates/locks	X					X
	Radiological Postings	X				For AGS Rad Storage	X
	Other: ______						

5. Evidence of unauthorized work activities and/or unauthorized access has occurred? ☐ Yes ☒ No
If yes, describe evidence: M. VanEssendelft from Collider Accelerator Dept (CA-D) and Frank Craner from ES attended the inspection and said there has been no unauthorized access to the posted/fenced rad storage area. In addition, any digging proposed for the area would be reviewed by the Groundwater Protection Group via the digging permit process.

B. Description of Other Observations

Observed Conditions/Recommendations: A portion of the area currently consists of a Collider Accelerator Dept. (CA-D) Bldg. 960 Waste Yard for outdoor storage of rad materials. It is fenced, locked, with rad postings, and paved. The remainder of the area to the north is open and consists of grass, pavement, and concrete slabs (no postings). LUIC Factsheet Changes: Add a Current Conditions Section that states the conditions described above.

Location (AOC): Low Mass Criticality Facility
Date of Inspection: 7/7/10____
Name of Inspector(s): R. Howe, W. Dorsch, D. Paquette, K. Conkling, D. Hanley
Purpose of Inspection: ☒ Routine (Scheduled Freq. of 1x/yr) ☐Heavy Rainfall ☐Reported Incident

A. Inspection Checklist

	Component	Observed Condition: Excell.	Fair	Poor	Not Applic.	Further Action Req'd: Yes (describe)	No
1.	**Landfill Cap/Soil Covers:**						
	Vegetation (e.g. grass)	X					X
	Soil (Cap/Cover/Fill)				X		X
	Other: ______________________						
2.	**Drainage Structures:**						
	Standing Water		X			Little water in basin	X
	Toe Drain				X		X
	Drainage Channels				X		X
	French Drains/Outfalls				X		X
	Subsurface Drainage	X					X
	Pipes/Outfalls	X					X
	Manholes				X		X
	Berms	X					X
	Roof Drains		X			Phragmites in basin	X
	Recharge Areas				X		X
	Other: ______________						
3.	**Monitoring System:**						
	Soil Gas Wells				X		X
	Groundwater Wells	X					X
	Gas Vents				X		X
	Other: __________				X		X
4.	**Site Access:**						
	Asphalt Access Road				X		X
	Crushed-concrete Access Road		X				X
	Fence				X		X
	Gates/locks				X		X
	Radiological Postings				X		X
	Other: ______________________						

5. Evidence of unauthorized work activities and/or unauthorized access has occurred? ☐ Yes ☒ No
If yes, describe evidence:
____

____

B. Description of Other Observations

Observed Conditions/Recommendations: No IC issues. LUIC Factsheet: Add a Current Conditions section.

Location (AOC): AGS Storage Yards (1 and 2)
Date of Inspection: 6/30/10____________________________________
Name of Inspector(s): R. Howe, W. Dorsch, D. Paquette, K. Comkling, D. Hanley, M. VanEssendelft (CA-D), Frank Craner (ES)
Purpose of Inspection: ☒ Routine (Scheduled Freq. of 1x/yr) ☐Heavy Rainfall ☐Reported Incident

A. Inspection Checklist

Component	Observed Condition: Excell.	Fair	Poor	Not Applic.	Further Action Req'd: Yes (describe)	No
1. Landfill Cap/Soil Covers:						
Vegetation (e.g. grass)				X		X
Soil (Cap/Cover/Fill)				X		X
Other: ______________						
2. Drainage Structures:						
Standing Water				X		X
Toe Drain				X		X
Drainage Channels				X		X
French Drains/Outfalls				X		X
Subsurface Drainage				X		X
Pipes/Outfalls				X		X
Manholes				X		X
Berms				X		X
Roof Drains				X		X
Recharge Areas				X		X
Other: ______________						
3. Monitoring System:						
Soil Gas Wells				X		X
Groundwater Wells	X					X
Gas Vents				X		X
Other: __________						
4. Site Access:						
Asphalt Access Road				X		X
Crushed-concrete Access Road				X		X
Fence				X		X
Gates/locks	X					X
Radiological Postings	X					X
Other: ______________						

5. Evidence of unauthorized work activities and/or unauthorized access has occurred? ☐ Yes ☒ No
If yes, describe evidence: M. VanEssendelft from Collider Accelerator Dept (CA-D) attended the inspection and said there has been no unauthorized access to the posted/fenced rad storage areas.

B. Description of Other Observations

Observed Conditions/Recommendations: The Bldg. 912 Steel Yard (Yard 1A) is a Radioactive Material Area (RMA). It is fenced, rad posted with a chain, and a contact sign. The Bldg. 912 Lead Yard (Yard 1B), is also identified as a RMA, and is rad posted, and secured with a fence and gate. LUIC Factsheet Changes: Storage Yard 1: Under Current Conditions, first sentence, change to, Yard 1A (Bldg. 912 Steel Yard) and Yard 1B (Bldg. 912 Lead Yard) are currently being used for storage by CA-D and are fenced and posted for radiological control purposes (i.e., Radioactive Material Area). Under Access and Engineered Controls, change to Radioactive Material Area. Highlight Yard 1B on the LUIC map. LUIC Factsheet Storage Yard 2 (AOC 18) Changes: Under Remedial Action, delete last sentence. Under LUIC Classification, first bullet, change to say, The site is currently used for industrial purposes.

Location (AOC): Bldg. 830 USTs and Pipe Leak
Date of Inspection: 6/30/10______________________________________
Name of Inspector(s): R. Howe, W. Dorsch, D. Paquette, K. Conkling, D. Hanley
Purpose of Inspection: ☒ Routine (Scheduled Freq. of 1x/yr) ☐ Heavy Rainfall ☐ Reported Incident

A. Inspection Checklist

Component	Observed Condition: Excell.	Fair	Poor	Not Applic.	Further Action Req'd: Yes (describe)	No
1. Landfill Cap/Soil Covers:						
Vegetation (e.g. grass)		X				X
Soil (Cap/Cover/Fill)				X		X
Other: ________________________						
2. Drainage Structures:						
Standing Water				X		X
Toe Drain				X		X
Drainage Channels				X		X
French Drains/Outfalls				X		X
Subsurface Drainage				X		X
Pipes/Outfalls				X		X
Manholes				X		X
Berms				X		X
Roof Drains				X		X
Recharge Areas				X		X
Other: _______________						
3. Monitoring System:						
Soil Gas Wells				X		X
Groundwater Wells		X				X
Gas Vents				X		X
Other: __________						
4. Site Access:						
Asphalt Access Road		X				X
Crushed-concrete Access Road				X		X
Fence		X				X
Gates/locks		X			Open, not locked	X
Radiological Postings	X				For Rad Storage Areas	X
Other: ________________________						

5. Evidence of unauthorized work activities and/or unauthorized access has occurred? ☐ Yes ☒ No
If yes, describe evidence: There doesn't appear to be, and any digging proposed for the area would be reviewed by the Groundwater Protection Group/LTRA via the digging permit process.

B. Description of Other Observations

Observed Conditions/Recommendations: The area currently consists of Bldg. 830 (occupied) by Energy, Environment and National Security Directorate (EENS) Environmental Sciences Dept., NSLS II Project Offices located in the mod trailer to the north , and outdoor connex storage, waste collection area, and rad waste storage areas. The yard is fenced but the gate is open/no lock. The remainder of the area is open and consists of grass and pavement/parking area.

Location (AOC): Building 208 Vapor Degreaser (AOC 26) and Warehouse Area
Date of Inspection: 11/19/09___________________________________
Name of Inspector(s): R. Howe, W. Dorsch, V. Racaniello
Purpose of Inspection: ☒ Routine (Scheduled Freq. of 1x/yr) ☐ Heavy Rainfall ☐ Reported Incident

A. Inspection Checklist

Component	Observed Condition: Excell.	Fair	Poor	Not Applic.	Further Action Req'd: Yes (describe)	No
1. Landfill Cap/Soil Covers:						
Vegetation (e.g. grass)				X	NSLS II construction underway	X
Soil (Cap/Cover/Fill)				X		X
Other: ________________________						
2. Drainage Structures:						
Standing Water				X		X
Toe Drain				X		X
Drainage Channels				X		X
French Drains/Outfalls				X		X
Subsurface Drainage				X		X
Pipes/Outfalls				X		X
Manholes				X		X
Berms				X		X
Roof Drains				X		X
Recharge Areas				X		X
Other: _______________						
3. Monitoring System:						
Soil Gas Wells				X		X
Groundwater Wells				X		X
Gas Vents				X		X
Other: __________						
4. Site Access:						
Asphalt Access Road				X		X
Crushed-concrete Access Road				X		X
Fence				X		X
Gates/locks	X				Constr. Zone Fenced	X
Radiological Postings				X		X
Other: ~~NSLS II Construction signs~~	X					X

5. Evidence of unauthorized work activities and/or unauthorized access has occurred? ☐ Yes ☒ No
If yes, describe evidence:
____

B. Description of Other Observations

Observed Conditions/Recommendations: The former Building 208, foundations, and the former warehouse area have been demolished and the construction of the NSLS II facility is in progress. Since this area will continue to be under the NSLS II building, there is no need to continue to perform annual LUIC inspections at this location. LUIC Factsheet Changes: Add a Current Conditions section referencing the NSLS II construction. Under Land Use Classification, first bullet, change to say that the area is used for industrial use. Update the third bullet to reference that the foundations were removed. Delete the engineered control for soil screening. Add link for the Closeout Report and reference the Factsheet for the Former Warehouse Area (Post NSLS II Construction). Also add this area to the OU I Soils and OU V Plan.

Location (AOC): Building 464 Mercury Contaminated Soils
Date of Inspection: 11/19/09
Name of Inspector(s): R. Howe, W. Dorsch, V. Racaniello
Purpose of Inspection: ☒ Routine (Scheduled Freq. of 1x/yr) ☐ Heavy Rainfall ☐ Reported Incident

A. Inspection Checklist

Component	Observed Condition: Excell.	Fair	Poor	Not Applic.	Further Action Req'd: Yes (describe)	No
1. Landfill Cap/Soil Covers:						
Vegetation (e.g. grass)			X		ISB under construction	X
Soil (Cap/Cover/Fill)				X		X
Other: ______						
2. Drainage Structures:						
Standing Water				X		X
Toe Drain				X		X
Drainage Channels				X		X
French Drains/Outfalls				X		X
Subsurface Drainage				X		X
Pipes/Outfalls				X		X
Manholes				X		X
Berms				X		X
Roof Drains				X		X
Recharge Areas				X		X
3. Monitoring System:						
Soil Gas Wells				X		X
Groundwater Wells				X		X
Gas Vents				X		X
Other: ______						
4. Site Access:						
Asphalt Access Road				X		X
Crushed-concrete Access Road				X		X
Fence				X		X
Gates/locks				X		X
Radiological Postings				X		X
Other: ______						

5. Evidence of unauthorized work activities and/or unauthorized access has occurred? ☐ Yes ☒ No
If yes, describe evidence:

B. Description of Other Observations

Observed Conditions/Recommendations: Construction preparation work is underway on the Interdisciplinary Science Building (ISB) which will be located at the former mercury cleanup area. This area is immediately north of Bldg. 464. This work was coordinated via the digging permit process and there are no impacts on the institutional controls for this area. The area will continue to be used for industrial purposes. The OU III ROD does not specify institutional controls for this area. Since this area will be underneath the ISB, there is no need to continue performing annual LUIC inspections at this location. The remaining institutional controls will continue to apply. LUIC Factsheet: Add Current Conditions section, stating that the area is currently under construction for the ISB. An extension to the east portion of Bldg. 464 was completed in the fall of 2009. Under Land Use, add a bullet that says the area will continue as industrial use while the ISB is in use. Under Other, add that annual inspections of this area are no longer needed since it is located under the ISB. Also add Bldg. 464 area to the OU I and V Plan.

Location (AOC): Recharge Basins HS and HW (AOCs 24E, 24F)
Date of Inspection: 11/19/09________________________________
Name of Inspector(s): R. Howe, W. Dorsch, V. Racaniello
Purpose of Inspection: ☒ Routine (Scheduled Freq. of 2x/yr) ☐ Heavy Rainfall ☐ Reported Incident

A. Inspection Checklist

Component	Observed Condition: Excell.	Fair	Poor	Not Applic.	Further Action Req'd: Yes (describe)	No
1. Landfill Cap/Soil Covers:						
Vegetation (e.g. grass)				X		X
Soil (Cap/Cover/Fill)				X		X
Other: ________________________						
2. Drainage Structures:						
Standing Water		X				X
Toe Drain				X		X
Drainage Channels				X		X
French Drains/Outfalls				X		X
Subsurface Drainage				X		X
Pipes/Outfalls				X		X
Manholes				X		X
Berms				X		X
Roof Drains	X					X
Recharge Areas				X		X
Other: _______________						
3. Monitoring System:						
Soil Gas Wells				X		X
Groundwater Wells				X		X
Gas Vents				X		X
Other: __________						
4. Site Access:						
Asphalt Access Road				X		X
Crushed-concrete Access Road				X		X
Fence				X		X
Gates/locks				x		X
Radiological Postings				X		X
Other:						

5. Evidence of unauthorized work activities and/or unauthorized access has occurred? ☐ Yes ☒ No
If yes, describe evidence:
____

B. Description of Other Observations

Observed Conditions/Recommendations: The basins continue to be use for recharge of stormwater. Since these basins are regulated under the New York State SPDES permits and any work in or near these basins are covered under the existing Work Planning and Control process, the digging permit process, and the BNL Natural Resource Management Plan, further LUIC inspections are not needed. LUIC Factsheet Changes: Add 24F to Factsheet title. For History, add bullet for Recharge Basin HW (AOC 24F) receives stormwater runoff from NSLS II area. For Admin Controls, last bullet, change details can be obtained from the SPDES permits and the NRMP. Under References, add link for the Natural Resource Management Plan. Revise The OU I Soils and OU V Plan to reflect no further need for LUIC inspections.

VIII. GROUNDWATER REMEDIES ☒ Applicable ☐ N/A 9/23/10
A. System OU III LIPA/Airport. Inspection attendees include V. Racaniello, E. Murphy, P. Pizzo, A. Steinhauff
1. **Construction Complete/System Operating** ☒ Yes ☐ No Remarks: Construction is complete, system operating a new extraction well was added in 2007 to address contamination detected further to the west then originally anticipated.
B. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A
1. **Pumps, Wellhead Plumbing, and Electrical** ☒Good condition ☒ All required wells properly operating Needs Maintenance ☐ N/A Remarks: All wells are operating however LIPA wells 1, 2 and 3 are in standby.
2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☒ Good condition ☐ Needs Maintenance Remarks___
3. **Spare Parts and Equipment** ☒ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks___
C. Treatment System ☒ Applicable ☐ N/A
1. **Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation ☐ Air stripping ☒ Carbon adsorbers ☐ Filters___ ☐ Additive (*e.g.*, chelation agent, flocculent): ☐ Others___ ☒ Good condition ☐ Needs Maintenance ☒ Sampling ports properly marked and functional ☒ Sampling/maintenance log displayed and up to date ☒ Equipment properly identified ☐ Quantity of groundwater treated annually___ ☐ Quantity of surface water treated annually___ Remarks___
2. **Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks:
3. **Tanks, Vaults, Storage Vessels** ☐ N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs Maintenance Remarks:
4. **Discharge Structure and Appurtenances** ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks: Injection and recirculation wells require routine maintenance to prevent clogging.

5.	**Treatment Building(s)** ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks: ______	
6.	**Monitoring Wells** (pump and treatment remedy) ☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition ☒ All required wells located ☐ Needs Maintenance ☐ N/A Remarks______	
D. Monitoring Data		
1.	Monitoring Data ☒ Is routinely submitted on time ☒ Is of acceptable quality	
2.	Monitoring data suggests: ☒ Groundwater plume is effectively contained ☒ Contaminant concentrations are declining Remarks: VOC concentrations at Airport are low but stable in western extraction wells. Three of the four LIPA wells are currently in standby due to low VOC concentrations.	

VIII. GROUNDWATER REMEDIES ☒ Applicable ☐ N/A 9/23/10	
A. System OU III North Street/North Street East. Inspection attendees include V. Racaniello, E. Murphy, P. Pizzo, A. Steinhauff	
1.	**Construction Complete/System Operating** ☒ Yes ☐ No Remarks: Construction is complete, systems both operating. Well NSE-2 is in standby and well NS-1 is pulse pumping
B. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A	
1.	**Pumps, Wellhead Plumbing, and Electrical** ☒ Good condition ☒ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks: Well NS-1 and NSE-1 are pulse pumping. Well NSE-2 is in standby.
2.	**Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☒ Good condition ☐ Needs Maintenance Remarks
3.	**Spare Parts and Equipment** ☐ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks
C. Treatment System ☒ Applicable ☐ N/A	
1.	**Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation ☐ Air stripping ☒ Carbon adsorbers ☐ Filters ☐ Additive (*e.g.*, chelation agent, flocculent): ☐ Others ☒ Good condition ☐ Needs Maintenance ☒ Sampling ports properly marked and functional ☒ Sampling/maintenance log displayed and up to date ☒ Equipment properly identified ☐ Quantity of groundwater treated annually ☐ Quantity of surface water treated annually Remarks
2.	**Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks:
3.	**Tanks, Vaults, Storage Vessels** ☐ N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs Maintenance Remarks
4.	**Discharge Structure and Appurtenances** ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks: Injection wells need routine maintenance due to fouling (every 6 to 12 months).

5.	**Treatment Building(s)** ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks: ____________________
6.	**Monitoring Wells** (pump and treatment remedy) ☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition ☒ All required wells located ☐ Needs Maintenance ☐ N/A Remarks____________________
D. Monitoring Data	
3.	Monitoring Data ☒ Is routinely submitted on time ☒ Is of acceptable quality
4.	Monitoring data suggests: ☒ Groundwater plume is effectively contained ☒ Contaminant concentrations are declining

VIII. GROUNDWATER REMEDIES ☒ Applicable ☐ N/A 9/23/10
A. System OU VI AOC 28 EDB. Inspection attendees include V. Racaniello, E. Murphy, P. Pizzo, A. Steinhauff
1. **Construction Complete/System Operating** ☒ Yes ☐ No
B. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A
1. **Pumps, Wellhead Plumbing, and Electrical** ☒ Good condition ☒ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks: ___
2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☒ Good condition ☐ Needs Maintenance Remarks___ ___
3. **Spare Parts and Equipment** ☐ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks___ ___
C. Treatment System ☒ Applicable ☐ N/A
1. **Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation ☐ Air stripping ☒ Carbon adsorbers ☐ Filters___ ☐ Additive (*e.g.*, chelation agent, flocculent): ☐ Others___ ☒ Good condition ☐ Needs Maintenance ☒ Sampling ports properly marked and functional ☒ Sampling/maintenance log displayed and up to date ☒ Equipment properly identified ☐ Quantity of groundwater treated annually___ ☐ Quantity of surface water treated annually___ Remarks___ ___
2. **Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks:
3. **Tanks, Vaults, Storage Vessels** ☐ N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs Maintenance Remarks___ ___
4. **Discharge Structure and Appurtenances** ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks: Injection wells require periodic maintenance

5.	**Treatment Building(s)** ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks: Soffit on east side of building needs repair.
6.	**Monitoring Wells** (pump and treatment remedy) ☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition ☒ All required wells located ☐ Needs Maintenance ☐ N/A Remarks____
D. Monitoring Data	
5.	Monitoring Data ☒ Is routinely submitted on time ☒ Is of acceptable quality
6.	Monitoring data suggests: ☒ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining

VIII. GROUNDWATER REMEDIES ☒ Applicable ☐ N/A 9/23/10

A. System OU III Industrial Park East. Inspection attendees include V. Racaniello, E. Murphy, P. Pizzo, A. Steinhauff

1. **Construction Complete/System Operating** ☒ Yes ☐ No

Remarks: Construction is complete, system was approved for shutdown in 2010 and shutdown. System currently in standby.

B. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
☒ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A
Remarks: System is operational but in standby mode.

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
☒ Good condition ☐ Needs Maintenance
Remarks______________________________

3. **Spare Parts and Equipment**
☐ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided
Remarks______________________________

C. Treatment System ☒ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
☐ Air stripping ☒ Carbon adsorbers
☐ Filters______________________________
☐ Additive (*e.g.*, chelation agent, flocculent):
☐ Others______________________________
☒ Good condition ☐ Needs Maintenance
☒ Sampling ports properly marked and functional
☒ Sampling/maintenance log displayed and up to date
☒ Equipment properly identified
☐ Quantity of groundwater treated annually____________________
☐ Quantity of surface water treated annually____________________
Remarks______________________________

2. **Electrical Enclosures and Panels** (properly rated and functional)
☐ N/A ☒ Good condition ☐ Needs Maintenance
Remarks:

3. **Tanks, Vaults, Storage Vessels**
☐ N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
Remarks______________________________

4. **Discharge Structure and Appurtenances**
☐ N/A ☒ Good condition ☐ Needs Maintenance
Remarks: When operating the injection wells require periodic maintenance

5.	**Treatment Building(s)** ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks:
6.	**Monitoring Wells** (pump and treatment remedy) ☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition ☒ All required wells located ☐ Needs Maintenance ☐ N/A Remarks: As per Petition for Shutdown installation of one additional Magothy monitoring well is planned to the south of the extraction wells near the LIPA Right Of Way.
D. Monitoring Data	
7.	Monitoring Data ☒ Is routinely submitted on time ☒ Is of acceptable quality
8.	Monitoring data suggests: ☒ Groundwater plume is effectively contained ☒ Contaminant concentrations are declining Remarks: Cleanup goals have been met at this location for the Upper Glacial Aquifer.

VIII. GROUNDWATER REMEDIES ☒ Applicable ☐ N/A 9/23/10

A. System OU III Industrial Park. Inspection attendees include V. Racaniello, E. Murphy, P. Pizzo, A. Steinhauff

1. **Construction Complete/System Operating** ☒ Yes ☐ No

Remarks: Wells 1,2 and 7 are in standby due to low VOC concentrations

B. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
☒ Good condition ☒ All required wells properly operating ☒ Needs Maintenance ☐ N/A
Remarks: Treatment wells UVB-1, UVB-2 and UVB-7 are shutdown due to low VOC concentrations in these wells.

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
☒ Good condition ☐ Needs Maintenance
Remarks____

3. **Spare Parts and Equipment**
☐ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided
Remarks____

C. Treatment System ☒ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
☒ Air stripping ☒ Carbon adsorbers (vapor phase)
☐ Filters____
☐ Additive (*e.g.*, chelation agent, flocculent):
☐ Others____
☒ Good condition ☐ Needs Maintenance
☒ Sampling ports properly marked and functional
☒ Sampling/maintenance log displayed and up to date
☒ Equipment properly identified
☐ Quantity of groundwater treated annually________________________
☐ Quantity of surface water treated annually________________________
Remarks____

2. **Electrical Enclosures and Panels** (properly rated and functional)
☐ N/A ☒ Good condition ☐ Needs Maintenance
Remarks:

3. **Tanks, Vaults, Storage Vessels**
☐ N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
Remarks____

4. **Discharge Structure and Appurtenances**
☐ N/A ☒ Good condition ☐ Needs Maintenance
Remarks: These wells are recirculation wells with two screens and require frequent cleaning to keep them operational

5.	**Treatment Building(s)** ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks: ________________
6.	**Monitoring Wells** (pump and treatment remedy) ☒ Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition ☒ All required wells located ☐ Needs Maintenance ☐ N/A Remarks____
D. Monitoring Data	
9.	Monitoring Data ☒ Is routinely submitted on time ☒ Is of acceptable quality
10.	Monitoring data suggests: ☒ Groundwater plume is effectively contained ☒ Contaminant concentrations are declining Remarks: System is approaching cleanup goals for system operation.

VIII. GROUNDWATER REMEDIES ☒ Applicable ☐ N/A 11/18/10
A. System OU III AOC 29 HFBR Tritium Pump and Recharge. Inspection attendees include V. Racaniello, E. Kramer, Adrian Steinhauff, John Burke, John Young, Bill Dorsch.
1. **Construction Complete/System Operating** ☒ Yes ☐ No Remarks: An extraction well was added and the system began operating again in 2007 as a slug of higher concentrations was detected in this area.
B. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☐ N/A
1. **Pumps, Wellhead Plumbing, and Electrical** ☒ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks: Well EW-16 and EW-11 are operating. Wells Ew-9 and EW-10 are in standby
2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☒ Good condition ☐ Needs Maintenance Remarks
3. **Spare Parts and Equipment** ☐ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks
C. Treatment System ☒ Applicable ☐ N/A
1. **Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation ☐ Air stripping ☒ Carbon adsorbers ☐ Filters____ ☐ Additive (*e.g.*, chelation agent, flocculent): ☐ Others____ ☒ Good condition ☐ Needs Maintenance ☒ Sampling ports properly marked and functional ☒ Sampling/maintenance log displayed and up to date ☒ Equipment properly identified ☐ Quantity of groundwater treated annually________________ ☐ Quantity of surface water treated annually________________ Remarks: Treatment is for VOCs
2. **Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks:
3. **Tanks, Vaults, Storage Vessels** ☐ N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs Maintenance Remarks____ ____
4. **Discharge Structure and Appurtenances** ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks: Recharge basin is in excellent condition
5. **Treatment Building(s)** ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks:

6.	**Monitoring Wells** (pump and treatment remedy) ☒ Properly secured/locked ☐ Functioning ☒ Routinely sampled ☒ Good condition ☒ All required wells located ☐ Needs Maintenance ☐ N/A Remarks
D. Monitoring Data	
11.	Monitoring Data ☒ Is routinely submitted on time ☒ Is of acceptable quality
12.	Monitoring data suggests: ☒ Groundwater plume is effectively contained ☒ Contaminant concentrations are declining

VIII. GROUNDWATER REMEDIES ☒ Applicable ☐ N/A 11/18/10

A. System OU I South Boundary (Bldg. 598) Inspection attendees include V. Racaniello, , E. Kramer, Bill Dorsch, Adrian Steinhauff, John Young

1. **Construction Complete/System Operating** ☒ Yes ☐ No
   Remarks: System approaching Remedial Action Objectives.

B. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☐ Good condition ☒ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks:

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☒ Good condition ☐ Needs Maintenance
   Remarks

3. **Spare Parts and Equipment**
   ☐ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks____

C. Treatment System ☒ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☒ Air stripping ☐ Carbon adsorbers
   ☐ Filters____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_sodium polyphosphate is not used________
   ☐ Others____
   ☒ Good condition ☐ Needs Maintenance
   ☒ Sampling ports properly marked and functional
   ☒ Sampling/maintenance log displayed and up to date
   ☒ Equipment properly identified
   ☐ Quantity of groundwater treated annually________________________
   ☐ Quantity of surface water treated annually________________________
   Remarks____
   ____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☒ Good condition ☐ Needs Maintenance
   Remarks____
   ____

3. **Tanks, Vaults, Storage Vessels**
   ☐ N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs Maintenance

4. **Discharge Structure and Appurtenances**
   ☐ N/A ☒ Good condition ☐ Needs Maintenance
   Remarks: Recharge Basin is in excellent condition

5. **Treatment Building(s)**
   ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored
   Remarks:

6.	**Monitoring Wells** (pump and treatment remedy) ☒ Properly secured/locked ☐ Functioning ☒ Routinely sampled ☐ Good condition ☒ All required wells located ☐ Needs Maintenance ☐ N/A Remarks
D. Monitoring Data	
13.	Monitoring Data ☒ Is routinely submitted on time ☒ Is of acceptable quality
14.	Monitoring data suggests: ☒ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining Remarks: Treatment system has met cleanup goals except for one small “Hot Spot” upgradient of the extraction wells.

VIII. GROUNDWATER REMEDIES ☒ Applicable ☐ N/A 10/27/10
A. System OU III South Boundary (Bldg.517 and Bldg 518) Inspection attendees include V. Racaniello,, E. Kramer, Bill Dorsch, Adrian Steinhauff, John Young
1. **Construction Complete/System Operating** ☒ Yes ☐ No Remarks: Wells EW-6,7,8 and 12 are in standby due to low VOC concentrations.
B. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A
1. **Pumps, Wellhead Plumbing, and Electrical** ☒ Good condition ☒ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks:
2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☒ Good condition ☐ Needs Maintenance Remarks
3. **Spare Parts and Equipment** ☒ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks____
C. Treatment System ☒ Applicable ☐ N/A
1. **Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation ☒ Air stripping ☐ Carbon adsorbers ☐ Filters____ ☐ Additive (*e.g.*, chelation agent, flocculent)_sodium polyphosphate is not used________ ☐ Others____ ☒ Good condition ☐ Needs Maintenance ☒ Sampling ports properly marked and functional ☒ Sampling/maintenance log displayed and up to date ☒ Equipment properly identified ☐ Quantity of groundwater treated annually________________________ ☐ Quantity of surface water treated annually________________________ Remarks____ ____
2. **Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks____ ____
3. **Tanks, Vaults, Storage Vessels** ☐ N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
4. **Discharge Structure and Appurtenances** ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks: Recharge Basins are in excellent condition but require occasional maintenance
5. **Treatment Building(s)** ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks:

6.	**Monitoring Wells** (pump and treatment remedy) ☒ Properly secured/locked ☐ Functioning ☒ Routinely sampled ☐ Good condition ☒ All required wells located ☐ Needs Maintenance ☐ N/A Remarks
D. Monitoring Data	
15.	Monitoring Data ☒ Is routinely submitted on time ☒ Is of acceptable quality
16.	Monitoring data suggests: ☒ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining Remarks: Three of seven extraction wells are currently operating. The four eastern wells have met the cleanup goals.

VIII. GROUNDWATER REMEDIES ☒ Applicable ☐ N/A 11/18/10
A. System OU III Middle Road (Bldg.516 and 519) Inspection attendees include V. Racaniello, , E. Kramer, Bill Dorsch, Adrian Steinhauff, John Young
1. **Construction Complete/System Operating** ☒ Yes ☐ No Remarks: The three eastern extraction wells RW-4, RW-5 and RW-6 are in standby and have met the Remedial Action Objectives for this project.
B. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A
1. **Pumps, Wellhead Plumbing, and Electrical** ☐ Good condition ☒ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks:
2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☒ Good condition ☐ Needs Maintenance Remarks
3. **Spare Parts and Equipment** ☒ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks____
C. Treatment System ☒ Applicable ☐ N/A
1. **Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation ☒ Air stripping ☐ Carbon adsorbers ☐ Filters____ ☐ Additive (*e.g.*, chelation agent, flocculent)_sodium polyphosphate is not used________ ☐ Others____ ☒ Good condition ☐ Needs Maintenance ☒ Sampling ports properly marked and functional ☒ Sampling/maintenance log displayed and up to date ☒ Equipment properly identified ☐ Quantity of groundwater treated annually________________________ ☐ Quantity of surface water treated annually________________________ Remarks____ ____
2. **Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks____ ____
3. **Tanks, Vaults, Storage Vessels** ☐ N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
4. **Discharge Structure and Appurtenances** ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks: Recharge Basins are is in excellent condition but require occasional maintance
5. **Treatment Building(s)** ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks:

6.	**Monitoring Wells** (pump and treatment remedy) ☒ Properly secured/locked ☐ Functioning ☒ Routinely sampled ☐ Good condition ☒ All required wells located ☐ Needs Maintenance ☐ N/A Remarks
D. Monitoring Data	
17.	Monitoring Data ☒ Is routinely submitted on time ☒ Is of acceptable quality
18.	Monitoring data suggests: ☒ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining Remarks: The three eastern extraction wells have met cleanup goals and are in standby. There is currently an investigation on the eastern edge of the plume concerning VOCs that may be deeper or further to the east of the three eastern extraction wells. The results may require followup actions from additional monitoring wells up to an additional extraction well on the eastern edge of the plume.

VIII. GROUNDWATER REMEDIES ☒ Applicable ☐ N/A 10/27/10

A. System OU III Western South Boundary (Bldg. 539) Inspection attendees include V. Racaniello, E. Kramer, Bill Dorsch, Adrian Steinhauff, John Young

1. **Construction Complete/System Operating** ☒ Yes ☐ No

   Remarks: Well WSB-2 is being pulse pumped

B. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
   ☐ Good condition ☒ All required wells properly operating ☐ Needs Maintenance ☐ N/A
   Remarks:

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
   ☒ Good condition ☐ Needs Maintenance
   Remarks

3. **Spare Parts and Equipment**
   ☐ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided
   Remarks____

C. Treatment System ☒ Applicable ☐ N/A

1. **Treatment Train** (Check components that apply)
   ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
   ☒ Air stripping ☐ Carbon adsorbers
   ☐ Filters____
   ☐ Additive (*e.g.*, chelation agent, flocculent)_sodium polyphosphate is not used________
   ☐ Others____
   ☒ Good condition ☐ Needs Maintenance
   ☒ Sampling ports properly marked and functional
   ☒ Sampling/maintenance log displayed and up to date
   ☒ Equipment properly identified
   ☐ Quantity of groundwater treated annually________________________
   ☐ Quantity of surface water treated annually________________________
   Remarks____
   ____

2. **Electrical Enclosures and Panels** (properly rated and functional)
   ☐ N/A ☒ Good condition ☐ Needs Maintenance
   Remarks____
   ____

3. **Tanks, Vaults, Storage Vessels**
   ☐ N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs Maintenance

4. **Discharge Structure and Appurtenances**
   ☐ N/A ☒ Good condition ☐ Needs Maintenance
   Remarks: Recharge Basin is in good condition

5. **Treatment Building(s)**
   ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair
   ☐ Chemicals and equipment properly stored
   Remarks: Need insulation on tower influent piping.

6.	**Monitoring Wells** (pump and treatment remedy) ☒ Properly secured/locked ☐ Functioning ☒ Routinely sampled ☐ Good condition ☒ All required wells located ☐ Needs Maintenance ☐ N/A Remarks
D. Monitoring Data	
19.	Monitoring Data ☒ Is routinely submitted on time ☒ Is of acceptable quality
20.	Monitoring data suggests: ☒ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining Remarks: A groundwater investigation in 2008/2009 showed higher then expected upgradient concentrations of TCA and Freon this has extended the expected duration of this systems operation. Further upgradient investigation of the Freon is ongoing.

VIII. GROUNDWATER REMEDIES ☒ Applicable ☐ N/A 10/27/10
A. System OU III Building 96 (Bldg. TR-854, TR-866, TR-867, TR_868) Inspection attendees include V. Racaniello, , E. Kramer, Bill Dorsch, Adrian Steinhauff, John Young
1. **Construction Complete/System Operating** ☒ Yes ☐ No Remarks:
B. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A
1. **Pumps, Wellhead Plumbing, and Electrical** ☐ Good condition ☒ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks:
2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☒ Good condition ☐ Needs Maintenance Remarks
3. **Spare Parts and Equipment** ☒ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks____
C. Treatment System ☒ Applicable ☐ N/A
1. **Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation ☒ Air stripping ☐ Carbon adsorbers ☐ Filters____ ☐ Additive (*e.g.*, chelation agent, flocculent)_sodium polyphosphate is not used________ ☐ Others____ ☒ Good condition ☐ Needs Maintenance ☒ Sampling ports properly marked and functional ☒ Sampling/maintenance log displayed and up to date ☒ Equipment properly identified ☐ Quantity of groundwater treated annually________________________ ☐ Quantity of surface water treated annually________________________ Remarks: Well RTW-1 was changed from a recirculation well to a pumping well in 2007 and a Hexavalent chromium treatment system installed in the RTW-1 treatment building. The Hexavalent Chromium treatment is no longer required as concentrations have dropped to below required concentrations.
2. **Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks____ ____
3. **Tanks, Vaults, Storage Vessels** ☐ N/A ☒ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
4. **Discharge Structure and Appurtenances** ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks: Recharge Basin is in excellent condition
5. **Treatment Building(s)** ☐ N/A ☒ Good condition (esp. roof and doorways) ☒ Needs repair ☐ Chemicals and equipment properly stored Remarks: Building 868 has a minor roof leak that needs repair.

6.	**Monitoring Wells** (pump and treatment remedy) ☒ Properly secured/locked ☐ Functioning ☒ Routinely sampled ☐ Good condition ☒ All required wells located ☐ Needs Maintenance ☐ N/A Remarks
D. Monitoring Data	
21.	Monitoring Data ☒ Is routinely submitted on time ☒ Is of acceptable quality
22.	Monitoring data suggests: ☒ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining Remarks: A hot spot of soil contamination was identified in 2008 that was acting as a continuing source for groundwater contamination. From August to October 2010 approximately 370 yards of contaminated soil was excavated and disposed of. It is expected that the treatment system will need to operate for three to six additional years to reach the cleanup goals (2013 – 2016).

VIII. GROUNDWATER REMEDIES ☒ Applicable ☐ N/A 10/27/10
A. System OU III Sr-90 Chemical Holes (Bldg. 670) Inspection attendees include V. Racaniello, E. Kramer, C. Shuster, A. Steinhauff, Bill Dorsch
1. **Construction Complete/System Operating** ☒ Yes ☒ No Remarks: System was modified in 2007 and two additional extraction wells were added.
B. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A
1. **Pumps, Wellhead Plumbing, and Electrical** ☒ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks: Extraction well 1 is being pulse pumped.
2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☒ Good condition ☐ Needs Maintenance Remarks____________________
3. **Spare Parts and Equipment** ☒ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks____________________
C. Treatment System ☒ Applicable ☐ N/A
1. **Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation ☐ Air stripping ☐ Carbon adsorbers ☒ Filters: ion exchange____________________ ☐ Additive (*e.g.*, chelation agent, flocculent)____________________ ☐ Others____________________ ☒ Good condition ☐ Needs Maintenance ☒ Sampling ports properly marked and functional ☒ Sampling/maintenance log displayed and up to date ☒ Equipment properly identified ☐ Quantity of groundwater treated annually____________________ ☐ Quantity of surface water treated annually____________________ Remarks: Resin ;has been successful at removing the SR90 from the groundwater and has performed better then expected.
2. **Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks____________________
3. **Tanks, Vaults, Storage Vessels** ☐ N/A ☒ Good condition ☒ Proper secondary containment ☐ Needs Maintenance Remarks: ____________________
4. **Discharge Structure and Appurtenances** ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks: Drywells have never required maintenance.
5. **Treatment Building(s)** ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks:

6.	**Monitoring Wells** (pump and treatment remedy) ☒ Properly secured/locked ☐ Functioning ☒ Routinely sampled ☒ Good condition ☒ All required wells located ☐ Needs Maintenance ☐ N/A Remarks____
D. Monitoring Data	
23.	Monitoring Data ☒ Is routinely submitted on time ☒ Is of acceptable quality
24.	Monitoring data suggests: ☒ Groundwater plume is effectively contained ☒ Contaminant concentrations are declining Remarks: Concentrations in the two downgradient extraction wells have declined. Well 1 has had stable concentrations for several years now.

VIII. GROUNDWATER REMEDIES ☒ Applicable ☐ N/A 11/18/10
A. System OU III Sr-90 BGRR/WCF (Bldg. 855) Inspection attendees include V. Racaniello, E. Kramer, A. Steinhauff, Bill Dorsch, John Young
1. **Construction Complete/System Operating** ☒ Yes ☐ No Remarks: Currently adding four new extraction wells to the system.
B. Groundwater Extraction Wells, Pumps, and Pipelines ☒ Applicable ☐ N/A
1. **Pumps, Wellhead Plumbing, and Electrical** ☒ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☐ N/A Remarks____________________
2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances** ☒ Good condition ☐ Needs Maintenance Remarks: ________________
3. **Spare Parts and Equipment** ☒ Readily available ☒ Good condition ☐ Requires upgrade ☐ Needs to be provided Remarks____________________
C. Treatment System ☒ Applicable ☐ N/A
1. **Treatment Train** (Check components that apply) ☐ Metals removal ☐ Oil/water separation ☐ Bioremediation ☐ Air stripping ☒ Carbon adsorbers ☒ Filters: ion exchange ___ ☐ Additive (*e.g.*, chelation agent, flocculent)____________________ ☐ Others____________________ ☒ Good condition ☐ Needs Maintenance ☒ Sampling ports properly marked and functional ☒ Sampling/maintenance log displayed and up to date ☒ Equipment properly identified ☐ Quantity of groundwater treated annually________________________ ☐ Quantity of surface water treated annually________________________ Remarks: Resin has performed better then expecting in removing Sr-90 from groundwater.
2. **Electrical Enclosures and Panels** (properly rated and functional) ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks____________________
3. **Tanks, Vaults, Storage Vessels** ☐ N/A ☒ Good condition ☒ Proper secondary containment ☐ Needs Maintenance Remarks____________________
4. **Discharge Structure and Appurtenances** ☐ N/A ☒ Good condition ☐ Needs Maintenance Remarks: Drywells have never required maintenance

5.	**Treatment Building(s)** ☐ N/A ☒ Good condition (esp. roof and doorways) ☐ Needs repair ☐ Chemicals and equipment properly stored Remarks____
6.	**Monitoring Wells** (pump and treatment remedy) ☒ Properly secured/locked ☐ Functioning ☒ Routinely sampled ☒ Good condition ☐ All required wells located ☐ Needs Maintenance ☐ N/A Remarks____
D. Monitoring Data	
25.	Monitoring Data ☒ Is routinely submitted on time ☒ Is of acceptable quality
26.	Monitoring data suggests: ☒ Groundwater plume is effectively contained ☐ Contaminant concentrations are declining Remarks: Plume is contained upgradient of the existing five wells. Four new wells are being added to address downgradient portions of these plumes. The monitoring data indicates that there may be a continuing source of Sr-90 upgradient of extraction well 3, which is located immediately downgradient of the BGRR.

E. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
☒Properly secured/locked ☒ Functioning ☒ Routinely sampled ☒ Good condition
☒All required wells located ☐ Needs Maintenance ☐ N/A
Remarks: A portion of each groundwater remedy relies on some natural attenuation.________________

IX. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

X. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

With the exception of remaining soil excavation at OU I and the BGRR pile and bioshield removal, all soil, sediment, and groundwater remedies for the seven RODs at the site have been implemented and are functioned as designed. This includes the excavation and off-site disposal of contaminated soils, sediments, tanks, as well as the installation and operations initiated for all groundwater treatment systems. All of the remedies are being implemented in accordance with the RODs and the ESD. The remedies are expected to be protective upon attainment of soil cleanup goals once excavation is complete, and groundwater cleanup goals.

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

The VOC treatment systems operated without any significant down time or issues over the last eight years and have consistently met the state equivalency discharge requirements (although there have been a few pH excursions due to the natural groundwater conditions). The systems have been physically inspected typically on a daily basis. However, the frequency of physical inspections will generally be reduced starting in 2005 due to the significant operating history, the increase in the number of systems off of BNL property, and the availability of wireless system monitoring/alarms.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

- See above. See Five Year Review Section 7.0.

D.	Opportunities for Optimization
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy. Opportunities are routinely identified. See Five Year Review Section 7.0________________ ____

Attachment 4

Interview Records

INTERVIEW RECORD

Site Name: Brookhaven National Laboratory	**EPA ID No.:**
Subject: 2011 Five-Year Review	**Time:** 2:00 **Date:** 7/27/10
Type: X Telephone ☐ Visit ☐ Other **Location of Visit:**	☐ Incoming ☐ Outgoing

Contact Made By:

Name: S. Johnson	**Title:**	**Organization:** CEGPA

Individual Contacted:

Name: Doug Pocze	**Title:** Remedial Project Manager	**Organization:** EPA II
Telephone No.: 212-637-4432 **Fax No.:** **E-Mail Address:** pocze.doug@epa.gov	**Street Address:** 290 Broadway **City, State, Zip:** NY, NY 10007-1866	

Summary of Conversation

Mr. Pocze said that he was very pleased with BNL and DOE especially considering the number of sites included in the cleanup. He said that the annual groundwater summary was helpful and served as "one-stop shopping" for information on the groundwater treatment systems. The IAG calls have been a big help and make it easy to keep track of the projects. The working relationship is non-adversarial.

He said it was hard to say if there are any specific aspects of the cleanup that should be focused on. He thought there was a good split among the projects. The big ticket projects are the ARRA-funded projects and groundwater, and the Peconic River to a lesser extent.

Mr. Pocze said he felt well informed about the cleanup projects. He said EPA is very interested in green initiatives and mentioned that DOE had been very helpful in getting him information on the recycling of materials such as concrete from the Fan House removal.

He feels that the public is sufficiently informed through the Community Advisory Council, the Roundtable, and public notices. He noted that the Lab also holds ceremonies and invites the community in to participate.

He said that he believes the remedies are functioning as expected. Some do need tweaking such as the Peconic River. He feels comfortable with them.

The particular component of the cleanup that concerns him is the long-term cleanups that go out for 50 years. There is concern about the achieving the cleanup goals if the property is transferred or sold at some point in the future. He said there are problems with this at other federal sites.

INTERVIEW RECORD

Site Name: Brookhaven National Laboratory	**EPA ID No.:**
Subject: 2011 Five-Year Review	**Time:** 2:00 **Date:** 7/27/10
Type: X Telephone ☐ Visit ☐ Other **Location of Visit:**	☐ Incoming ☐ Outgoing

	Contact Made By:	
Name: S. Johnson	**Title:**	**Organization:** CEGPA
	Individual Contacted:	
Name: Doug Pocze	**Title:** Remedial Project Manager	**Organization:** EPA II

Telephone No.: 212-637-4432 **Fax No.:** **E-Mail Address:** pocze.doug@epa.gov	**Street Address:** 290 Broadway **City, State, Zip:** NY, NY 10007-1866

Summary of Conversation

Mr. Pocze noted that vapor intrusion seems to be an issue in some areas. He said it doesn't seem to be a problem at BNL because the contamination is deeper in the aquifer. It could become a problem if things change; it's a big issue for the Department of Health.

Mr. Pocze said that DOE does a good job and are usually ahead of EPA. He mentioned that use of rail versus shipping by truck was one way that is cost saving and more efficient. He mentioned that EPA is working with the USGS on a Long Island groundwater study and said that sharing well data could be an opportunity to optimize operations.

He felt that BNL and DOE are maintaining institutional controls but that will be harder if there is a transfer of property; it will be more difficult in the long-term. He mentioned the Land Use plan as a good document to have. He said that deed restrictions get lost over time, that people have a tendency to forget, and that institutional knowledge is lost. He said there is soil at RHIC that will need to be addressed (removed) in the future and he is concerned the information will be lost. He said that the HFBR will be a good example to follow as the years go by. Mr. Pocze commented that he is pleased that the Laboratory has a regulatory affairs person that he can contact first with any questions regarding the cleanup. This saves him time as he can then be directed to the correct person to answer his questions. This is especially helpful during staff transition; he still has one person to go to.

INTERVIEW RECORD

Site Name: Brookhaven National Laboratory	**EPA ID No.:**
Subject: 2011 Five-Year Review	**Time:** 4:00 **Date:** 7/27/10
Type: X Telephone ☐ Visit ☐ Other **Location of Visit:**	☐ Incoming ☐ Outgoing

Contact Made By:

Name: S. Johnson	**Title:**	**Organization:** CEGPA

Individual Contacted:

Name: Chek Beng Ng, P.E.	**Title: Remedial Project Manager**	**Organization:** NYSDEC

Telephone No.: 518-402-9620 **Fax No.:** **E-Mail Address:** cbng@gw.dec.state.ny.us	**Street Address:** 625 Broadway, 11th Floor **City, State, Zip:** Albany, NY 12233-7015

Summary of Conversation

Mr. Ng stated that his overall impression of the cleanup at BNL is pretty good. BNL is trying to do what it can to clean up the OUs as quickly as possible. He mentioned the removal of the HFBR control rod blades as an example. He said that the cleanup in general is progressing well and thought there maybe some RAD contamination that could be paid more attention, particularly the FHWMF perimeter soils. He said that shouldn't be forgotten.

He said there is nothing to indicate that the remedies are not functioning as expected. Mr. Ng thinks that the future decommissioning and dismantlement of the HFBR vessel and the confinement building may pose a higher degree of difficulty.

Mr. Ng thinks that the biggest risk in achieving the soil and groundwater cleanup objectives would be to completely miss something. So far, DOE and the Lab have done a good job installing temporary wells where needed and the groundwater status report every year is good, but that has to continue or there is a risk of missing a groundwater plume that could migrate off-site.

Mr. Ng believes that BNL and DOE are actively managing the long-term cleanup and properly maintaining the institutional controls. He mentioned the Land Use and Institutional Controls Mapping website which he has used and noted that the institutional controls have been agreed on by the IAG. He feels the spirit of the RODs is being followed.

He believes that management of the cleanup has gone smoothly; his management is happy with the progress and said they are impressed with the early HFBR control rod blade removal and with the removal of the BGRR graphite pile. He hopes the momentum will continue.

INTERVIEW RECORD

Site Name: Brookhaven National Laboratory	**EPA ID No.:**
Subject: 2011 Five-Year Review	**Time:** 10:20 **Date:** 7/27/10
Type: X Telephone ☐ Visit ☐ Other **Location of Visit:**	☐ Incoming ☐ Outgoing

Contact Made By:

Name: S. Johnson	**Title:**	**Organization:** CEGPA

Individual Contacted:

Name: David O'Hehir	**Title:** Environmental Radiation Specialist	**Organization:** NYSDEC

Telephone No.: 518-402-8579 **Fax No.:** **E-Mail Address:** djohehir@gw.dec.state.ny.us	**Street Address:** 625 Broadway, 9th Floor **City, State, Zip:** Albany, NY 12233-7255

Summary of Conversation

Mr. O'Hehir stated that he had been with the project for just about a year. He thinks it is going well. DOE has been very responsive to the IAG, meeting their concerns. He noted several times that the American Reinvestment and Recovery Act (ARRA) funding has stepped up the cleanup.

There were no particular areas that he felt should be focused on, but did mention the Peconic River since hot spots are continuously being found during sampling.

He has gone back to examine the RODs when reviewing Work Plans for the various projects. He has asked for the rationale behind some of the decisions and thinks some things could have been done differently, but thinks that overall they are functioning as written.

One particular difficulty may be achieving the cleanup goals in the Peconic River as the water levels change. There are higher water levels in the river during the summer when previously the river was dry during the same period.

Overall, Mr. O'Hehir thinks that DOE has done a good job with the groundwater project. Additional wells have been added when needed, there's been great progress. He expressed some concern that the resources continue to be available to stay on top of the project.

He feels that BNL and DOE are actively managing the long-term cleanup operations and properly maintaining appropriate institutional controls. The ARRA funding helped to move the cleanup forward so that it will be done by 2011 instead of 2020. The goal for the BGRR and HFBR projects will be met a head of time. DOE has to keep on top of the groundwater projects. He did not have any suggestions or recommendations regarding management of the cleanup.

INTERVIEW RECORD

Site Name: Brookhaven National Laboratory	**EPA ID No.:**
Subject: 2011 Five-Year Review	**Time:** 10:13 **Date:** 7/28/10
Type: X Telephone ☐ Visit ☐ Other **Location of Visit:**	☐ Incoming ☐ Outgoing

Contact Made By:

Name: S. Johnson	**Title:**	**Organization:** CEGPA

Individual Contacted:

Name: Martin Trent	**Title:** Chief, Office of Ecology	**Organization:** SCDHS
Telephone No.: 631-852-5750 **Fax No.:** **E-Mail Address:** martin.trent@suffolkcountyny.gov	**Street Address:** 360 Yaphank Ave., Ste. 3B **City, State, Zip:** Yaphank, NY 11980	

Summary of Conversation

Mr. Trent's overall impression of the cleanup is that the Lab is earnestly trying to do a good job. He thinks that the ARRA funding has been very helpful. He said that his focus has been on groundwater and the Peconic River. The Lab has made them priorities and should continue to make them the priority. He feels well informed and said that he gets plenty of material on the cleanup.

He believes that the remedies are functioning as expected and said that he was involved with the selection of many of them. He thinks that DOE and the Lab are doing a good job and that the Lab has adjusted the remedies and been flexible when they needed to be.

Mr. Trent said that he really isn't involved in the operational or maintenance aspects of the cleanup so he did not know of opportunities for cost saving or efficiency. He did think that one of the risks to the cleanup was the long-term remedies and the required long-term follow-up. He thought the economy could have some impact there and hoped that the DOE and Lab would continue to demonstrate their current level of commitment in the future.

He believes that the long-term cleanup operations and institutional controls are being actively managed. He said he has been working with the Lab since 1979. Since the early years, the level of openness and willingness to work with the County has changed markedly. He urges the Lab and DOE to investigate potential problems. He feels that a good job is being done with the legacy issues but there may be things that aren't known yet. He urges the Lab and DOE to remain vigilant.

INTERVIEW RECORD

Site Name: Brookhaven National Laboratory	**EPA ID No.:**
Subject: 2011 Five-Year Review	**Time:** 12:00 **Date:** 8/2/10
Type: X Telephone ☐ Visit ☐ Other **Location of Visit:**	☐ Incoming ☐ Outgoing

Contact Made By:

Name: S. Johnson	**Title:**	**Organization:** CEGPA

Individual Contacted:

Name: Bill Faulk	**Title:** Aide to SC Leg. Ed Romaine and BER Chair	**Organization:** BER

Telephone No.: 631-852-3200 **Fax No.:** **E-Mail Address:** bill.faulk@suffolkcountyny.gov	**Street Address:** 423 Griffing Avenue **City, State, Zip:** Riverhead, NY 11901

Summary of Conversation

Mr. Faulk stated that he had a positive impression of the cleanup at BNL. He said that he feels well informed about the clean-up, however, while the Community Advisory Council (CAC) and the Brookhaven Executive Roundtable (BER) are well informed, he does not think the general public is as well informed as they could be. He wasn't sure what the solution would be as he realizes that the local media doesn't always respond to press releases.

Mr. Faulk feels that to the best of his knowledge the remedies are functioning as expected. He thought that existing regulations had an impact on the soil and groundwater cleanup objectives and feels that BNL and DOE are actively managing the long-term cleanup operations. He had no comments or suggestions regarding the cleanup.

INTERVIEW RECORD

Site Name: Brookhaven National Laboratory		**EPA ID No.:**
Subject: 2011 Five-Year Review		**Time:** 10:00 **Date:** 8/2/10
Type: ☐ Telephone X Visit ☐ Other **Location of Visit:** DOE Site Office, Bldg. 464		☐ Incoming ☐ Outgoing
Contact Made By:		
Name: S. Johnson	**Title:**	**Organization:** CEGPA
Individual Contacted:		
Names: Steven Feinberg and Terri Kneitel	**Titles:** Federal Project Director and Project Engineer	**Organization:** DOE
Telephone No.: 631-344-2112 **Fax No.:** **E-Mail Addresses:** sfeinberg@bnl.gov and tkneitel@bnl.gov	**Street Address:** Bell Avenue **City, State, Zip:** Upton, NY 11973	

Summary of Conversation

Joint interview with Steven Feinberg, DOE Federal Project Director and Terri Kneitel, DOE Project Engineer. DOE Headquarters Career Development Program Intern Lisa Phillips was also present.

Mr. Feinberg and Ms. Kneitel both feel the cleanup is going well. When asked about specific aspects of the cleanup to focus on during the review Mr. Feinberg mentioned the expansiveness of the cleanup and Ms. Kneitel noted that additional source contamination has been found in some areas, such as Building 96, after the initial cleanup. She expressed concern about meeting the ROD goals if additional sources are found and feels this could also be a risk to achieving cleanup objectives.

Both Mr. Feinberg and Ms. Kneitel believe that the remedies are functioning as expected. Ms. Kneitel feels that a good job is being done in identifying and implementing cost savings by the Groundwater Protection Group. She noted that performance of wells is looked at annually. Mr. Feinberg mentioned the savings on the filter material for the SR-90 treatment system.

Ms. Kneitel was not aware of any upcoming changes to federal laws, however, the transition within DOE for long term surveillance and monitoring, from the Office of Environmental Management (EM) to the Office of Science (SC) in the next fiscal year (at the end of FY11) was mentioned. Ms. Kneitel noted that it will take vigilance to ensure the cleanup goals are obtained in the long-term.

On management of the cleanup, Mr. Feinberg commented that getting information and updates to interested parties continues to be important.

INTERVIEW RECORD

Site Name: Brookhaven National Laboratory		**EPA ID No.:**
Subject: 2011 Five-Year Review		**Time:** 10:05 **Date:** 8/3/10
Type: ☐ Telephone X Visit ☐ Other **Location of Visit:** BNL RSB, Comm. Relations Offices		☐ Incoming ☐ Outgoing
Contact Made By:		
Name: S. Johnson	**Title:**	**Organization:** CEGPA
Individual Contacted:		
Name: Gerald Granzen	**Title:** Sr. Environmental Engineer	**Organization:** DOE
Telephone No.: 631-344-4089 **Fax No.:** **E-Mail Address:** ggranzen@bnl.gov	**Street Address:** Bell Avenue **City, State, Zip:** Upton, NY 11973	

Summary of Conversation

Mr. Granzen stated that his impression of the BNL cleanup is generally positive, that it's very extensive, and very expensive. The specific aspects of the cleanup that he feels should be of particular focus are the soil and groundwater cleanups and any "loose ends."

Mr. Granzen said that he feels well informed about the cleanup and that the Lab does a good job informing the public. He believes that with some adjustments, as necessary (and the Groundwater Protection Group is good about making them), the RODs are functioning as expected. He feels that the SR-90 plume is difficult to deal with and also mentioned the residual contaminated soils along Brookhaven Avenue. He feels that increased communications between the BNL Environmental Protection Group and Regulators who oversee the Interagency Agreement (IAG) is needed. Mr. Granzen was not aware of any recent or upcoming changes to any laws or regulations.

When asked about opportunities to optimize operations and cost savings, Mr. Granzen noted that as the cleanups are winding down, oversight and management seem to be a bit top heavy. He thought the need might be less for the monitoring phase of the cleanup. He feels the biggest risks to achieving the soil and groundwater cleanup objectives are uncharacterized soil and the shifting or mixing of groundwater plumes.

Mr. Granzen feels that BNL (and DOE) are actively managing the cleanup. He had no comments or suggestions other than to say that the DOE shift from EM to Office of Science (SC) should be done with care and there needs to be adequate funding to ensure the long-term cleanup objectives are completed.

INTERVIEW RECORD

Site Name: Brookhaven National Laboratory		**EPA ID No.:**
Subject: 2011 Five-Year Review		**Time:** 10:04 **Date:** 8/4/10
Type: X Telephone ☐ Visit ☐ Other **Location of Visit:**		☐ Incoming ☐ Outgoing
Contact Made By:		
Name: S. Johnson	**Title:**	**Organization:** CEGPA
Individual Contacted:		
Name: Steve Karpinski	**Title:** Public Health Specialist, Bureau of Environmental Exposure Investigations	**Organization:** NYSDOH
Telephone No.: 518-402-7880 **Fax No.:** **E-Mail Address:** sxk23@health.state.ny.us	**Street Address:** 547 River Street **City, State, Zip:** Troy, NY 12180-2216	

Summary of Conversation

Mr. Karpinski stated that he has only been with the project for approximately two years, but his overall impression of the cleanup is good. He is impressed with the level of detail and quality and comprehensiveness of the information that is given to him. He did not have any specific aspects of the cleanup that he felt should be focused on during the review and he feels well informed about cleanup activities and progress.

Mr. Karpinski hasn't had too much of an opportunity to go back to review the Records of Decision (RODs), but based on his interactions with the other regulators, he feels that the remedies are functioning as expected. He feels that the biggest risk to achieving the cleanup objectives is ensuring that cleanup activities continue to function as intended. He noted that nothing will be accomplished in the short-term, but maintaining the momentum of the remedial activities is important so that the objectives are obtained in as short a time as possible.

Mr. Karpinski does feel that BNL and DOE are actively managing the long-term cleanup operations. He has been impressed with the level of detail and flow of information; he did not have any additional recommendations or comments about the management of the cleanup.

INTERVIEW RECORD

Site Name: Brookhaven National Laboratory		**EPA ID No.:**
Subject: 2011 Five-Year Review		**Time:** 1:54 **Date:** 8/6/10
Type: X Telephone ☐ Visit ☐ Other **Location of Visit:**		☐ Incoming ☐ Outgoing
Contact Made By:		
Name: S. Johnson	**Title:**	**Organization:** CEGPA
Individual Contacted:		
Name: Ernie Lewis	**Title:** Experimental Scientific Associate, BNL	**Organization:** Member, BNL Envoy Program
Telephone No.: 631-344-7406 **Fax No.:** **E-Mail Address:** elewis@bnl.gov	**Street Address:** **City, State, Zip:** Upton, NY 11973	

Summary of Conversation

Mr. Lewis said it is his impression that quite a lot of cleanup has been done at BNL. He said he does not consider himself to be well informed about the cleanup (by his own choice) but information has been available. It is his impression that the cleanup is being actively managed; he had no suggestions or comments to add.

INTERVIEW RECORD

Site Name: Brookhaven National Laboratory	**EPA ID No.:**
Subject: 2011 Five-Year Review	**Time:** **Date:** 8/11/10
Type: ☐ Telephone ☒ Visit Other **Location of Visit:** SCDHS in Yaphank	☐ Incoming ☐ Outgoing

Contact Made By:

Name: Robert Howe	**Title:**	**Organization:** GPG

Individual Contacted:

Name: Andrew Rapiejko	**Title:**	**Organization:** SCDHS

Telephone No.: 631-852-5810 **Fax No.:** **E-Mail Address:** andrew.rapiejko@suffolkcountyny.gov	**Street Address:** 360 Yaphank Ave., Ste. 3B **City, State, Zip:** Yaphank, NY 11980

Summary of Conversation

Mr. Rapiejko commented during the Annual Groundwater Status Report briefing that he would like to see clarified when (what years) the 50 years of Institutional Controls for the different soil and reactor radionuclide cleanup projects starts and ends. Without the actual years it is very confusing.

Attachment 5

Operable Unit Cleanup Levels Matrix

Attachment 5
Operable Unit Cleanup Levels Matrix

Operable Unit	Contaminants of Concern	Cleanup Levels			Note any Changes to Cleanup Levels	Remedial Action Objectives
		Soil		Groundwater		
		Residential	Industrial			
I	Cesium-137	23 pCi/g	67 pCi/g			Prevent or minimize: 1. Leaching of contaminants from soil into groundwater, 2. Human exposure from surface and subsurface soil, 3. Uptake to ecological receptors. Rad soil cleanup levels are based on 15 mRem/year above background. ALARA goal is 10 mRem/year above background.
	Strontium-90	15 pCi/g	15 pCi/g	8 pCi/L		
	Radium-226	5 pCi/g	5 pCi/g			
	Lead	400 mg/kg				
	Mercury	1.84 mg/kg				
	1,2-Dichloroethane			5 µg/L		
	Chloroethane			5 µg/L		
II	Cesium-137	23 pCi/g	67 pCi/g			Documented in the OU I and III RODs.
	Tritium			20,000 pCi/L		
	Sodium-22			400 pCi/L		
III	1,1,1-Trichloroethane			5 µg/L		1. Meet MCLs for VOCs and tritium in Upper Glacial aquifer within 30 years, 2. Meet MCLs for VOCs in Magothy aquifer within 65 years, 3. Meet MCLs for Sr-90 in Upper Glacial aquifer within 40 years and 70 years at Chemical Holes and BGRR/WCF plumes, respectively.
	Tetrachloroethylene			5 µg/L		
	Carbon tetrachloride			5 µg/L		
	Tritium			20,000 pCi/L		
	Strontium-90			8 pCi/L		
	PCBs	1 mg/kg - Surface NYSDEC TAGM	10 mg/kg - Subsurf. NYSDEC TAGM			
IV	Ethylbenzene			5 µg/L		Restore groundwater quality to MCLs or background, and prevent or minimize: 1. Leaching of contaminants from soil into groundwater, 2. Human exposure from surface and subsurface soil, 3, Uptake of contaminants in soil by plants and animals.
	Toluene			5 µg/L		
	Strontium-90			8 pCi/L		
V	Mercury	2 mg/kg				Protect public health and the sole source aquifer, monitor the groundwater, and prevent
	Cesium-137	23 pCi/g				

Attachment 5
Operable Unit Cleanup Levels Matrix

Operable Unit	Contaminants of Concern	Cleanup Levels			Note any Changes to Cleanup Levels	Remedial Action Objectives
	Trichloroethene			5 µg/L		or minimize: 1. Migration of contaminants present in surface soil via surface runoff, 2. Human and environmental exposure from surface and subsurface soil. 3. Reduce site-related contaminants (e.g., mercury) in sediment to levels that are protective of human health, 4. Reduce or mitigate, to the extent practicable, existing and potential adverse ecological effects of contaminants in the Peconic River, 5. Prevent or reduce the migration of contaminants off the BNL property.
VI	Ethylene dibromide			0.05 µg/L		1. Meet MCLs for EDB in the Upper Glacial aquifer within 30 years, 2. Prevent or minimize further migration of EDB in groundwater vertically and horizontally.
BGRR	Strontium-90	ALARA (1)	ALARA	8 pCi/L		1. Ensure protection of human health and the environment from the potential hazards posed by the radiological inventory that resides in the BGRR complex, 2. Use ALARA while implementing the remedial action, 3. Implement long-term monitoring, maintenance, and institutional controls to manage potential hazards.
	Cesium-137	ALARA	ALARA			

(1) ALARA - as low as reasonably achievable.

Attachment 6

Soil Vapor Intrusion Screenings

Environmental & Waste Management Services Division

BROOKHAVEN
NATIONAL LABORATORY

Building 51
P.O. Box 5000
Upton, NY 11973-5000
Phone 631 344-5588
Fax 631 344-7776
howe@bnl.gov

managed by Brookhaven Science Associates
for the U.S. Department of Energy

Memo

date: *August 21, 2008*

to: *File*

from: *R. Howe* R Howe

subject: SOIL GAS VAPOR EVALUATION FOR NEW WAREHOUSE

This memo documents the potential for soil gas vapor buildup in the new Warehouse (Bldg. 98) that was recently constructed. As identified in the attached preliminary initial screening for this building, the closest groundwater contaminant plume is approximately 200 feet to the west and this facility has no basement. Therefore, the subsurface to indoor air pathway is incomplete, and no further evaluation is needed at this time.

Attachment

Copy: J. Burke
M. Davis
W. Dorsch
G. Penny
V. Racaniello
File: GWER 59.08

FOR New Warehouse - Bldg. 98 8/21/08
Soil Vapor Evaluation

IV. TIER 1 - Primary Screening

Primary Screening is designed to help quickly screen out sites at which the vapor intrusion pathway does not ordinarily need further consideration, and point out the sites that do typically need further consideration. This evaluation involves determining whether any potential exists at a specific site for vapor intrusion to result in unacceptable indoor inhalation risks and, if so, whether immediate action may be warranted. Recommended criteria for making these determinations are presented in Questions 1 through 3, which focus on identifying:

a) if chemicals of sufficient volatility and toxicity are present or reasonably suspected to be present (Question 1);
b) if inhabited buildings are located (or will be constructed under future development scenarios – except for Environmental Indicator determinations, see section IV.C below) above or in close proximity to subsurface contamination (Question 2); and
c) if current conditions warrant immediate action (Question 3).

This primary screening process is illustrated in a flow diagram included in Appendix C.

A. Primary Screening – Question #1

Q1: Are chemicals of sufficient volatility and toxicity known or reasonably suspected to be present in the subsurface (e.g., in unsaturated soils, soil gas, or the uppermost portions of the ground water and/or capillary fringe – see Table 1)? (We recommend this consideration involve DQOs (see Appendix A) used in acquiring the site data as well as an appropriately scaled Conceptual Site Model (CSM) for vapor intrusion (see Appendix B).)

_____ If **YES** - check here, check off the relevant chemicals on Table 1, and continue with Question 2. The chemicals identified here (and any degradation products) are evaluated as constituents of potential concern in subsequent questions.

__✓__ If **NO** - check here, provide the rationale and references below, and then go to the Summary Page to document that the subsurface vapor to indoor air pathway is incomplete (i.e., no further consideration of this pathway is needed); or

_____ If sufficient data are not available, go to the Summary Page and document the need for more information. After collecting the necessary data, Question 1 can then be revisited with the newly collected data to re-evaluate the completeness of the vapor intrusion pathway.

1. What is the goal of this question?

This question is designed to help quickly screen out sites at which the vapor intrusion pathway generally does not need further consideration. This evaluation involves determining whether or not any potential exists at a specific site for the vapor intrusion

pathway to result in unacceptable indoor air inhalation risks. Table 1 lists chemicals that may be found at hazardous waste sites and indicates whether, in our judgment, they are sufficiently volatile (Henry's Law Constant > 10^{-5} atm m^3/mol) to result in potentially significant vapor intrusion and sufficiently toxic (either an incremental lifetime cancer risk greater than 10^{-6} or a non-cancer hazard index greater than 1, or in some cases both) to result in potentially unacceptable indoor air inhalation risks. The approach used to develop Table 1 is documented in Appendix D and can be used, where appropriate, to evaluate volatile chemicals not included in the Table. We recommend that if any of the chemicals listed in Table 1 that are sufficiently volatile and toxic are present at a site, those chemicals become constituents of potential concern for the vapor intrusion pathway and are evaluated in subsequent questions in this guidance. If the chemicals listed in Table 1 are not present at a site, and no other volatile chemicals are present, we suggest that the vapor intrusion pathway be considered incomplete and no further consideration of this pathway is needed.

2. *What should you keep in mind?*

In evaluating the available site data, we recommend the DQOs used in collecting the data be reviewed to ensure those objectives are consistent with the DQOs for the vapor intrusion pathway (see Appendix A). We recommend the detection limits associated with the available groundwater data be reviewed to ensure they are not too high to detect volatile contaminants of potential concern. Also, we suggest that the adequacy of the definition of the nature and extent of contamination in groundwater and/or the vadose zone be assessed to ensure that all contaminants of concern and areas of contamination have been identified. Additionally, we recommend groundwater concentrations be measured or reasonably estimated using samples collected from wells screened at, or across the top of the water table. We recommend users read Appendices B (Conceptual Site Model for the Vapor Intrusion Pathway) and E (Relevant Methods and Techniques) to obtain a greater understanding of the important considerations in evaluating data for use in screening assessments of the vapor intrusion pathway.

3. *Rationale and References:*

The carbon tetrachloride plume is the closest VOC contamination to Bldg. 98. The closest monitoring well is ~400 feet away and the carbon tetrachloride concentrations are less than the Table 2 criteria (i.e. MCL). Therefore the chemicals are not of sufficient volatility. (see attached analytical data + figure)

B. Primary Screening – Question #2

Q2: Are currently (or potentially) inhabited buildings or areas of concern under future development scenarios located *near* (see discussion below) subsurface contaminants found in Table 1?

_____ If **YES** – check here, identify buildings and/or areas of concern below, and document on the Summary Page whether the potential for impacts from the vapor intrusion pathway applies to currently inhabited buildings or areas of concern under reasonably anticipated future development scenarios, or both. (Note that for EI considerations, we recommend only current risks be evaluated.) Then proceed with Question 3.

__✓__ If **NO** – check here, describe the rationale below, and then go to the Summary Page to document that there is no potential for the vapor intrusion pathway to impact either currently inhabited buildings or areas of concern under future development scenarios (i.e., no further evaluation of this pathway is needed). (Note that for EI considerations, only current risks are evaluated.); or

_____ If sufficient data are not available – check here and document the need for more information on the Summary Page. After collecting the necessary data, Question 2 can then be revisited with the newly collected data to re-evaluate the completeness of the vapor intrusion pathway.

1. What is the goal of this question?

The goal of this question is to help determine whether inhabited buildings currently are located (or may be reasonably expected to be located under future development scenarios) above or in close proximity to subsurface contamination that potentially could result in unacceptable indoor air inhalation risks. If inhabited buildings and/or future development are not located "near" the area of concern, we suggest that the vapor intrusion pathway be considered incomplete and no further consideration of the pathway should be needed.

For the purposes of this question, "**inhabited buildings**" are structures with enclosed air space that are designed for human occupancy. Table 1, discussed above in Question 1, lists the "**subsurface contaminants demonstrating sufficient volatility and toxicity**" to potentially pose an inhalation risk. We recommend that an inhabited building generally be considered "**near**" subsurface contaminants if it is located within approximately 100 ft laterally or vertically of known or interpolated soil gas or groundwater contaminants listed in Table 1 (or others not included in table 1 – see Question 1) and the contamination occurs in the unsaturated zone and/or the uppermost saturated zone. If the source of contamination is groundwater, we recommend migration of the contaminant plume be considered when evaluating the potential for future risks. The distance suggested above (100 feet) may not be appropriate for all sites (or contaminants) and, consequently, we recommend that professional judgment be used when evaluating the potential for vertical and horizontal vapor migration.

2. How did we develop the suggested distance?

The recommended distance is designed to allow for the assessment to focus on buildings (or areas with the potential to be developed for human habitation) most likely to have a complete vapor intrusion pathway. Vapor concentrations generally decrease with increasing distance from a subsurface vapor source, and eventually at some distance the concentrations become negligible. The distance at which concentrations are negligible is a function of the mobility, toxicity and persistence of the chemical, as well as the geometry of the source, subsurface materials, and characteristics of the buildings of concern. Available information suggests that 100 feet laterally and vertically is a reasonable criterion when considering vapor migration fundamentals, typical sampling density, and uncertainty in defining the actual contaminant spatial distribution. The recommended lateral distance is supported by empirical data from Colorado sites where the vapor intrusion pathway has been evaluated. At these sites, no significant indoor air concentrations have been found in residences at a distance greater than one house lot (approximately 100 feet) from the interpolated edge of ground water plumes. Considering the nature of diffusive vapor transport and the typical anisotropy in soil permeability, in our judgment a similar criterion of 100 feet for vertical transport is generally conservative. These recommended distances will be re-evaluated and, if necessary, adjusted by EPA as additional empirical data are compiled.

3. What should you keep in mind when evaluating this criterion?

It is important to consider whether **significant preferential pathways** could allow vapors to migrate more than 100 feet laterally. For the purposes of this guidance, a "significant" preferential pathway is a naturally occurring or anthropogenic subsurface pathway that is expected to have a high gas permeability and be of sufficient volume and proximity to a building so that it may be reasonably anticipated to influence vapor intrusion into the building. Examples include fractures, macropores, utility conduits, and subsurface drains that intersect vapor sources or vapor migration pathways. Note that naturally occurring fractures and macropores may serve as preferential pathways for either vertical or horizontal vapor migration, whereas anthropogenic features such as utility conduits are relatively shallow features and would likely serve only as a preferential pathway for horizontal migration. In either case, we recommend that buildings with significant preferential pathways be evaluated even if they are further than 100 ft from the contamination.

We also recommend that the potential for mobile "vapor clouds" (gas plumes) emanating from near-surface sources of contamination into the subsurface be considered when evaluating site data. Examples of such mobile "vapor clouds" include: 1) those originating in landfills where methane may serve as a carrier gas; and 2) those originating in commercial/industrial settings (such as dry cleaning facilities) where vapor can be released within an enclosed space and the density of the chemicals' vapor may result in

significant advective transport of the vapors downward through cracks/openings in floors and into the vadose zone. In these cases, diffusive transport of vapors is usually overridden by advective transport, and the vapors may be transported in the vadose zone several hundred feet from the source of contamination.

Finally, this guidance is intended to be applied to existing groundwater plumes as they are currently defined (e.g., MCLs, State Standards, or Risk-Based Concentrations). However, it is very important to recognize that some non-potable aquifers may have plumes that have been defined by threshold concentrations significantly higher than drinking-water concentrations. In these cases, contamination that is not technically considered part of the plume may still pose significant risks via the vapor intrusion pathway and, consequently, the plume definition may need to be expanded. Similarly, we recommend evaluating the technologies used to obtain soil gas and indoor air concentrations to determine if appropriate methods were used to ensure adequate data quality at the time analyses were conducted.

4. ***Identify Inhabited Buildings (or Areas With Potential for Future Residential Development) Within Distances of Possible Concern:***

The new warehouse (Bldg 98) is located >200 feet from the portion of the carbon tetrachloride plume exceeding the standard (i.e. MCL). The warehouse is used for storage and the office trailers are used by workers only during the day. The building does not have a basement.

C. Primary Screening Stage— Question #3

Q3: Does evidence suggest immediate action may be warranted to mitigate current risks?

_____ If **YES** – check here and proceed with appropriate actions to verify or eliminate imminent risks. Some examples of actions may include but are not limited to indoor air quality monitoring, engineered containment or ventilation systems, or relocation of people. The action(s) should be appropriate for the site-specific situation.

__✓__ If **NO** – check here and continue with Question 4.

1. What is the goal of this question?

This question is intended to help determine whether immediate action may be warranted for those buildings identified in Question 2 as located within the areas of concern. For the purposes of this guidance, "immediate action" means such action is necessary to verify or abate imminent and substantial threats to human health.

2. What are the qualitative criteria generally considered sufficient to indicate a need for immediate actions?

Odors reported by occupants, particularly if described as "chemical," or "solvent," or "gasoline." The presence of odors does not necessarily correspond to adverse health and/or safety impacts and the odors could be the result of indoor vapor sources; however, we believe it is generally prudent to investigate any reports of odors as the odor threshold for some chemicals exceeds their respective acceptable target breathing zone concentrations.

Physiological effects reported by occupants (dizziness, nausea, vomiting, confusion, etc.) may, or may not be due to subsurface vapor intrusion or even other indoor vapor sources, but, should generally be evaluated.

Wet basements, in areas **where chemicals of sufficient volatility and toxicity** (see Table 1) **are known to be present in groundwater and the water table is shallow enough that the basements are prone to groundwater intrusion or flooding.** This has been proven to be especially important where there is evidence of light, non-aqueous phase liquids (LNAPLs) floating on the water table directly below the building, and/or any direct evidence of contamination (liquid chemical or dissolved in water) inside the building.

Short-term safety concerns are known, or are reasonably suspected to exist, including: a) measured or likely explosive or acutely toxic concentrations of vapors in the building or connected utility conduits, sumps, or other subsurface drains directly connected to the building and b) measured or likely vapor concentrations tbat may be flammable/combustible, corrosive, or chemically reactive.

3. *Rationale and Reference(s):*

None. No basement in Bldg. 98

VII. VAPOR INTRUSION PATHWAY SUMMARY PAGE

Facility Name: Warehouse (Bldg. 98)
Facility Address: Rochester St. and S. Harvard St. - BNL.

Primary Screening Summary

☐ *Q1: Constituents of concern Identified?*

_____ *Yes*
__✓__ *No* (If NO, skip to the conclusion section below and check NO to indicate the pathway is *incomplete.)*

☐ *Q2: Currently inhabited buildings near subsurface contamination?*

_____ *Yes*
__✓__ *No*

Areas of future concern near subsurface contamination?

_____ *Yes*
__✓__ *No* (If NO, skip to the conclusion section below and check NO to indicate the pathway is *incomplete.)*

☐ *Q3: Immediate Actions Warranted?*

_____ *Yes*
__✓__ *No*

Secondary Screening Summary

☐ *Vapor source identified:*

_____ *Groundwater*
_____ *Soil*
_____ *Insufficient data*

☐ *Indoor air data available?*

_____ *Yes*
_____ *No*

☐ *Indoor air concentrations exceed target levels?*

_____ *Yes*
_____ *No*

☐ *Subsurface data evaluation: (Circle appropriate answers below)*

Medium	Q4 Levels Exceeded?	Q5 Levels Exceeded?	Data Indicates Pathway is Complete?
Groundwater	YES / NO / NA / INS	YES / NO / NA / INS	YES / NO / INS
Soil Gas	YES / NO / NA / INS	YES / NO / NA / INS	YES / NO / INS

NA = not applicable
INS = insufficient data available to make a determination

Site-Specific Summary

☐ *Have the nature and extent of subsurface contamination, potential preferential pathways and overlying building characteristics been adequately characterized to identify the most-likely-to-be-impacted buildings?*

_____ *Yes*

_____ *No*

_____ *N/A*

EPA recommends that if a model was used, it be an appropriate and applicable model that represents the conceptual site model. If other means were used, document how you determined the potentially most impacted areas to sample. EPA recommends that predictive modeling can be used to support Current Human Exposures Under Control EI determinations without confirmatory sampling to support this determination. Current Human Exposures Under Control EI determinations are intended to reflect a reasonable conclusion by EPA or the State that current human exposures are under control with regard to the vapor intrusion pathway and current land use conditions. Therefore, if conducting evaluation for an EI determination, document that the **Pathway is Incomplete** and/or does not pose an unacceptable risk to human health for EI determinations.

☐ *Are you making an EI determination based on modeling and does the model prediction indicate that determination is expected to be adequately protective to support Current Human Exposures Under Control EI determinations?*

_____ *Yes*

_____ *No*

_____ *N/A*

☐ *Do subslab vapor concentrations exceed target levels?*

_____ *Yes*

_____ *No*

_____ *N/A*

☐ *Do indoor air concentrations exceed target levels?*

_____ *Yes*

_____ *No*

Conclusion

Is there a Complete Pathway for subsurface vapor intrusion to indoor air?

Below, check the appropriate conclusion for the Subsurface Vapor to Indoor Air Pathway evaluation and attach supporting documentation as well as a map of the facility.

__✓__ NO - the "Subsurface Vapor Intrusion to Indoor Air Pathway" has been verified to be incomplete for the __Warehouse (Bldg. 98)__ facility, EPA ID #_____________, located at __BNL__.
This determination is based on a review of site information, as suggested in this guidance, check as appropriate:

__✓__ for current and reasonably expected conditions, or

_____ based on performance monitoring evaluations for engineered exposure controls. This determination may be re-evaluated, where appropriate, when the Agency/State becomes aware of any significant changes at the facility.

_____ YES –The "Subsurface Vapor to Indoor Air Pathway" is Complete. Engineered controls, avoidance actions, or removal actions taken include: _____________

_____ UNKNOWN - More information is needed to make a determination.

Locations where References may be found:

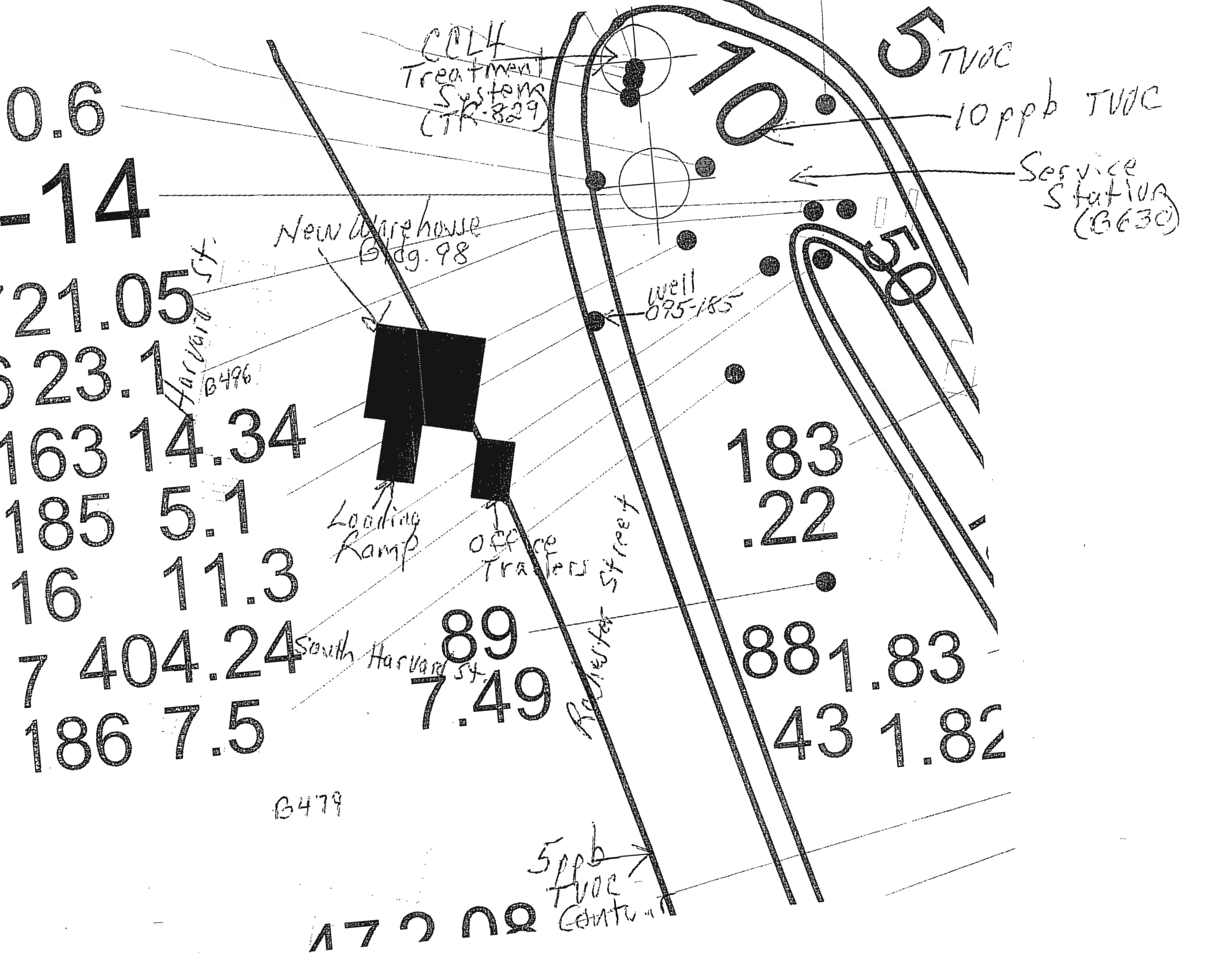
See attached

Contact telephone and e-mail numbers:

(name) Bob Howe R Howe 8/21/08

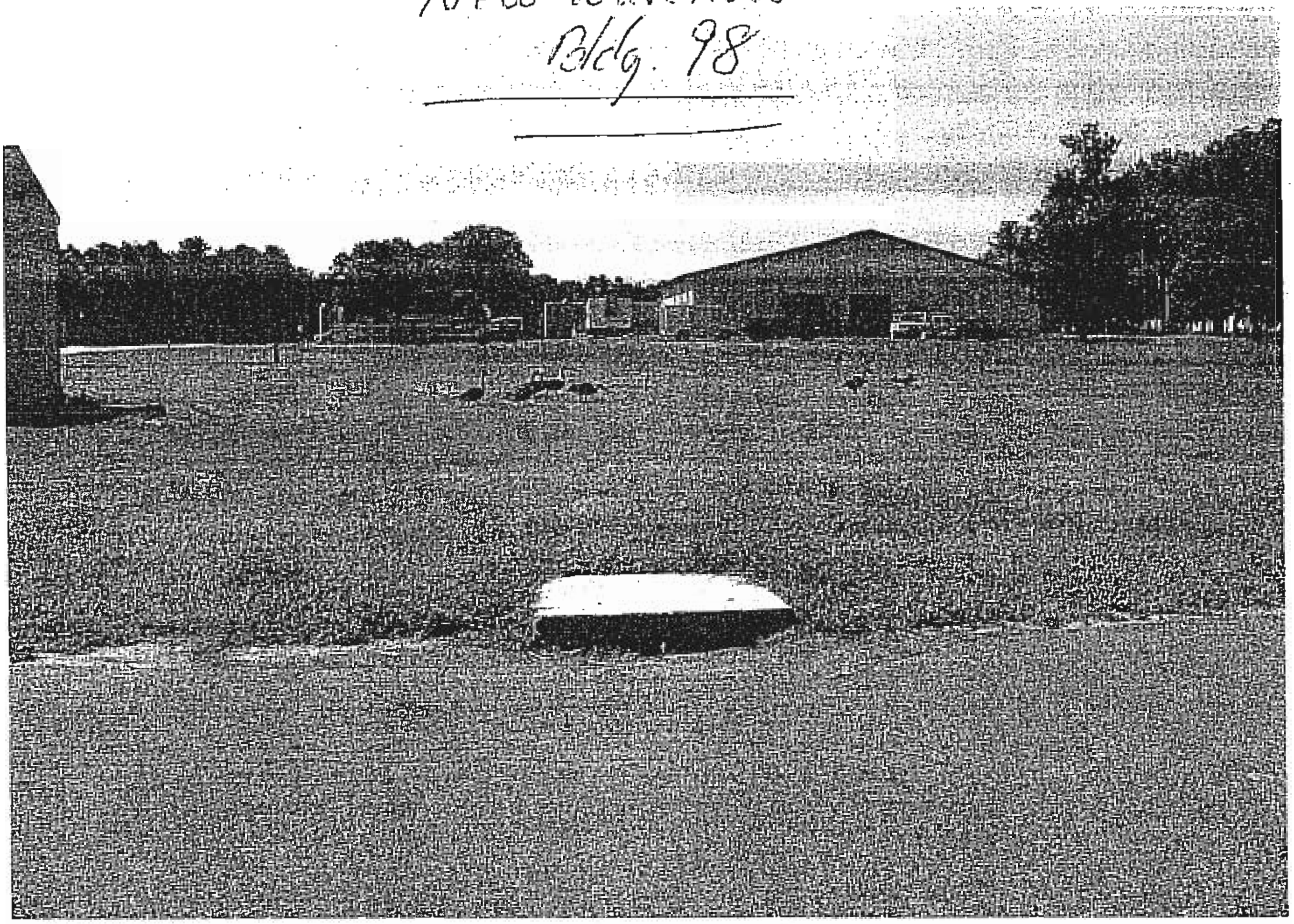
(phone #) 344-5588

(e-mail) howe@bnl.gov



CCL4 Treatment System (CTR-829)
5 TVOC
10
10 ppb TVOC
Service Station (G630)
50
New Warehouse Bldg. 98
Harvard St.
B496
well 095-185
Loading Ramp
Office Trailers
Rochester Street
South Harvard St.
5 ppb TVOC Contour
B479
0.6
-14
721.05
6 23.1
163 14.34
185 5.1
16 11.3
7 404.24
186 7.5
183
.22
89
7.49
88 1.83
43 1.82
47 2.08

New Warehouse
Bldg. 98



New Warehouse (Bldg. 98) Nearby Monitoring Well Data (8/21/08)

Site ID: 095-185

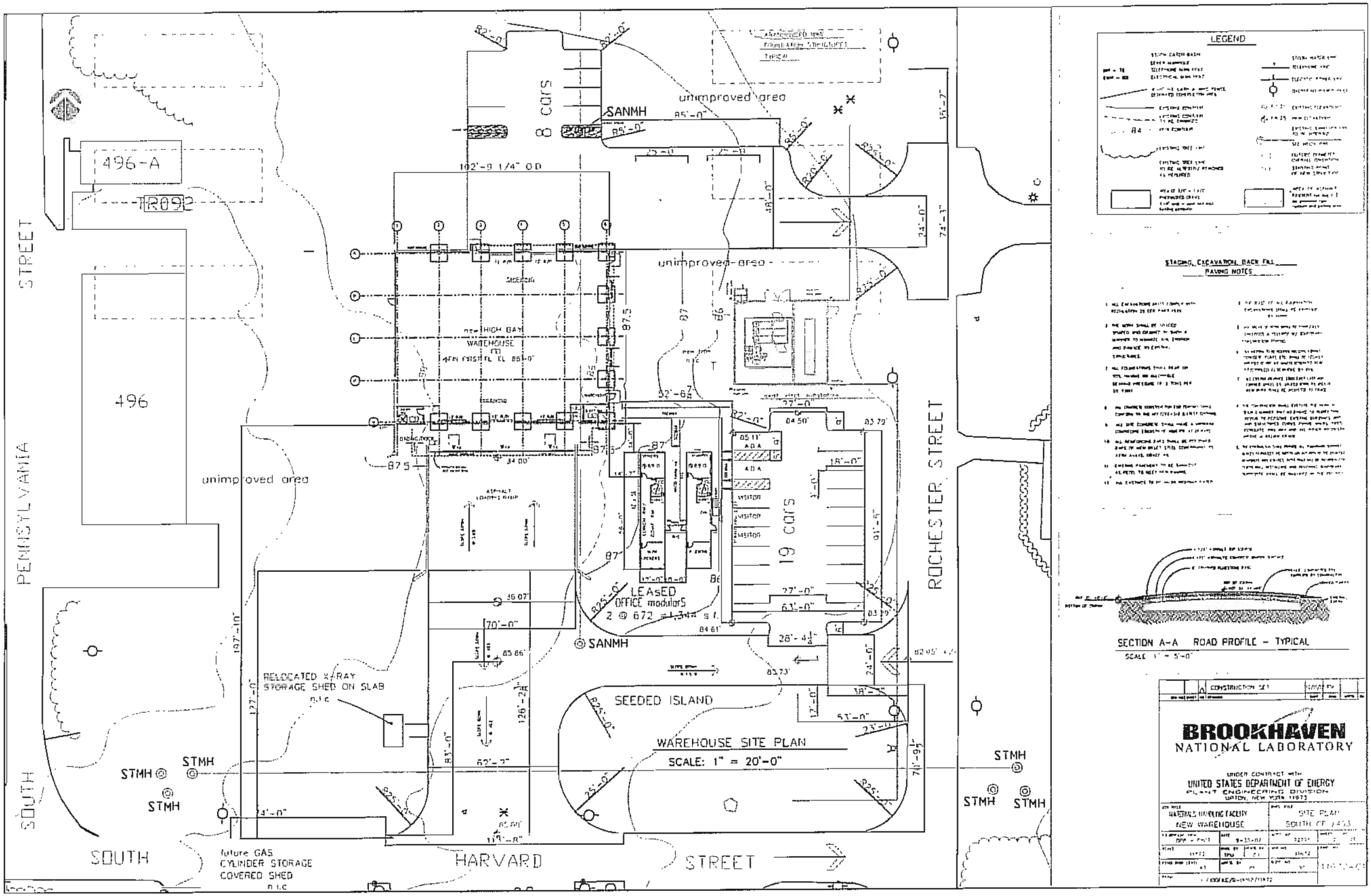
Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
524.2 TVOC	1/30/2006	4.42	--	--	UG/L	47	
Carbon tetrachloride	1/30/2006	3.7	0.5	--	UG/L	47	
Chloroform	1/30/2006	0.72	0.5	--	UG/L	47	
524.2 TVOC	4/28/2006	3.94	--	--	UG/L	47	
Carbon tetrachloride	4/28/2006	3.3	0.5	--	UG/L	47	
Chloroform	4/28/2006	0.64	0.5	--	UG/L	47	
524.2 TVOC	7/26/2006	6.13	--	--	UG/L	47	
Carbon tetrachloride	7/26/2006	5.3	0.5	--	UG/L	47	
Chloroform	7/26/2006	0.83	0.5	--	UG/L	47	
524.2 TVOC	10/16/2006	4.78	--	--	UG/L	47.5	
Carbon tetrachloride	10/16/2006	4.1	0.5	--	UG/L	47.5	
Chloroform	10/16/2006	0.68	0.5	--	UG/L	47.5	
524.2 TVOC	1/12/2007	6.1	--	--	UG/L	47	
Carbon tetrachloride	1/12/2007	4.9	0.5	--	UG/L	47	
Chloroform	1/12/2007	1.2	0.5	--	UG/L	47	
524.2 TVOC	4/11/2007	3.38	--	--	UG/L	47	
Carbon tetrachloride	4/11/2007	2.7	0.5	--	UG/L	47	
Chloroform	4/11/2007	0.68	0.5	--	UG/L	47	
524.2 TVOC	10/12/2007	5.1	--	--	UG/L	45	
Carbon tetrachloride	10/12/2007	3.8	0.5	--	UG/L	45	
Chloroform	10/12/2007	1.3	0.5	--	UG/L	45	
524.2 TVOC	6/17/2008	1.79	--	--	UG/L	47	
Carbon tetrachloride	6/17/2008	1.2	0.5	--	UG/L	47	
Chloroform	6/17/2008	0.59	0.5	--	UG/L	47	

Site ID: 095-89

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
1,1,1-Trichloroethane	1/27/2006	2.8	0.5	--	UG/L	160	
1,1-Dichloroethane	1/27/2006	0.49	0.5	--	UG/L	160	J
1,1-Dichloroethylene	1/27/2006	1.4	0.5	--	UG/L	160	
524.2 TVOC	1/27/2006	7.569	--	--	UG/L	160	
Carbon tetrachloride	1/27/2006	0.29	0.5	--	UG/L	160	J
Chloroform	1/27/2006	2	0.5	--	UG/L	160	
Trichloroethylene	1/27/2006	0.5	0.5	--	UG/L	160	
Trichlorofluoromethane	1/27/2006	0.089	0.5	--	UG/L	160	J
1,1,1-Trichloroethane	4/27/2006	3.1	0.5	--	UG/L	160	
1,1-Dichloroethane	4/27/2006	0.48	0.5	--	UG/L	160	J
1,1-Dichloroethylene	4/27/2006	1.5	0.5	--	UG/L	160	
524.2 TVOC	4/27/2006	8.02	--	--	UG/L	160	
Carbon tetrachloride	4/27/2006	0.24	0.5	--	UG/L	160	J
Chloroform	4/27/2006	2.2	0.5	--	UG/L	160	
Trichloroethylene	4/27/2006	0.5	0.5	--	UG/L	160	
1,1,1-Trichloroethane	8/8/2006	2.8	0.5	--	UG/L	160	
1,1-Dichloroethane	8/8/2006	0.43	0.5	--	UG/L	160	J
1,1-Dichloroethylene	8/8/2006	1.2	0.5	--	UG/L	160	
524.2 TVOC	8/8/2006	7.83	--	--	UG/L	160	
Carbon tetrachloride	8/8/2006	0.37	0.5	--	UG/L	160	J
Chloroform	8/8/2006	2.6	0.5	--	UG/L	160	
Trichloroethylene	8/8/2006	0.43	0.5	--	UG/L	160	J
1,1,1-Trichloroethane	10/17/2006	2.6	0.5	--	UG/L	160	

New Warehouse (Bldg. 98) Nearby Monitoring Well Data (8/21/08)

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
1,1-Dichloroethane	10/17/2006	0.38	0.5	--	UG/L	160	J
1,1-Dichloroethylene	10/17/2006	1.2	0.5	--	UG/L	160	
524.2 TVOC	10/17/2006	7.87	--	--	UG/L	160	
Carbon tetrachloride	10/17/2006	0.57	0.5	--	UG/L	160	
Chloroform	10/17/2006	2.7	0.5	--	UG/L	160	
Trichloroethylene	10/17/2006	0.42	0.5	--	UG/L	160	J
1,1,1-Trichloroethane	1/12/2007	1.8	0.5	--	UG/L	160	
1,1-Dichloroethylene	1/12/2007	0.97	0.5	--	UG/L	160	
524.2 TVOC	1/12/2007	5.58	--	--	UG/L	160	
Carbon tetrachloride	1/12/2007	0.71	0.5	--	UG/L	160	
Chloroform	1/12/2007	2.1	0.5	--	UG/L	160	
1,1,1-Trichloroethane	4/11/2007	1.8	0.5	--	UG/L	160	
1,1-Dichloroethane	4/11/2007	0.35	0.5	--	UG/L	160	J
1,1-Dichloroethylene	4/11/2007	0.88	0.5	--	UG/L	160	
524.2 TVOC	4/11/2007	5.85	--	--	UG/L	160	
Carbon tetrachloride	4/11/2007	0.3	0.5	--	UG/L	160	J
Chloroform	4/11/2007	2.2	0.5	--	UG/L	160	
Trichloroethylene	4/11/2007	0.32	0.5	--	UG/L	160	J
1,1,1-Trichloroethane	10/12/2007	1.9	0.5	--	UG/L	160	
1,1-Dichloroethane	10/12/2007	0.48	0.5	--	UG/L	160	J
1,1-Dichloroethylene	10/12/2007	0.93	0.5	--	UG/L	160	
524.2 TVOC	10/12/2007	7.49	--	--	UG/L	160	
Carbon tetrachloride	10/12/2007	0.72	0.5	--	UG/L	160	
Chloroform	10/12/2007	3.1	0.5	--	UG/L	160	
Trichloroethylene	10/12/2007	0.36	0.5	--	UG/L	160	J
1,1,1-Trichloroethane	4/15/2008	1.6	0.5	--	UG/L	160	
1,1-Dichloroethane	4/15/2008	0.54	0.5	--	UG/L	160	
1,1-Dichloroethylene	4/15/2008	0.86	0.5	--	UG/L	160	
524.2 TVOC	4/15/2008	7.17	--	--	UG/L	160	
Carbon tetrachloride	4/15/2008	0.64	0.5	--	UG/L	160	
Chloroform	4/15/2008	3.2	0.5	--	UG/L	160	
Trichloroethylene	4/15/2008	0.33	0.5	--	UG/L	160	J



LEGEND
STAGING, EXCAVATION, BACK FILL, PAVING NOTES
SECTION A-A ROAD PROFILE - TYPICAL
SCALE: 1" = 5'-0"
WAREHOUSE SITE PLAN
SCALE: 1" = 20'-0"
ROCHESTER STREET
PENNSYLVANIA STREET
SOUTH STREET
HARVARD STREET
496
496-A
TR092
unimproved area
8 cars
19 cars
SANMH
STMH
new HIGH BAY WAREHOUSE
LEASED OFFICE modulars
2 @ 672 =1,344 s.f.
SEEDED ISLAND
RELOCATED X-RAY STORAGE SHED ON SLAB
future GAS CYLINDER STORAGE COVERED SHED
ADA
VISITOR
CONSTRUCTION SET
BROOKHAVEN NATIONAL LABORATORY
UNDER CONTRACT WITH
UNITED STATES DEPARTMENT OF ENERGY
PLANT ENGINEERING DIVISION
UPTON, NEW YORK 11973
NEW WAREHOUSE
SITE PLAN

Environmental & Waste Management Services Division

BROOKHAVEN
NATIONAL LABORATORY

Building 51
P.O. Box 5000
Upton, NY 11973-5000
Phone 631 344-5588
Fax 631 344-7776
howe@bnl.gov

managed by Brookhaven Science Associates
for the U.S. Department of Energy

Memo

date: *June 5, 2008*

to: *File*

from: *R. Howe* R Howe

subject: SOIL GAS VAPOR EVALUATION FOR NEW BUILDING

This memo documents the potential for soil gas vapor buildup in the proposed Interdisciplinary Science Building (ISB) at BNL that is currently in the planning stage. As identified in the attached preliminary initial screening for this building, the closest groundwater contaminant plume is approximately 500 feet to the southwest. In addition, a clean layer of groundwater exists above this plume. Therefore, the subsurface to indoor air pathway is incomplete, and no further evaluation is needed at this time.

Attachment

Copy: M. Davis
W. Dorsch
G. Penny
File: GWER 59.08

6/4/08
FOR Interdisciplinary Science Bldg (ISB)
Soil Vapor Evaluation

IV. TIER 1 - Primary Screening

Primary Screening is designed to help quickly screen out sites at which the vapor intrusion pathway does not ordinarily need further consideration, and point out the sites that do typically need further consideration. This evaluation involves determining whether any potential exists at a specific site for vapor intrusion to result in unacceptable indoor inhalation risks and, if so, whether immediate action may be warranted. Recommended criteria for making these determinations are presented in Questions 1 through 3, which focus on identifying:

a) if chemicals of sufficient volatility and toxicity are present or reasonably suspected to be present (Question 1);
b) if inhabited buildings are located (or will be constructed under future development scenarios – except for Environmental Indicator determinations, see section IV.C below) above or in close proximity to subsurface contamination (Question 2); and
c) if current conditions warrant immediate action (Question 3).

This primary screening process is illustrated in a flow diagram included in Appendix C:

A. Primary Screening – Question #1

Q1: Are chemicals of sufficient volatility and toxicity known or reasonably suspected to be present in the subsurface (e.g., in unsaturated soils, soil gas, or the uppermost portions of the ground water and/or capillary fringe – see Table 1)? (We recommend this consideration involve DQOs (see Appendix A) used in acquiring the site data as well as an appropriately scaled Conceptual Site Model (CSM) for vapor intrusion (see Appendix B).)

_____ If **YES** - check here, check off the relevant chemicals on Table 1, and continue with Question 2. The chemicals identified here (and any degradation products) are evaluated as constituents of potential concern in subsequent questions.

__✓__ If **NO** - check here, provide the rationale and references below, and then go to the Summary Page to document that the subsurface vapor to indoor air pathway is incomplete (i.e., no further consideration of this pathway is needed); or

_____ If sufficient data are not available, go to the Summary Page and document the need for more information. After collecting the necessary data, Question 1 can then be revisited with the newly collected data to re-evaluate the completeness of the vapor intrusion pathway.

1. What is the goal of this question?

This question is designed to help quickly screen out sites at which the vapor intrusion pathway generally does not need further consideration. This evaluation involves determining whether or not any potential exists at a specific site for the vapor intrusion

pathway to result in unacceptable indoor air inhalation risks. Table 1 lists chemicals that may be found at hazardous waste sites and indicates whether, in our judgment, they are sufficiently volatile (Henry's Law Constant > 10^{-5} atm m^3/mol) to result in potentially significant vapor intrusion and sufficiently toxic (either an incremental lifetime cancer risk greater than 10^{-6} or a non-cancer hazard index greater than 1, or in some cases both) to result in potentially unacceptable indoor air inhalation risks. The approach used to develop Table 1 is documented in Appendix D and can be used, where appropriate, to evaluate volatile chemicals not included in the Table. We recommend that if any of the chemicals listed in Table 1 that are sufficiently volatile and toxic are present at a site, those chemicals become constituents of potential concern for the vapor intrusion pathway and are evaluated in subsequent questions in this guidance. If the chemicals listed in Table 1 are not present at a site, and no other volatile chemicals are present, we suggest that the vapor intrusion pathway be considered incomplete and no further consideration of this pathway is needed.

2. *What should you keep in mind?*

In evaluating the available site data, we recommend the DQOs used in collecting the data be reviewed to ensure those objectives are consistent with the DQOs for the vapor intrusion pathway (see Appendix A). We recommend the detection limits associated with the available groundwater data be reviewed to ensure they are not too high to detect volatile contaminants of potential concern. Also, we suggest that the adequacy of the definition of the nature and extent of contamination in groundwater and/or the vadose zone be assessed to ensure that all contaminants of concern and areas of contamination have been identified. Additionally, we recommend groundwater concentrations be measured or reasonably estimated using samples collected from wells screened at, or across the top of the water table. We recommend users read Appendices B (Conceptual Site Model for the Vapor Intrusion Pathway) and E (Relevant Methods and Techniques) to obtain a greater understanding of the important considerations in evaluating data for use in screening assessments of the vapor intrusion pathway.

3. *Rationale and References:*

No plumes in groundwater exist in the area of the proposed ISB. There is clean groundwater across the top of the water table (See location figure)

B. Primary Screening – Question #2

Q2: Are currently (or potentially) inhabited buildings or areas of concern under future development scenarios located *near* (see discussion below) subsurface contaminants found in Table 1?

_____ If **YES** – check here, identify buildings and/or areas of concern below, and document on the Summary Page whether the potential for impacts from the vapor intrusion pathway applies to currently inhabited buildings or areas of concern under reasonably anticipated future development scenarios, or both. (Note that for EI considerations, we recommend only current risks be evaluated.) Then proceed with Question 3.

__✓__ If **NO** – check here, describe the rationale below, and then go to the Summary Page to document that there is no potential for the vapor intrusion pathway to impact either currently inhabited buildings or areas of concern under future development scenarios (i.e., no further evaluation of this pathway is needed). (Note that for EI considerations, only current risks are evaluated.); or

_____ If sufficient data are not available – check here and document the need for more information on the Summary Page. After collecting the necessary data, Question 2 can then be revisited with the newly collected data to re-evaluate the completeness of the vapor intrusion pathway.

1. What is the goal of this question?

The goal of this question is to help determine whether inhabited buildings currently are located (or may be reasonably expected to be located under future development scenarios) above or in close proximity to subsurface contamination that potentially could result in unacceptable indoor air inhalation risks. If inhabited buildings and/or future development are not located "near" the area of concern, we suggest that the vapor intrusion pathway be considered incomplete and no further consideration of the pathway should be needed.

For the purposes of this question, **"inhabited buildings"** are structures with enclosed air space that are designed for human occupancy. Table 1, discussed above in Question 1, lists the **"subsurface contaminants demonstrating sufficient volatility and toxicity"** to potentially pose an inhalation risk. We recommend that an inhabited building generally be considered **"near"** subsurface contaminants if it is located within approximately 100 ft laterally or vertically of known or interpolated soil gas or groundwater contaminants listed in Table 1 (or others not included in table 1 – see Question 1) and the contamination occurs in the unsaturated zone and/or the uppermost saturated zone. If the source of contamination is groundwater, we recommend migration of the contaminant plume be considered when evaluating the potential for future risks. The distance suggested above (100 feet) may not be appropriate for all sites (or contaminants) and, consequently, we recommend that professional judgment be used when evaluating the potential for vertical and horizontal vapor migration.

2. *How did we develop the suggested distance?*

The recommended distance is designed to allow for the assessment to focus on buildings (or areas with the potential to be developed for human habitation) most likely to have a complete vapor intrusion pathway. Vapor concentrations generally decrease with increasing distance from a subsurface vapor source, and eventually at some distance the concentrations become negligible. The distance at which concentrations are negligible is a function of the mobility, toxicity and persistence of the chemical, as well as the geometry of the source, subsurface materials, and characteristics of the buildings of concern. Available information suggests that 100 feet laterally and vertically is a reasonable criterion when considering vapor migration fundamentals, typical sampling density, and uncertainty in defining the actual contaminant spatial distribution. The recommended lateral distance is supported by empirical data from Colorado sites where the vapor intrusion pathway has been evaluated. At these sites, no significant indoor air concentrations have been found in residences at a distance greater than one house lot (approximately 100 feet) from the interpolated edge of ground water plumes. Considering the nature of diffusive vapor transport and the typical anisotropy in soil permeability, in our judgment a similar criterion of 100 feet for vertical transport is generally conservative. These recommended distances will be re-evaluated and, if necessary, adjusted by EPA as additional empirical data are compiled.

3. *What should you keep in mind when evaluating this criterion?*

It is important to consider whether **significant preferential pathways** could allow vapors to migrate more than 100 feet laterally. For the purposes of this guidance, a "significant" preferential pathway is a naturally occurring or anthropogenic subsurface pathway that is expected to have a high gas permeability and be of sufficient volume and proximity to a building so that it may be reasonably anticipated to influence vapor intrusion into the building. Examples include fractures, macropores, utility conduits, and subsurface drains that intersect vapor sources or vapor migration pathways. Note that naturally occurring fractures and macropores may serve as preferential pathways for either vertical or horizontal vapor migration, whereas anthropogenic features such as utility conduits are relatively shallow features and would likely serve only as a preferential pathway for horizontal migration. In either case, we recommend that buildings with significant preferential pathways be evaluated even if they are further than 100 ft from the contamination.

We also recommend that the potential for mobile "vapor clouds" (gas plumes) emanating from near-surface sources of contamination into the subsurface be considered when evaluating site data. Examples of such mobile "vapor clouds" include: 1) those originating in landfills where methane may serve as a carrier gas; and 2) those originating in commercial/industrial settings (such as dry cleaning facilities) where vapor can be released within an enclosed space and the density of the chemicals' vapor may result in

significant advective transport of the vapors downward through cracks/openings in floors and into the vadose zone. In these cases, diffusive transport of vapors is usually overridden by advective transport, and the vapors may be transported in the vadose zone several hundred feet from the source of contamination.

Finally, this guidance is intended to be applied to existing groundwater plumes as they are currently defined (e.g., MCLs, State Standards, or Risk-Based Concentrations). However, it is very important to recognize that some non-potable aquifers may have plumes that have been defined by threshold concentrations significantly higher than drinking-water concentrations. In these cases, contamination that is not technically considered part of the plume may still pose significant risks via the vapor intrusion pathway and, consequently, the plume definition may need to be expanded. Similarly, we recommend evaluating the technologies used to obtain soil gas and indoor air concentrations to determine if appropriate methods were used to ensure adequate data quality at the time analyses were conducted.

4. *Identify Inhabited Buildings (or Areas With Potential for Future Residential Development) Within Distances of Possible Concern:*

ISB - future potential building - outside of any contaminant plume. The subsurface vapor to indoor air pathway is incomplete and no further evaluation is needed at this time.

C. **Primary Screening Stage— Question #3**

Q3: Does evidence suggest immediate action may be warranted to mitigate current risks?

_____ If **YES** – check here and proceed with appropriate actions to verify or eliminate imminent risks. Some examples of actions may include but are not limited to indoor air quality monitoring, engineered containment or ventilation systems, or relocation of people. The action(s) should be appropriate for the site-specific situation.

✓ If **NO** – check here and continue with Question 4.

1. What is the goal of this question?

This question is intended to help determine whether immediate action may be warranted for those buildings identified in Question 2 as located within the areas of concern. For the purposes of this guidance, "immediate action" means such action is necessary to verify or abate imminent and substantial threats to human health.

2. What are the qualitative criteria generally considered sufficient to indicate a need for immediate actions?

Odors reported by occupants, particularly if described as "chemical," or "solvent," or "gasoline." The presence of odors does not necessarily correspond to adverse health and/or safety impacts and the odors could be the result of indoor vapor sources; however, we believe it is generally prudent to investigate any reports of odors as the odor threshold for some chemicals exceeds their respective acceptable target breathing zone concentrations.

Physiological effects reported by occupants (dizziness, nausea, vomiting, confusion, etc.) may, or may not be due to subsurface vapor intrusion or even other indoor vapor sources, but, should generally be evaluated.

Wet basements, in areas **where chemicals of sufficient volatility and toxicity** (see Table 1) **are known to be present in groundwater and the water table is shallow enough that the basements are prone to groundwater intrusion or flooding.** This has been proven to be especially important where there is evidence of light, non-aqueous phase liquids (LNAPLs) floating on the water table directly below the building, and/or any direct evidence of contamination (liquid chemical or dissolved in water) inside the building.

Short-term safety concerns are known, or are reasonably suspected to exist, including: a) measured or likely explosive or acutely toxic concentrations of vapors in the building or connected utility conduits, sumps, or other subsurface drains directly connected to the building and b) measured or likely vapor concentrations that may be flammable/combustible, corrosive, or chemically reactive.

3. *Rationale and Reference(s):*

None

VII. VAPOR INTRUSION PATHWAY SUMMARY PAGE

Facility Name: Interdisciplinary Science Bldg (ISB)
Facility Address: Brookhaven Ave. BNL

Primary Screening Summary

☐ *Q1: Constituents of concern Identified?*

_______ *Yes*

__✓__ *No* (If NO, skip to the conclusion section below and check NO to indicate the pathway is *incomplete.)*

☐ *Q2: Currently inhabited buildings near subsurface contamination?*

_______ *Yes*

__✓__ *No*

Areas of future concern near subsurface contamination?

_______ *Yes*

__✓__ *No* (If NO, skip to the conclusion section below and check NO to indicate the pathway is *incomplete.)*

☐ *Q3: Immediate Actions Warranted?*

_______ *Yes*

__✓__ *No*

Secondary Screening Summary

☐ *Vapor source identified:*

_____ *Groundwater*

_____ *Soil*

_____ *Insufficient data*

☐ *Indoor air data available?*

_____ *Yes*

_____ *No*

☐ *Indoor air concentrations exceed target levels?*

_____ *Yes*

_____ *No*

☐ *Subsurface data evaluation: (Circle appropriate answers below)*

Medium	Q4 Levels Exceeded?	Q5 Levels Exceeded?	Data Indicates Pathway is Complete?
Groundwater	YES / NO / NA / INS	YES / NO / NA / INS	YES / NO / INS
Soil Gas	YES / NO / NA / INS	YES / NO / NA / INS	YES / NO / INS

NA = not applicable
INS = insufficient data available to make a determination

Site-Specific Summary

☐ *Have the nature and extent of subsurface contamination, potential preferential pathways and overlying building characteristics been adequately characterized to identify the most-likely-to-be-impacted buildings?*

_____ *Yes*

_____ *No*

_____ *N/A*

EPA recommends that if a model was used, it be an appropriate and applicable model that represents the conceptual site model. If other means were used, document how you determined the potentially most impacted areas to sample. EPA recommends that predictive modeling can be used to support Current Human Exposures Under Control EI determinations without confirmatory sampling to support this determination. Current Human Exposures Under Control EI determinations are intended to reflect a reasonable conclusion by EPA or the State that current human exposures are under control with regard to the vapor intrusion pathway and current land use conditions. Therefore, if conducting evaluation for an EI determination, document that the **Pathway is Incomplete** and/or does not pose an unacceptable risk to human health for EI determinations.

☐ *Are you making an EI determination based on modeling and does the model prediction indicate that determination is expected to be adequately protective to support Current Human Exposures Under Control EI determinations?*

_____ *Yes*

_____ *No*

_____ *N/A*

☐ *Do subslab vapor concentrations exceed target levels?*

_____ *Yes*

_____ *No*

_____ *N/A*

☐ *Do indoor air concentrations exceed target levels?*

_____ *Yes*

_____ *No*

Conclusion

Is there a Complete Pathway for subsurface vapor intrusion to indoor air?

Below, check the appropriate conclusion for the Subsurface Vapor to Indoor Air Pathway evaluation and attach supporting documentation as well as a map of the facility.

__✓__ NO - the "Subsurface Vapor Intrusion to Indoor Air Pathway" has been verified to be incomplete for the __proposed ISB__ facility, EPA ID # _______________, located at __BNL__. This determination is based on a review of site information, as suggested in this guidance; check as appropriate:

- __✓__ for current and reasonably expected conditions, or
- _____ based on performance monitoring evaluations for engineered exposure controls. This determination may be re-evaluated, where appropriate, when the Agency/State becomes aware of any significant changes at the facility.

_____ YES –The "Subsurface Vapor to Indoor Air Pathway" is Complete. Engineered controls, avoidance actions, or removal actions taken include: ____________
____
____

_____ UNKNOWN - More information is needed to make a determination.

Locations where References may be found:

____
____
____
____
____

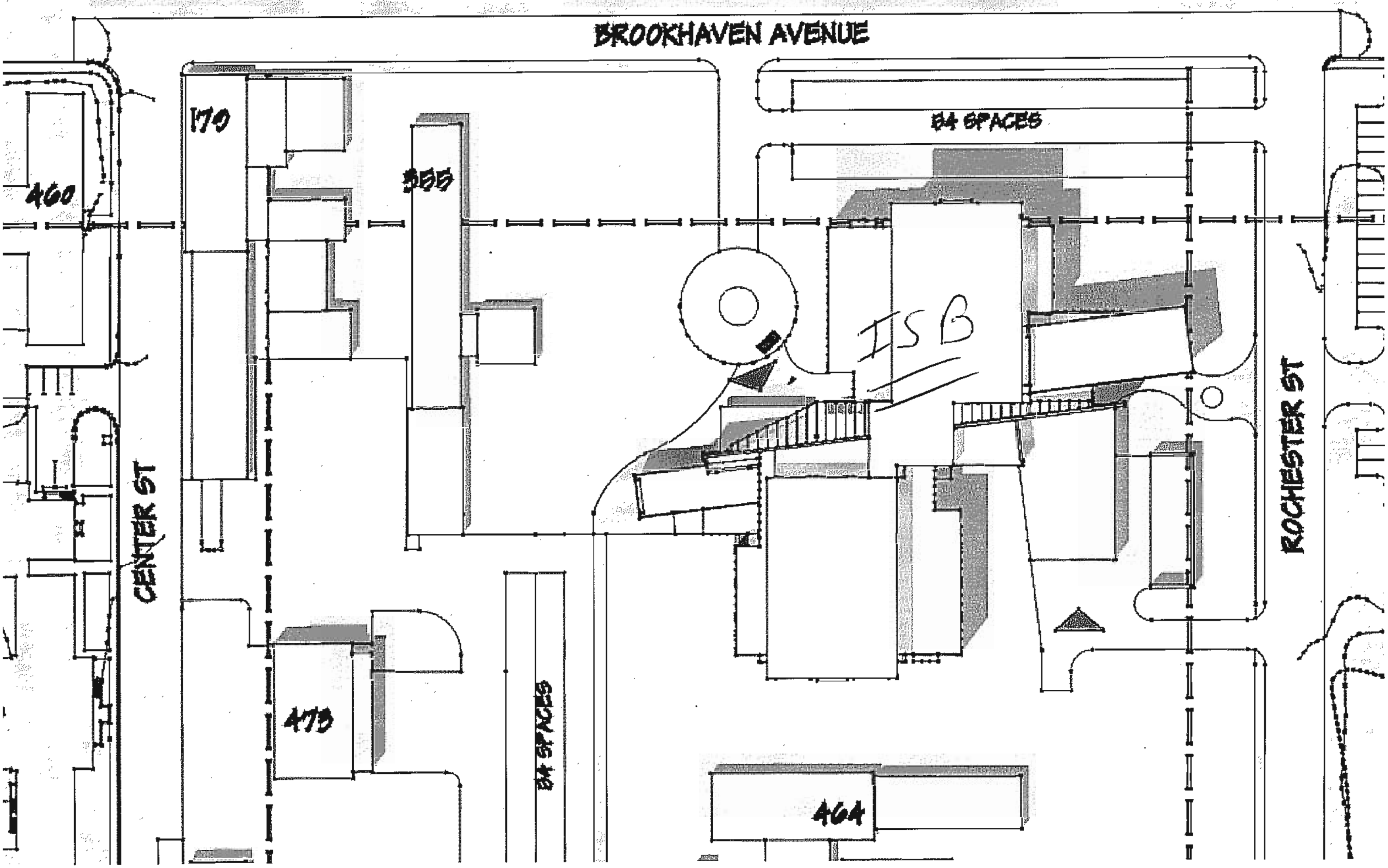
Contact telephone and e-mail numbers:

(name) __Robert Howe 6/4/08__

(phone #) ______________________________________

(e-mail) ______________________________________


075-01
.35
075-02
.02
0.85ppb TVOC
Brookhaven Ave
355
ISB
464
Rochester St.
5ppb TVOC
~500'


BROOKHAVEN AVENUE
84 SPACES
ROCHESTER ST
CENTER ST
170
460
555
ISB
475
84 SPACES
464

Monitoring Wells Near ISB (6/4/08)

Site ID: 075-01

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
524.2 TVOC	1/28/2002	0	--	--	UG/L	45	
524.2 TVOC	4/30/2002	0	--	--	UG/L	45	
524.2 TVOC	7/29/2002	0.28	--	--	UG/L	45	
Chloroform	7/29/2002	0.28	0.5	--	UG/L	45	J
524.2 TVOC	11/26/2002	0	--	--	UG/L	45	
524.2 TVOC	2/19/2003	0	--	--	UG/L	45	
524.2 TVOC	6/11/2003	0	--	--	UG/L	45	
524.2 TVOC	9/10/2003	0	--	--	UG/L	45	
524.2 TVOC	12/12/2003	0	--	--	UG/L	45	
524.2 TVOC	11/8/2004	0.17	--	--	UG/L	45	
Chloroform	11/8/2004	0.17	0.5	--	UG/L	45	J
524.2 TVOC	11/7/2005	0.21	--	--	UG/L	45	
Chloroform	11/7/2005	0.21	0.5	--	UG/L	45	J
524.2 TVOC	12/6/2006	0.4	--	--	UG/L	45	
Chloroform	12/6/2006	0.28	0.5	--	UG/L	45	J
Trichloroethylene	12/6/2006	0.12	0.5	--	UG/L	45	J
524.2 TVOC	11/15/2007	0.35	--	--	UG/L	45	
Chloroform	11/15/2007	0.35	0.5	--	UG/L	45	J

Site ID: 075-02

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
524.2 TVOC	1/28/2002	0	--	--	UG/L	50	
524.2 TVOC	4/30/2002	0	--	--	UG/L	50	
524.2 TVOC	7/29/2002	0	--	--	UG/L	50	
524.2 TVOC	11/26/2002	0	--	--	UG/L	50	
524.2 TVOC	2/19/2003	0	--	--	UG/L	50	
524.2 TVOC	6/11/2003	0	--	--	UG/L	50	
524.2 TVOC	9/10/2003	0	--	--	UG/L	50	
524.2 TVOC	12/12/2003	0	--	--	UG/L	50	
524.2 TVOC	11/8/2004	0.1	--	--	UG/L	50	
Chloroform	11/8/2004	0.1	0.5	--	UG/L	50	J
524.2 TVOC	11/7/2005	0	--	--	UG/L	50	
1,1,1-Trichloroethane	12/6/2006	0.092	0.5	--	UG/L	50	J
524.2 TVOC	12/6/2006	3.192	--	--	UG/L	50	
Chloroform	12/6/2006	3.1	0.5	--	UG/L	50	
524.2 TVOC	11/15/2007	0.85	--	--	UG/L	50	
Chloroform	11/15/2007	0.85	0.5	--	UG/L	50	

Environmental & Waste Management Services Division

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managed by Brookhaven Science Associates
for the U.S. Department of Energy

Memo

date: *September 12, 2006*

to: *File*

from: *R. Howe* R Howe

subject: SOIL GAS VAPOR EVALUATION FOR NEW BUILDINGS

Two buildings, for Research Support and the Center for Functional Nanomaterials, are currently being constructed at BNL. This memo documents the potential for soil gas vapor buildup in these buildings, as well as the National Synchrotron Light Source II, that is currently in the planning stage.

As identified in the attached preliminary initial screening for these three buildings, a clean layer of groundwater exists above any volatile contaminants within the areas of the three buildings. Therefore, the subsurface to indoor air pathway is incomplete, and no further evaluation is needed at this time.

Attachment

Copy: M. Davis
W. Dorsch
G. Penny
File: GWER 59.06
N. Gmur (w/attach) NSLS

9/12/06
FOR CFN, Research Support, and NSLS II

IV. TIER 1 - Primary Screening

Primary Screening is designed to help quickly screen out sites at which the vapor intrusion pathway does not ordinarily need further consideration, and point out the sites that do typically need further consideration. This evaluation involves determining whether any potential exists at a specific site for vapor intrusion to result in unacceptable indoor inhalation risks and, if so, whether immediate action may be warranted. Recommended criteria for making these determinations are presented in Questions 1 through 3, which focus on identifying:

a) if chemicals of sufficient volatility and toxicity are present or reasonably suspected to be present (Question 1);
b) if inhabited buildings are located (or will be constructed under future development scenarios – except for Environmental Indicator determinations, see section IV.C below) above or in close proximity to subsurface contamination (Question 2); and
c) if current conditions warrant immediate action (Question 3).

This primary screening process is illustrated in a flow diagram included in Appendix C.

A. Primary Screening – Question #1

Q1: Are chemicals of sufficient volatility and toxicity known or reasonably suspected to be present in the subsurface (e.g., in unsaturated soils, soil gas, or the uppermost portions of the ground water and/or capillary fringe – **see Table 1)?** (We recommend this consideration involve DQOs (see Appendix A) used in acquiring the site data as well as an appropriately scaled Conceptual Site Model (CSM) for vapor intrusion (see Appendix B).)

_____ If **YES** - check here, check off the relevant chemicals on Table 1, and continue with Question 2. The chemicals identified here (and any degradation products) are evaluated as constituents of potential concern in subsequent questions.

__✓__ If **NO** - check here, provide the rationale and references below, and then go to the Summary Page to document that the subsurface vapor to indoor air pathway is incomplete (i.e., no further consideration of this pathway is needed); or

_____ If sufficient data are not available, go to the Summary Page and document the need for more information. After collecting the necessary data, Question 1 can then be revisited with the newly collected data to re-evaluate the completeness of the vapor intrusion pathway.

1. What is the goal of this question?

This question is designed to help quickly screen out sites at which the vapor intrusion pathway generally does not need further consideration. This evaluation involves determining whether or not any potential exists at a specific site for the vapor intrusion

B. **Primary Screening – Question #2**

Q2: Are currently (or potentially) inhabited buildings or areas of couceru under future development scenarios located *near* (see discussion below) subsurface contamiuants found in Table 1?

_____ If **YES** – check here, identify buildings and/or areas of concern below, and document on the Summary Page whether the potential for impacts from the vapor intrusion pathway applies to currently inhabited buildings or areas of concern under reasonably anticipated future development scenarios, or both. (Note that for EI considerations, we recommend only current risks be evaluated.) Then proceed with Question 3.

__✓__ If **NO** – check here, describe the rationale below, and then go to the Summary Page to document that there is no potential for the vapor intrusion pathway to impact either currently inhabited buildings or areas of concern under future development scenarios (i.e., no further evaluation of this pathway is needed). (Note that for EI considerations, only current risks are evaluated.); or

_____ If sufficient data are not available – check here and document the need for more information on the Summary Page. After collecting the necessary data, Question 2 can then be revisited with the newly collected data to re-evaluate the completeness of the vapor intrusion pathway.

1. What is the goal of this question?

The goal of this question is to help determine whether inhabited buildings currently are located (or may be reasonably expected to be located under future development scenarios) above or in close proximity to subsurface contamination that potentially could result in unacceptable indoor air inhalation risks. If inhabited buildings and/or future development are not located "near" the area of concern, we suggest that the vapor intrusion pathway be considered incomplete and no further consideration of the pathway should be needed.

For the purposes of this question, **"inhabited buildings"** are structures with enclosed air space that are designed for human occupancy. Table 1, discussed above in Question 1, lists the **"subsurface contaminants demonstrating sufficient volatility and toxicity"** to potentially pose an inhalation risk. We recommend that an inhabited building generally be considered **"near"** subsurface contaminants if it is located within approximately 100 ft laterally or vertically of known or interpolated soil gas or groundwater contaminants listed in Table 1 (or others not included in table 1 – see Question 1) and the contamination occurs in the unsaturated zone and/or the uppermost saturated zone. If the source of contamination is groundwater, we recommend migration of the contaminant plume be considered when evaluating the potential for future risks. The distance suggested above (100 feet) may not be appropriate for all sites (or contaminants) and,

significant advective transport of the vapors downward through cracks/openings in floors and into the vadose zone. In these cases, diffusive transport of vapors is usually overridden by advective transport, and the vapors may be transported in the vadose zone several hundred feet from the source of contamination.

Finally, this guidance is intended to be applied to existing groundwater plumes as they are currently defined (e.g., MCLs, State Standards, or Risk-Based Concentrations). However, it is very important to recognize that some non-potable aquifers may have plumes that have been defined by threshold concentrations significantly higher than drinking-water concentrations. In these cases, contamination that is not technically considered part of the plume may still pose significant risks via the vapor intrusion pathway and, consequently, the plume definition may need to be expanded. Similarly, we recommend evaluating the technologies used to obtain soil gas and indoor air concentrations to determine if appropriate methods were used to ensure adequate data quality at the time analyses were conducted.

4. ***Identify Inhabited Buildings (or Areas With Potential for Future Residential Development) Within Distances of Possible Concern:***

- NSLS II - future potential building - outside of any contaminant plume.
- Research Support - in construction - primarily outside plume. No pathway since clean gw exists ~~[illegible]~~ below bldg
- CFN - in construction - sits above very low level contamination in plume, but clean gw exists beneath the building, therefore no pathway.

Overall the subsurface vapor to indoor air pathway is incomplete and no further evaluation is needed at this time.

building and b) measured or likely vapor concentrations that may be flammable/combustible, corrosive, or chemically reactive.

3. Rationale and Reference(s):

None

☐ *Subsurface data evaluation: (Circle appropriate answers below)*

Medium	Q4 Levels Exceeded?	Q5 Levels Exceeded?	Data Indicates Pathway is Complete?
Groundwater	YES / NO / NA / INS	YES / NO / NA / INS	YES / NO / INS
Soil Gas	YES / NO / NA / INS	YES / NO / NA / INS	YES / NO / INS

NA = not applicable
INS = insufficient data available to make a determination

Site-Specific Summary

☐ *Have the nature and extent of subsurface contamination, potential preferential pathways and overlying building characteristics been adequately characterized to identify the most-likely-to-be-impacted buildings?*

_____ *Yes*

_____ *No*

_____ *N/A*

EPA recommends that if a model was used, it be an appropriate and applicable model that represents the conceptual site model. If other means were used, document how you determined the potentially most impacted areas to sample. EPA recommends that predictive modeling can be used to support Current Human Exposures Under Control EI determinations without confirmatory sampling to support this determination. Current Human Exposures Under Control EI determinations are intended to reflect a reasonable conclusion by EPA or the State that current human exposures are under control with regard to the vapor intrusion pathway and current land use conditions. Therefore, if conducting evaluation for an EI determination, document that the **Pathway is Incomplete** and/or does not pose an unacceptable risk to human health for EI determinations.

☐ *Are you making an EI determination based on modeling and does the model prediction indicate that determination is expected to be adequately protective to support Current Human Exposures Under Control EI determinations?*

_____ *Yes*

_____ *No*

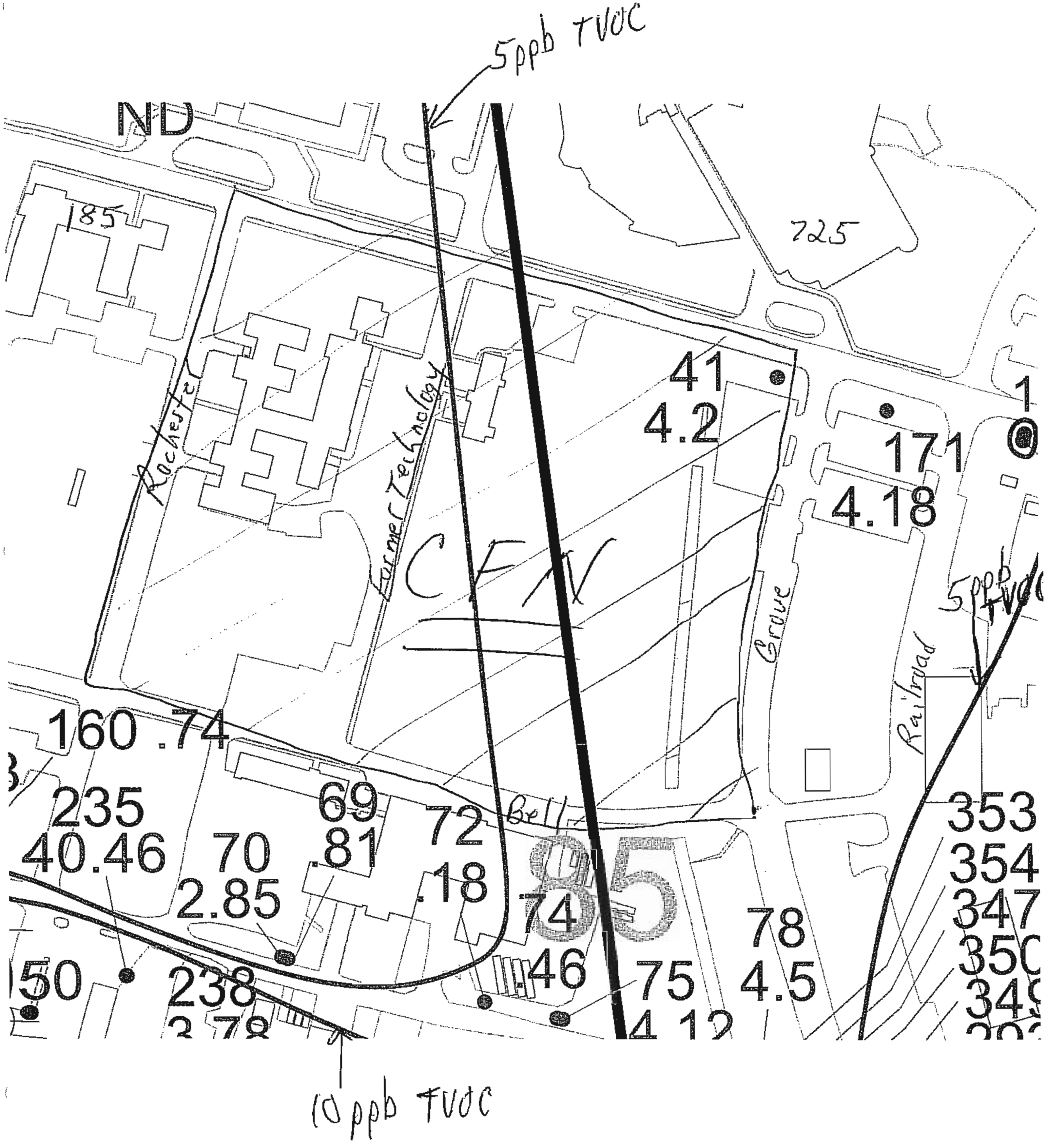
_____ *N/A*

☐ *Do subslab vapor concentrations exceed target levels?*

_____ *Yes*

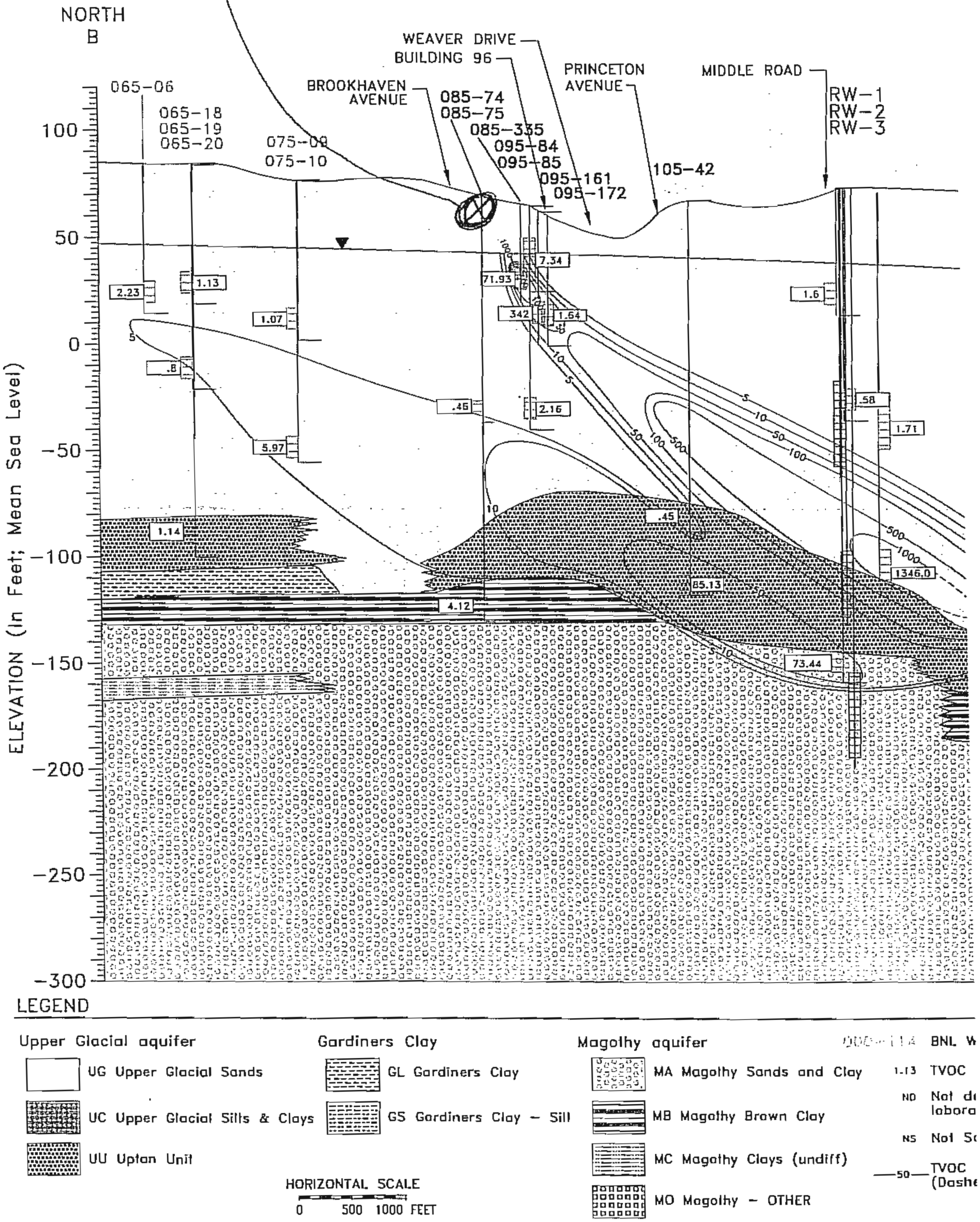
_____ *No*

_____ *N/A*



5ppb TVOC
ND
185
725
Rochester
Former Technology
CFN
Grove
Railroad
5ppb TVOC
Bell
41
4.2
171
4.18
160
.74
235
40.46
69
.81
72
70
2.85
.18
74
.46
78
4.5
75
238
353
354
347
10ppb TVOC

CFN



\\OERNT\GIS\GW_PROJECTS\CY_2005_GW_REPORT\FINAL_DRAFT_FIGURES\FIG_3.02-02.DWG

BROOKHAVEN
NATIONAL LABORATORY

EWMS DIVISION

TITLE:

TVOC HYDROGEOLOG

2005 BNL GRC

CFN Monitor Wells

9/12/2006

Site ID: 075-01

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
524.2 TVOC	2/25/2000	0.95	--	--	UG/L	45	
Chloroform	2/25/2000	0.95	0.5	--	UG/L	45	
524.2 TVOC	6/16/2000	1.9	--	--	UG/L	45	
Chloroform	6/16/2000	0.7	0.5	--	UG/L	45	
Methylene chloride	6/16/2000	1.2	0.5	--	UG/L	45	
Gross Beta	8/1/2000	5.05	2.28	3.04	PCI/L	50	
Potassium-40	8/1/2000	30.9	0	27.90888	PCI/L	50	
Tritium	8/1/2000	585	320	460	PCI/L	50	
524.2 TVOC	9/11/2000	1.85	--	--	UG/L	45	
Chloroform	9/11/2000	1	0.5	--	UG/L	45	
Methylene chloride	9/11/2000	0.85	0.5	--	UG/L	45	
524.2 TVOC	11/30/2000	1	--	--	UG/L	45	
Chloroform	11/30/2000	1	0.5	--	UG/L	45	
524.2 TVOC	2/20/2001	0.32	--	--	UG/L	45	
Chloroform	2/20/2001	0.32	0.5	--	UG/L	45	J
524.2 TVOC	5/15/2001	0.37	--	--	UG/L	45	
Chloroform	5/15/2001	0.37	0.5	--	UG/L	45	J
1,1-Dichloroethylene	8/9/2001	0.93	0.5	--	UG/L	50	
524.2 TVOC	8/9/2001	2.19	--	--	UG/L	50	
Gross Beta	8/9/2001	1.26	0.908	0.509	PCI/L	50	J-N2
Toluene	8/9/2001	0.66	0.5	--	UG/L	50	
Trichloroethylene	8/9/2001	0.6	0.5	--	UG/L	50	
Tritium	8/9/2001	436	329	209	PCI/L	50	J-N2
524.2 TVOC	10/26/2001	0.37	--	--	UG/L	45	
Toluene	10/26/2001	0.37	0.5	--	UG/L	45	J
524.2 TVOC	1/28/2002	0	--	--	UG/L	45	
524.2 TVOC	4/30/2002	0	--	--	UG/L	45	
524.2 TVOC	7/29/2002	0.28	--	--	UG/L	45	
Chloroform	7/29/2002	0.28	0.5	--	UG/L	45	J
524.2 TVOC	11/26/2002	0	--	--	UG/L	45	
524.2 TVOC	2/19/2003	0	--	--	UG/L	45	
524.2 TVOC	6/11/2003	0	--	--	UG/L	45	
524.2 TVOC	9/10/2003	0	--	--	UG/L	45	
524.2 TVOC	12/12/2003	0	--	--	UG/L	45	
524.2 TVOC	11/8/2004	0.17	--	--	UG/L	45	
Chloroform	11/8/2004	0.17	0.5	--	UG/L	45	J
524.2 TVOC	11/7/2005	0.21	--	--	UG/L	45	
Chloroform	11/7/2005	0.21	0.5	--	UG/L	45	J

Site ID: 075-02

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
524.2 TVOC	2/25/2000	0	--	--	UG/L	50	
524.2 TVOC	6/16/2000	1.1	--	--	UG/L	50	
Cesium-137	6/16/2000	2.46	2.33	2.17	PCI/L	50	J
Gross Beta	6/16/2000	2.24	1.38	0.806	PCI/L	50	J
Methylene chloride	6/16/2000	1.1	0.5	--	UG/L	50	
Gross Beta	8/1/2000	2.61	2.28	2.88	PCI/L	50	
Thallium-208	8/1/2000	3.61	0	1.421618	PCI/L	50	

Tritium	8/1/2000	881	320	490	PCI/L	50	
524.2 TVOC	9/11/2000	0.67	--	--	UG/L	50	
Methylene chloride	9/11/2000	0.67	0.5	--	UG/L	50	
524.2 TVOC	11/30/2000	0	--	--	UG/L	50	
524.2 TVOC	2/20/2001	0	--	--	UG/L	50	
524.2 TVOC	5/15/2001	0	--	--	UG/L	50	
1,1-Dichloroethylene	8/9/2001	3.6	0.5	--	UG/L	50	
524.2 TVOC	8/9/2001	5.84	--	--	UG/L	50	
Chloroform	8/9/2001	0.26	0.5	--	UG/L	50	J
Toluene	8/9/2001	0.81	0.5	--	UG/L	50	
Trichloroethylene	8/9/2001	0.64	0.5	--	UG/L	50	
Trichlorofluoromethane	8/9/2001	0.53	0.5	--	UG/L	50	
524.2 TVOC	10/26/2001	0.32	--	--	UG/L	50	
Chloroform	10/26/2001	0.32	0.5	--	UG/L	50	J
524.2 TVOC	1/28/2002	0	--	--	UG/L	50	
524.2 TVOC	4/30/2002	0	--	--	UG/L	50	
524.2 TVOC	7/29/2002	0	--	--	UG/L	50	
524.2 TVOC	11/26/2002	0	--	--	UG/L	50	
524.2 TVOC	2/19/2003	0	--	--	UG/L	50	
524.2 TVOC	6/11/2003	0	--	--	UG/L	50	
524.2 TVOC	9/10/2003	0	--	--	UG/L	50	
524.2 TVOC	12/12/2003	0	--	--	UG/L	50	
524.2 TVOC	11/8/2004	0.1	--	--	UG/L	50	
Chloroform	11/8/2004	0.1	0.5	--	UG/L	50	J
524.2 TVOC	11/7/2005	0	--	--	UG/L	50	

Site ID: 075-210

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
524.2 TVOC	1/24/2000	0.429	--	--	UG/L	58	
Benzene	1/24/2000	0.1	0.5	--	UG/L	58	J
Benzene, 1,2,4-trimethyl	1/24/2000	0.028	0.5	--	UG/L	58	J
Chloroform	1/24/2000	0.14	0.5	--	UG/L	58	J
Ethylbenzene	1/24/2000	0.034	0.5	--	UG/L	58	J
m/p xylene	1/24/2000	0.061	0.5	--	UG/L	58	J
o-Xylene	1/24/2000	0.022	0.5	--	UG/L	58	J
1,1,1-Trichloroethane	7/20/2000	5.1	0.5	--	UG/L	58	
1,1-Dichloroethane	7/20/2000	0.67	0.5	--	UG/L	58	
1,1-Dichloroethylene	7/20/2000	1.6	0.5	--	UG/L	58	
524.2 TVOC	7/20/2000	8.33	--	--	UG/L	58	
Chloroform	7/20/2000	0.96	0.5	--	UG/L	58	
1,1,1-Trichloroethane	2/7/2001	4.2	0.5	--	UG/L	59	
1,1-Dichloroethane	2/7/2001	0.88	0.5	--	UG/L	59	
1,1-Dichloroethylene	2/7/2001	1.5	0.5	--	UG/L	59	
524.2 TVOC	2/7/2001	7.2	--	--	UG/L	59	
Chloroform	2/7/2001	0.62	0.5	--	UG/L	59	
1,1,1-Trichloroethane	7/12/2001	5.2	0.5	--	UG/L	58	
1,1-Dichloroethane	7/12/2001	1.1	0.5	--	UG/L	58	
1,1-Dichloroethylene	7/12/2001	1.6	0.5	--	UG/L	58	
524.2 TVOC	7/12/2001	8.96	--	--	UG/L	58	
Chloroform	7/12/2001	0.64	0.5	--	UG/L	58	
Methylene chloride	7/12/2001	0.42	0.5	--	UG/L	58	J
Tritium	7/12/2001	1060	409	283	PCI/L	58	

1,1,1-Trichloroethane	10/17/2001	7.9	0.5	--	UG/L	59	
1,1-Dichloroethane	10/17/2001	2.1	0.5	--	UG/L	59	
1,1-Dichloroethylene	10/17/2001	2.9	0.5	--	UG/L	59	
524.2 TVOC	10/17/2001	13.58	--	--	UG/L	59	
Chloroform	10/17/2001	0.68	0.5	--	UG/L	59	
Tritium	10/17/2001	1010	427	291	PCI/L	59	
Tritium	7/22/2002	488	373	236	PCI/L	59	J
1,1,1-Trichloroethane	10/16/2002	2.4	0.5	--	UG/L	59	
1,1-Dichloroethane	10/16/2002	0.75	0.5	--	UG/L	59	
1,1-Dichloroethylene	10/16/2002	0.69	0.5	--	UG/L	59	
524.2 TVOC	10/16/2002	4.63	--	--	UG/L	59	
Chloroform	10/16/2002	0.79	0.5	--	UG/L	59	
Tritium	10/16/2002	660	509	321	PCI/L	59	J
524.2 TVOC	10/30/2003	6	--	--	UG/L	59	
Chloroform	10/30/2003	6	0.5	--	UG/L	59	J
1,1,1-Trichloroethane	10/20/2004	0.27	0.5	--	UG/L	58	J
524.2 TVOC	10/20/2004	3.24	--	--	UG/L	58	
Chloroform	10/20/2004	2.8	0.5	--	UG/L	58	
Tetrachloroethylene	10/20/2004	0.17	0.5	--	UG/L	58	J
524.2 TVOC	10/20/2005	0	--	--	UG/L	58	
Tritium	4/21/2006	330	320	210	PCI/L	59	J

Site ID: 085-171

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
1,1,1-Trichloroethane	1/24/2000	21.8	0.5	--	UG/L	135	
1,1-Dichloroethane	1/24/2000	1	0.5	--	UG/L	135	
1,1-Dichloroethylene	1/24/2000	9.7	0.5	--	UG/L	135	
1,2-Dichloroethane	1/24/2000	0.11	0.5	--	UG/L	135	J
524.2 TVOC	1/24/2000	35.892	--	--	UG/L	135	
Chloroform	1/24/2000	0.36	0.5	--	UG/L	135	J
m/p xylene	1/24/2000	0.032	0.5	--	UG/L	135	J
Methylene chloride	1/24/2000	0.49	0.5	--	UG/L	135	JB
Toluene	1/24/2000	0.08	0.5	--	UG/L	135	JB
Trichloroethylene	1/24/2000	0.22	0.5	--	UG/L	135	J
Trichlorofluoromethane	1/24/2000	2.1	0.5	--	UG/L	135	
1,1,1-Trichloroethane	7/12/2000	19.8	0.5	--	UG/L	130	
1,1-Dichloroethane	7/12/2000	1.6	0.5	--	UG/L	130	
1,1-Dichloroethylene	7/12/2000	7.6	0.5	--	UG/L	130	
524.2 TVOC	7/12/2000	33.99	--	--	UG/L	130	
Chloroform	7/12/2000	0.84	0.5	--	UG/L	130	
Methylene chloride	7/12/2000	0.81	0.5	--	UG/L	130	B
Toluene	7/12/2000	0.38	0.5	--	UG/L	130	J
Trichloroethylene	7/12/2000	0.76	0.5	--	UG/L	130	
Trichlorofluoromethane	7/12/2000	2.2	0.5	--	UG/L	130	
Tritium	7/12/2000	714	412	267	PCI/L	130	J
Tritium	10/19/2000	1230	470	320	PCI/L	130	
1,1,1-Trichloroethane	2/13/2001	6	0.5	--	UG/L	130	
1,1-Dichloroethane	2/13/2001	0.41	0.5	--	UG/L	130	J
1,1-Dichloroethylene	2/13/2001	1.9	0.5	--	UG/L	130	
524.2 TVOC	2/13/2001	9.43	--	--	UG/L	130	
Chloroform	2/13/2001	0.82	0.5	--	UG/L	130	
Trichloroethylene	2/13/2001	0.3	0.5	--	UG/L	130	J

Tritium	2/13/2001	845	320	213	PCI/L	130	J
1,1,1-Trichloroethane	7/19/2001	10.5	0.5	--	UG/L	130	
1,1-Dichloroethane	7/19/2001	0.93	0.5	--	UG/L	130	
1,1-Dichloroethylene	7/19/2001	4.3	0.5	--	UG/L	130	
524.2 TVOC	7/19/2001	17.09	--	--	UG/L	130	
Chloroform	7/19/2001	1	0.5	--	UG/L	130	
Trichloroethylene	7/19/2001	0.36	0.5	--	UG/L	130	J
Tritium	7/19/2001	469	430	268	PCI/L	130	J-N2
1,1,1-Trichloroethane	10/15/2001	13.9	0.5	--	UG/L	130	
1,1-Dichloroethane	10/15/2001	0.8	0.5	--	UG/L	130	
1,1-Dichloroethylene	10/15/2001	5.3	0.5	--	UG/L	130	
524.2 TVOC	10/15/2001	21.48	--	--	UG/L	130	
Chloroform	10/15/2001	0.88	0.5	--	UG/L	130	
Methyl chloride	10/15/2001	0.27	0.5	--	UG/L	130	J
Trichloroethylene	10/15/2001	0.33	0.5	--	UG/L	130	J
1,1,1-Trichloroethane	10/18/2002	16.4	0.5	--	UG/L	130	
1,1-Dichloroethane	10/18/2002	1	0.5	--	UG/L	130	
1,1-Dichloroethylene	10/18/2002	5.1	0.5	--	UG/L	130	
524.2 TVOC	10/18/2002	24.04	--	--	UG/L	130	
Chloroform	10/18/2002	0.96	0.5	--	UG/L	130	
Methylene chloride	10/18/2002	0.29	0.5	--	UG/L	130	J
Trichloroethylene	10/18/2002	0.29	0.5	--	UG/L	130	J
Tritium	8/6/2003	321	273	180	PCI/L	130	
1,1,1-Trichloroethane	10/30/2003	4.4	0.5	--	UG/L	130	J
1,1-Dichloroethane	10/30/2003	0.45	0.5	--	UG/L	130	J
1,1-Dichloroethylene	10/30/2003	1.6	0.5	--	UG/L	130	J
524.2 TVOC	10/30/2003	7.67	--	--	UG/L	130	
Chloroform	10/30/2003	0.77	0.5	--	UG/L	130	J
Methyl tert-butyl ether	10/30/2003	0.45	0.5	--	UG/L	130	J
Tritium	2/10/2004	350	220	180	PCI/L	130	J
1,1,1-Trichloroethane	4/11/2005	2.7	0.5	--	UG/L	130	
1,1-Dichloroethane	4/11/2005	0.53	0.5	--	UG/L	130	
1,1-Dichloroethylene	4/11/2005	1.3	0.5	--	UG/L	130	
524.2 TVOC	4/11/2005	6.01	--	--	UG/L	130	
Chloroform	4/11/2005	1.2	0.5	--	UG/L	130	
Toluene	4/11/2005	0.12	0.5	--	UG/L	130	J
Trichloroethylene	4/11/2005	0.16	0.5	--	UG/L	130	J
1,1,1-Trichloroethane	12/22/2005	2.1	0.5	--	UG/L	130	
1,1-Dichloroethane	12/22/2005	0.49	0.5	--	UG/L	130	J
1,1-Dichloroethylene	12/22/2005	1	0.5	--	UG/L	130	
524.2 TVOC	12/22/2005	4.18	--	--	UG/L	130	
Chloroform	12/22/2005	0.42	0.5	--	UG/L	130	J
Trichloroethylene	12/22/2005	0.17	0.5	--	UG/L	130	J
Tritium	12/22/2005	360	360	230	PCI/L	130	J
Tritium	1/24/2006	550	280	220	PCI/L	130	
Tritium	4/14/2006	460	350	230	PCI/L	130	J
Tritium	7/11/2006	550	390	270	PCI/L	130	

Table 2a

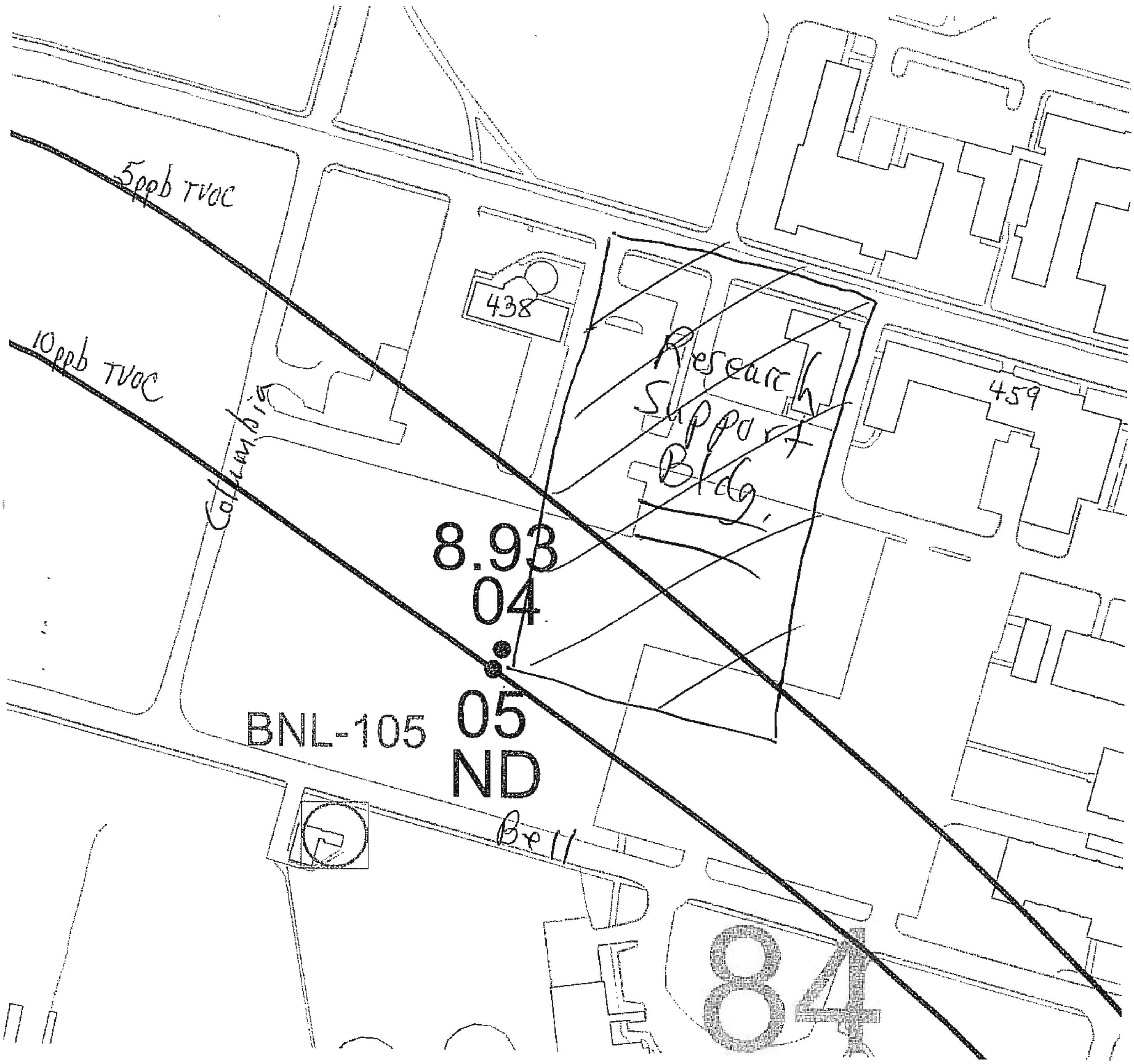
Site ID: 085-41

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
1,1,1-Trichloroethane	1/10/2000	3.5	0.5	--	UG/L	189.5	
1,1-Dichloroethane	1/10/2000	0.5	0.5	--	UG/L	189.5	J

3000

1,1-Dichloroethylene	1/10/2000	1.4	0.5	--	UG/L	189.5		– 190
1,2-Dichloroethane	1/10/2000	0.5	0.5	--	UG/L	189.5	J	– 230
524.2 TVOC	1/10/2000	12.2	--	--	UG/L	189.5		
Benzene	1/10/2000	0.5	0.5	--	UG/L	189.5	JB	
Benzene, 1,2,4-trimethyl	1/10/2000	0.5	0.5	--	UG/L	189.5	JB	
Benzene, 1,3,5-trimethyl-	1/10/2000	0.5	0.5	--	UG/L	189.5	J	
Benzene, 1-methylethyl-	1/10/2000	0.5	0.5	--	UG/L	189.5	J	
Chloroform	1/10/2000	0.65	0.5	--	UG/L	189.5		– 80
Cymene	1/10/2000	0.5	0.5	--	UG/L	189.5	J	
Ethylbenzene	1/10/2000	0.5	0.5	--	UG/L	189.5	J	
m/p xylene	1/10/2000	0.5	0.5	--	UG/L	189.5	J	
n-Propylbenzene	1/10/2000	0.5	0.5	--	UG/L	189.5	J	
Toluene	1/10/2000	0.65	0.5	--	UG/L	189.5	B	
Trichloroethylene	1/10/2000	0.5	0.5	--	UG/L	189.5	J	
Trichlorofluoromethane	1/10/2000	0.5	0.5	--	UG/L	189.5	JB	
1,1,1-Trichloroethane	8/7/2000	0.93	0.5	--	UG/L	189.5		
524.2 TVOC	8/7/2000	1.35	--	--	UG/L	189.5		
Chloroform	8/7/2000	0.42	0.5	--	UG/L	189.5	J	
Tritium	8/7/2000	701	486	311	PCI/L	189.5	J	
Tritium	10/17/2000	1970	453	337	PCI/L	189.5		
1,1,1-Trichloroethane	1/31/2001	3.1	0.5	--	UG/L	189.5		
1,1-Dichloroethane	1/31/2001	0.31	0.5	--	UG/L	189.5	J	
1,1-Dichloroethylene	1/31/2001	1.5	0.5	--	UG/L	189.5		
524.2 TVOC	1/31/2001	4.91	--	--	UG/L	189.5		
Tritium	1/31/2001	2460	429	346	PCI/L	189.5		
1,1,1-Trichloroethane	7/11/2001	0.48	0.5	--	UG/L	189.5	J	
524.2 TVOC	7/11/2001	0.75	--	--	UG/L	189.5		
Methyl chloride	7/11/2001	0.27	0.5	--	UG/L	189.5	J	
Tritium	7/11/2001	410	404	251	PCI/L	189.5	J-N2	
1,1,1-Trichloroethane	10/15/2001	0.31	0.5	--	UG/L	89.5	J	
524.2 TVOC	10/15/2001	0.96	--	--	UG/L	89.5		
Chloroform	10/15/2001	0.39	0.5	--	UG/L	89.5	J	
Toluene	10/15/2001	0.26	0.5	--	UG/L	89.5	J	
Tritium	1/16/2002	721	382	253	PCI/L	189.5	J	
Tritium	7/10/2002	621	514	323	PCI/L	189.5	J	
1,1,1-Trichloroethane	10/17/2002	0.37	0.5	--	UG/L	189.5	J	
524.2 TVOC	10/17/2002	4.27	--	--	UG/L	189.5		
Chloroform	10/17/2002	3.9	0.5	--	UG/L	189.5		
524.2 TVOC	10/27/2003	6.6	--	--	UG/L	189.5		
Chloroform	10/27/2003	6.6	0.5	--	UG/L	189.5		
1,1,1-Trichloroethane	10/13/2004	3.3	0.5	--	UG/L	189.5		
1,1-Dichloroethane	10/13/2004	0.64	0.5	--	UG/L	189.5		
1,1-Dichloroethylene	10/13/2004	1.2	0.5	--	UG/L	189.5		
1,2,3-Trichlorobenzene	10/13/2004	0.44	0.5	--	UG/L	189.5	J	
524.2 TVOC	10/13/2004	15.77	--	--	UG/L	189.5		
Chloroform	10/13/2004	1.7	0.5	--	UG/L	189.5		
Tetrachloroethylene	10/13/2004	8	0.5	--	UG/L	189.5		
Trichloroethylene	10/13/2004	0.49	0.5	--	UG/L	189.5	J	
Tritium	10/13/2004	500	230	200	PCI/L	189.5	J	
Tritium	4/1/2005	410	180	170	PCI/L	187.5	J	
1,1,1-Trichloroethane	10/21/2005	0.15	0.5	--	UG/L	189.5	J	
1,1-Dichloroethane	10/21/2005	0.15	0.5	--	UG/L	189.5	J	

524.2 TVOC	10/21/2005	4.2	--	--	UG/L	189.5	
Chloroform	10/21/2005	3.9	0.5	--	UG/L	189.5	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10ppb TVOC
438
Research Support Bldg.
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84

Research Support Bldg. Monitor Wells

9/12/2006

Site ID: 084-04

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
1,1,1-Trichloroethane	2/28/2000	9.1	0.5	--	UG/L	150	
1,1-Dichloroethane	2/28/2000	4.6	0.5	--	UG/L	150	
1,1-Dichloroethylene	2/28/2000	4.6	0.5	--	UG/L	150	
524.2 TVOC	2/28/2000	19.6	--	--	UG/L	150	
Chloroform	2/28/2000	1.3	0.5	--	UG/L	150	
1,1,1-Trichloroethane	6/16/2000	5.6	0.5	--	UG/L	150	
1,1-Dichloroethane	6/16/2000	4.5	0.5	--	UG/L	150	
1,1-Dichloroethylene	6/16/2000	3.9	0.5	--	UG/L	150	
524.2 TVOC	6/16/2000	15.7	--	--	UG/L	150	
Chloroform	6/16/2000	0.6	0.5	--	UG/L	150	
Trichloroethylene	6/16/2000	1.1	0.5	--	UG/L	150	
1,1,1-Trichloroethane	9/13/2000	7	0.5	--	UG/L	150	
1,1-Dichloroethane	9/13/2000	4.5	0.5	--	UG/L	150	
1,1-Dichloroethylene	9/13/2000	4.3	0.5	--	UG/L	150	
524.2 TVOC	9/13/2000	17.59	--	--	UG/L	150	
Chloroform	9/13/2000	0.92	0.5	--	UG/L	150	
Trichloroethylene	9/13/2000	0.87	0.5	--	UG/L	150	
1,1,1-Trichloroethane	11/30/2000	9.6	0.5	--	UG/L	150	
1,1-Dichloroethane	11/30/2000	3.7	0.5	--	UG/L	150	
1,1-Dichloroethylene	11/30/2000	4.7	0.5	--	UG/L	150	
524.2 TVOC	11/30/2000	19.58	--	--	UG/L	150	
Chloroform	11/30/2000	1.3	0.5	--	UG/L	150	
Trichloroethylene	11/30/2000	0.28	0.5	--	UG/L	150	J
1,1,1-Trichloroethane	2/21/2001	8	0.5	--	UG/L	150	
1,1-Dichloroethane	2/21/2001	3.3	0.5	--	UG/L	150	
1,1-Dichloroethylene	2/21/2001	3.9	0.5	--	UG/L	150	
524.2 TVOC	2/21/2001	16.97	--	--	UG/L	150	
Chloroform	2/21/2001	1.5	0.5	--	UG/L	150	
Trichloroethylene	2/21/2001	0.27	0.5	--	UG/L	150	J
1,1,1-Trichloroethane	5/15/2001	7.2	0.5	--	UG/L	150	
1,1-Dichloroethane	5/15/2001	3.1	0.5	--	UG/L	150	
1,1-Dichloroethylene	5/15/2001	3.8	0.5	--	UG/L	150	
524.2 TVOC	5/15/2001	15.4	--	--	UG/L	150	
Chloroform	5/15/2001	1.3	0.5	--	UG/L	150	
1,1,1-Trichloroethane	8/10/2001	7.8	0.5	--	UG/L	150	
1,1-Dichloroethane	8/10/2001	2.8	0.5	--	UG/L	150	
1,1-Dichloroethylene	8/10/2001	4.1	0.5	--	UG/L	150	
524.2 TVOC	8/10/2001	16.37	--	--	UG/L	150	
Chloroform	8/10/2001	1.4	0.5	--	UG/L	150	
Trichloroethylene	8/10/2001	0.27	0.5	--	UG/L	150	J
Tritium	8/10/2001	389	327	206	PCI/L	150	J-N2
1,1,1-Trichloroethane	10/26/2001	8.9	0.5	--	UG/L	150	
1,1-Dichloroethane	10/26/2001	3.1	0.5	--	UG/L	150	
1,1-Dichloroethylene	10/26/2001	4.5	0.5	--	UG/L	150	
524.2 TVOC	10/26/2001	19.94	--	--	UG/L	150	
Chloroform	10/26/2001	1.6	0.5	--	UG/L	150	
Trichloroethylene	10/26/2001	0.34	0.5	--	UG/L	150	J
Trichlorofluoromethane	10/26/2001	1.5	0.5	--	UG/L	150	

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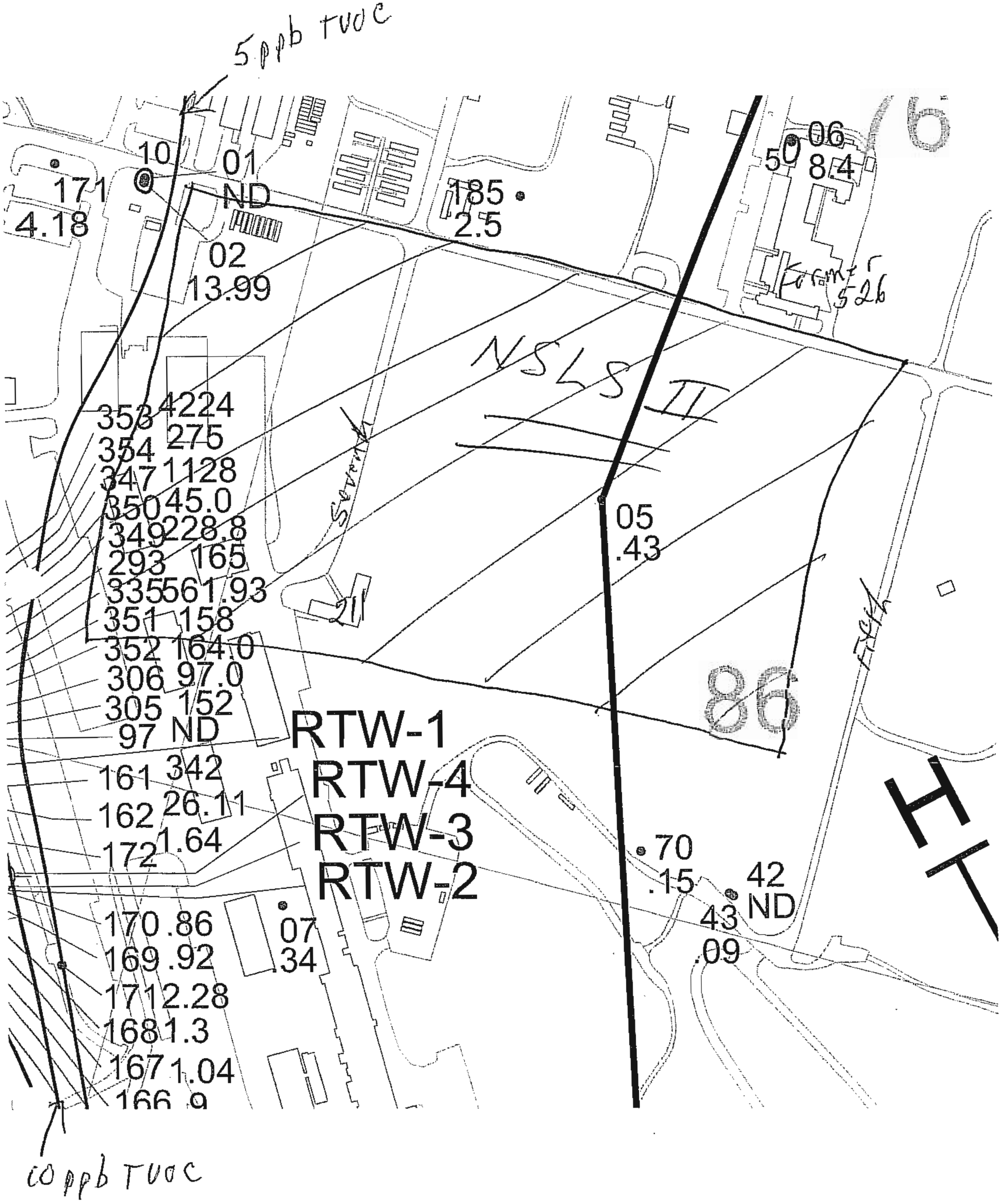
1,1,1-Trichloroethane	1/28/2002	6.2	0.5	--	UG/L	150	
1,1-Dichloroethane	1/28/2002	2.4	0.5	--	UG/L	150	
1,1-Dichloroethylene	1/28/2002	3.4	0.5	--	UG/L	150	
524.2 TVOC	1/28/2002	13.1	--	--	UG/L	150	
Chloroform	1/28/2002	1.1	0.5	--	UG/L	150	
1,1,1-Trichloroethane	4/30/2002	7	0.5	--	UG/L	150	
1,1-Dichloroethane	4/30/2002	2.9	0.5	--	UG/L	150	
1,1-Dichloroethylene	4/30/2002	3.6	0.5	--	UG/L	150	
524.2 TVOC	4/30/2002	15.3	--	--	UG/L	150	
Chloroform	4/30/2002	1.3	0.5	--	UG/L	150	
Trichloroethylene	4/30/2002	0.5	0.5	--	UG/L	150	
1,1,1-Trichloroethane	7/30/2002	6.4	0.5	--	UG/L	150	
1,1-Dichloroethane	7/30/2002	2.8	0.5	--	UG/L	150	
1,1-Dichloroethylene	7/30/2002	3.2	0.5	--	UG/L	150	
524.2 TVOC	7/30/2002	14.1	--	--	UG/L	150	
Chloroform	7/30/2002	1.4	0.5	--	UG/L	150	
Trichloroethylene	7/30/2002	0.3	0.5	--	UG/L	150	J
1,1,1-Trichloroethane	11/26/2002	7.8	0.5	--	UG/L	150	
1,1-Dichloroethane	11/26/2002	2.9	0.5	--	UG/L	150	
1,1-Dichloroethylene	11/26/2002	3.5	0.5	--	UG/L	150	
524.2 TVOC	11/26/2002	15.97	--	--	UG/L	150	
Chloroform	11/26/2002	1.5	0.5	--	UG/L	150	
Trichloroethylene	11/26/2002	0.27	0.5	--	UG/L	150	J
1,1,1-Trichloroethane	2/20/2003	6	0.5	--	UG/L	150	
1,1-Dichloroethane	2/20/2003	2.5	0.5	--	UG/L	150	
1,1-Dichloroethylene	2/20/2003	3.3	0.5	--	UG/L	150	
524.2 TVOC	2/20/2003	13.5	--	--	UG/L	150	
Carbon tetrachloride	2/20/2003	0.6	0.5	--	UG/L	150	
Chloroform	2/20/2003	1.1	0.5	--	UG/L	150	
1,1,1-Trichloroethane	6/9/2003	6.2	0.5	--	UG/L	150	
1,1-Dichloroethane	6/9/2003	2.3	0.5	--	UG/L	150	
1,1-Dichloroethylene	6/9/2003	3.3	0.5	--	UG/L	150	
524.2 TVOC	6/9/2003	13.1	--	--	UG/L	150	
Chloroform	6/9/2003	1.3	0.5	--	UG/L	150	
1,1,1-Trichloroethane	9/10/2003	6.2	0.5	--	UG/L	150	
1,1-Dichloroethylene	9/10/2003	3.2	0.5	--	UG/L	150	
524.2 TVOC	9/10/2003	11	--	--	UG/L	150	
Chloroform	9/10/2003	1.6	0.5	--	UG/L	150	
1,1,1-Trichloroethane	12/12/2003	5.3	0.5	--	UG/L	150	
1,1-Dichloroethane	12/12/2003	2.1	0.5	--	UG/L	150	
1,1-Dichloroethylene	12/12/2003	3.4	0.5	--	UG/L	150	
524.2 TVOC	12/12/2003	12.2	--	--	UG/L	150	
Chloroform	12/12/2003	1.4	0.5	--	UG/L	150	
1,1,1-Trichloroethane	11/8/2004	3.2	0.5	--	UG/L	150	
1,1-Dichloroethane	11/8/2004	1.9	0.5	--	UG/L	150	
1,1-Dichloroethylene	11/8/2004	1.9	0.5	--	UG/L	150	
524.2 TVOC	11/8/2004	8.77	--	--	UG/L	150	
Chloroform	11/8/2004	1.4	0.5	--	UG/L	150	
Trichloroethylene	11/8/2004	0.37	0.5	--	UG/L	150	J
1,1,1-Trichloroethane	11/8/2005	3.3	0.5	--	UG/L	150	
1,1-Dichloroethane	11/8/2005	2.1	0.5	--	UG/L	150	
1,1-Dichloroethylene	11/8/2005	2.1	0.5	--	UG/L	150	

524.2 TVOC	11/8/2005	8.93	--	--	UG/L	150	
Chloroform	11/8/2005	1.1	0.5	--	UG/L	150	
Trichloroethylene	11/8/2005	0.33	0.5	--	UG/L	150	J

Site ID: 084-05

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
524.2 TVOC	2/25/2000	0	--	--	UG/L	184	
524.2 TVOC	6/16/2000	0	--	--	UG/L	184	
Strontium-90	6/16/2000	-0.497	0.83	0.389	PCI/L	184	DL
524.2 TVOC	9/13/2000	0	--	--	UG/L	184	
524.2 TVOC	12/1/2000	0.28	--	--	UG/L	184	
Methylene chloride	12/1/2000	0.28	0.5	--	UG/L	184	J
524.2 TVOC	2/21/2001	0	--	--	UG/L	184	
524.2 TVOC	5/15/2001	0	--	--	UG/L	184	
524.2 TVOC	8/9/2001	0	--	--	UG/L	184	
524.2 TVOC	10/26/2001	0.37	--	--	UG/L	184	
524.2 TVOC	1/28/2002	0	--	--	UG/L	184	
524.2 TVOC	4/30/2002	0	--	--	UG/L	184	
524.2 TVOC	7/30/2002	0	--	--	UG/L	184	
524.2 TVOC	12/6/2002	0.31	--	--	UG/L	184	
Toluene	12/6/2002	0.31	0.5	--	UG/L	184	J
524.2 TVOC	2/20/2003	0	--	--	UG/L	184	
524.2 TVOC	6/9/2003	0	--	--	UG/L	184	
524.2 TVOC	9/9/2003	0	--	--	UG/L	184	
524.2 TVOC	12/12/2003	0	--	--	UG/L	184	
524.2 TVOC	11/8/2004	0.076	--	--	UG/L	184	
Chloroform	11/8/2004	0.076	0.5	--	UG/L	184	J
524.2 TVOC	11/8/2005	0	--	--	UG/L	184	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NSLS II
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354 275
347 1128
350 45.0
349 228.8
293 165
335 561.93
351 158
352 164.0
306 97.0
305 152
97 ND
05
.43
86
RTW-1
RTW-4
RTW-3
RTW-2
161 342
162 26.11
172 1.64
70
.15
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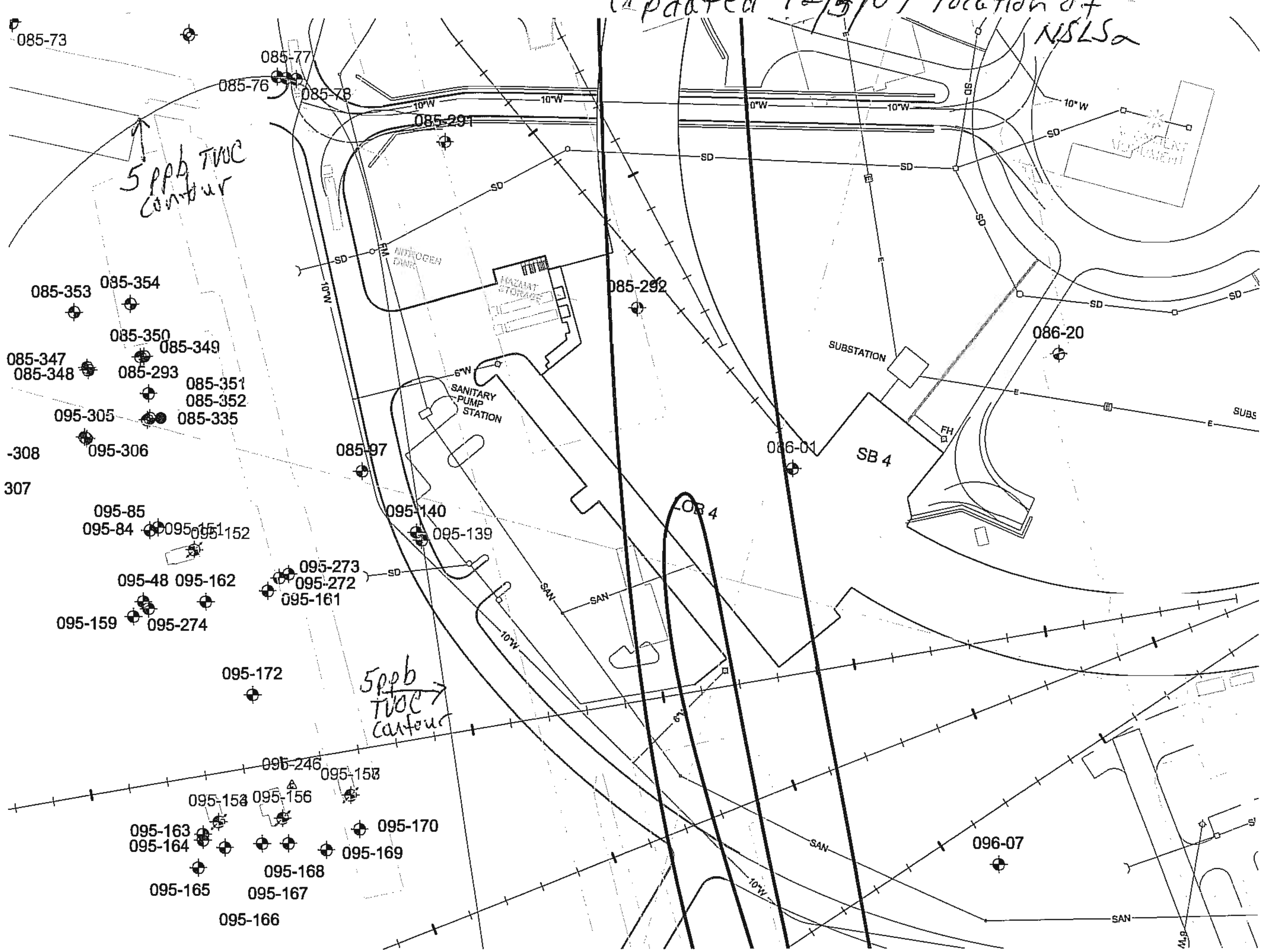
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5ppb TVOC contour
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085-78
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085-292
086-20
086-01
096-07
SUBSTATION
SB 4
FH
SANITARY PUMP STATION
HAZMAT STORAGE
NITROGEN DWR
085-353
085-354
085-350
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10"W
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NSLS II Monitor Wells

9/12/2006

Site ID: 076-06

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
524.2 TVOC	2/4/2000	14.47	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	2/4/2000	3.4	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	2/4/2000	5	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	2/4/2000	0.66	0.5	--	UG/L	40	
Cymene	2/4/2000	0.71	0.5	--	UG/L	40	
n-Butylbenzene	2/4/2000	0.5	0.5	--	UG/L	40	
n-Propylbenzene	2/4/2000	1.4	0.5	--	UG/L	40	
sec-Butylbenzene	2/4/2000	1.2	0.5	--	UG/L	40	
Tetrachloroethylene	2/4/2000	1.6	0.5	--	UG/L	40	
524.2 TVOC	6/30/2000	7.39	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	6/30/2000	1.9	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	6/30/2000	2.8	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	6/30/2000	0.33	0.5	--	UG/L	40	J
Cymene	6/30/2000	0.52	0.5	--	UG/L	40	
n-Propylbenzene	6/30/2000	0.66	0.5	--	UG/L	40	
sec-Butylbenzene	6/30/2000	0.44	0.5	--	UG/L	40	J
Tetrachloroethylene	6/30/2000	0.74	0.5	--	UG/L	40	
524.2 TVOC	7/31/2000	7.46	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	7/31/2000	1.8	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	7/31/2000	2.6	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	7/31/2000	0.38	0.5	--	UG/L	40	J
Chloroform	7/31/2000	0.25	0.5	--	UG/L	40	J
Cymene	7/31/2000	0.48	0.5	--	UG/L	40	J
n-Propylbenzene	7/31/2000	0.65	0.5	--	UG/L	40	
sec-Butylbenzene	7/31/2000	0.42	0.5	--	UG/L	40	J
Tetrachloroethylene	7/31/2000	0.88	0.5	--	UG/L	40	
1-Methylnaphthalene	10/25/2000	5.6	9.7	--	UG/L	40	J
2-Methylnaphthalene	10/25/2000	1.5	9.7	--	UG/L	40	J
524.2 TVOC	10/25/2000	12.82	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	10/25/2000	2.9	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	10/25/2000	2.8	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	10/25/2000	0.83	0.5	--	UG/L	40	
Cymene	10/25/2000	0.89	0.5	--	UG/L	40	
Naphthalene	10/25/2000	1.4	0.5	--	UG/L	40	
n-Propylbenzene	10/25/2000	1.3	0.5	--	UG/L	40	
sec-Butylbenzene	10/25/2000	0.9	0.5	--	UG/L	40	
Tetrachloroethylene	10/25/2000	1.8	0.5	--	UG/L	40	
524.2 TVOC	1/26/2001	16.09	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	1/26/2001	5.3	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	1/26/2001	4.4	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	1/26/2001	1.1	0.5	--	UG/L	40	
Cymene	1/26/2001	0.56	0.5	--	UG/L	40	
Naphthalene	1/26/2001	0.28	0.5	--	UG/L	40	J
n-Butylbenzene	1/26/2001	0.31	0.5	--	UG/L	40	J
n-Propylbenzene	1/26/2001	1.6	0.5	--	UG/L	40	
sec-Butylbenzene	1/26/2001	0.84	0.5	--	UG/L	40	
Tetrachloroethylene	1/26/2001	1.7	0.5	--	UG/L	40	
1-Methylnaphthalene	5/9/2001	1.2	0.97	--	UG/L	40	

2-Methylnaphthalene	5/9/2001	0.6	0.97	--	UG/L	40	J
524.2 TVOC	5/9/2001	3.7	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	5/9/2001	1	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	5/9/2001	0.93	0.5	--	UG/L	40	
Chloroform	5/9/2001	1.1	0.5	--	UG/L	40	
n-Propylbenzene	5/9/2001	0.37	0.5	--	UG/L	40	J
Tetrachloroethylene	5/9/2001	0.3	0.5	--	UG/L	40	J
524.2 TVOC	7/25/2001	1.08	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	7/25/2001	0.52	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	7/25/2001	0.27	0.5	--	UG/L	40	J
Tetrachloroethylene	7/25/2001	0.29	0.5	--	UG/L	40	J
1-Methylnaphthalene	11/7/2001	19.8	0.98	--	UG/L	40	
2-Chloronaphthalene	11/7/2001	0.21	9.8	--	UG/L	40	J
2-Methylnaphthalene	11/7/2001	13.6	0.98	--	UG/L	40	
524.2 TVOC	11/7/2001	13.05	--	--	UG/L	40	
Acenaphthene	11/7/2001	1.4	9.8	--	UG/L	40	J
Benzene, 1,2,4-trimethyl	11/7/2001	2.9	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	11/7/2001	4.5	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	11/7/2001	0.7	0.5	--	UG/L	40	
Bis(2-ethylhexyl)phthalate	11/7/2001	0.19	9.8	--	UG/L	40	J
Cymene	11/7/2001	0.9	0.5	--	UG/L	40	
Dibenzofuran	11/7/2001	1.3	9.8	--	UG/L	40	J
Fluorene	11/7/2001	2.7	9.8	--	UG/L	40	J
Naphthalene	11/7/2001	0.31	0.5	--	UG/L	40	J
n-Propylbenzene	11/7/2001	1.3	0.5	--	UG/L	40	
Phenanthrene	11/7/2001	1.1	9.8	--	UG/L	40	J
sec-Butylbenzene	11/7/2001	1	0.5	--	UG/L	40	
tert-Butylbenzene	11/7/2001	0.34	0.5	--	UG/L	40	J
Tetrachloroethylene	11/7/2001	1.1	0.5	--	UG/L	40	
1-Methylnaphthalene	2/12/2002	22.2	0.97	--	UG/L	40	
2-Methylnaphthalene	2/12/2002	20.2	0.97	--	UG/L	40	
524.2 TVOC	2/12/2002	9.18	--	--	UG/L	40	
Acenaphthene	2/12/2002	1.5	9.7	--	UG/L	40	J
Benzene, 1,2,4-trimethyl	2/12/2002	1.5	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	2/12/2002	3	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	2/12/2002	0.35	0.5	--	UG/L	40	J
Cymene	2/12/2002	0.86	0.5	--	UG/L	40	
Dibenzofuran	2/12/2002	1.3	9.7	--	UG/L	40	J
Diethyl phthalate	2/12/2002	1.3	9.7	--	UG/L	40	J
Fluorene	2/12/2002	2.8	9.7	--	UG/L	40	J
Methylene chloride	2/12/2002	0.48	0.5	--	UG/L	40	J
n-Propylbenzene	2/12/2002	0.73	0.5	--	UG/L	40	
Phenanthrene	2/12/2002	1.4	9.7	--	UG/L	40	J
sec-Butylbenzene	2/12/2002	0.71	0.5	--	UG/L	40	
Tetrachloroethylene	2/12/2002	1.2	0.5	--	UG/L	40	
1-Methylnaphthalene	5/13/2002	24.1	0.96	--	UG/L	40	
2-Methylnaphthalene	5/13/2002	13.1	0.96	--	UG/L	40	
524.2 TVOC	5/13/2002	29	--	--	UG/L	40	
Acenaphthene	5/13/2002	2.1	9.6	--	UG/L	40	J
Benzene, 1,2,4-trimethyl	5/13/2002	4.8	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	5/13/2002	10.4	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	5/13/2002	1.1	0.5	--	UG/L	40	

Cymene	5/13/2002	2.8	0.5	--	UG/L	40	
Dibenzofuran	5/13/2002	2.1	9.6	--	UG/L	40	J
Fluorene	5/13/2002	4	9.6	--	UG/L	40	J
n-Butylbenzene	5/13/2002	2.8	0.5	--	UG/L	40	
n-Propylbenzene	5/13/2002	2.7	0.5	--	UG/L	40	
Phenanthrene	5/13/2002	0.98	9.6	--	UG/L	40	J
tert-Butylbenzene	5/13/2002	1.1	0.5	--	UG/L	40	
Tetrachloroethylene	5/13/2002	2.4	0.5	--	UG/L	40	
1-Methylnaphthalene	8/9/2002	15.2	0.96	--	UG/L	40	
2-Methylnaphthalene	8/9/2002	4.2	0.96	--	UG/L	40	
524.2 TVOC	8/9/2002	24.1	--	--	UG/L	40	
Acenaphthene	8/9/2002	1.8	9.6	--	UG/L	40	J
Benzene, 1,2,4-trimethyl	8/9/2002	5.8	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	8/9/2002	9.1	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	8/9/2002	1.4	0.5	--	UG/L	40	
Cymene	8/9/2002	2.8	0.5	--	UG/L	40	
Dibenzofuran	8/9/2002	1.5	9.6	--	UG/L	40	J
Fluorene	8/9/2002	3	9.6	--	UG/L	40	J
n-Propylbenzene	8/9/2002	2.6	0.5	--	UG/L	40	
Tetrachloroethylene	8/9/2002	2.4	0.5	--	UG/L	40	
524.2 TVOC	10/29/2002	13.41	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	10/29/2002	2	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	10/29/2002	5.1	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	10/29/2002	0.41	0.5	--	UG/L	40	J
Cymene	10/29/2002	2.2	0.5	--	UG/L	40	
n-Propylbenzene	10/29/2002	1.1	0.5	--	UG/L	40	
Tetrachloroethylene	10/29/2002	2.6	0.5	--	UG/L	40	
524.2 TVOC	1/30/2003	4.02	--	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	1/30/2003	0.7	0.5	--	UG/L	40	
Cymene	1/30/2003	0.77	0.5	--	UG/L	40	
Methylene chloride	1/30/2003	0.36	0.5	--	UG/L	40	J
n-Propylbenzene	1/30/2003	0.31	0.5	--	UG/L	40	J
sec-Butylbenzene	1/30/2003	0.48	0.5	--	UG/L	40	J
Tetrachloroethylene	1/30/2003	1.4	0.5	--	UG/L	40	
524.2 TVOC	5/27/2003	1.24	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	5/27/2003	0.33	0.5	--	UG/L	40	J
Benzene, 1,3,5-trimethyl-	5/27/2003	0.52	0.5	--	UG/L	40	
Tetrachloroethylene	5/27/2003	0.39	0.5	--	UG/L	40	J
524.2 TVOC	8/21/2003	2.27	--	--	UG/L	40	
524.2 TVOC	8/21/2003	1.12	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	8/21/2003	0.54	0.5	--	UG/L	40	
Benzene, 1,2,4-trimethyl	8/21/2003	0.45	0.5	--	UG/L	40	J
Benzene, 1,3,5-trimethyl-	8/21/2003	0.58	0.5	--	UG/L	40	
cis-1,2-Dichloroethylene	8/21/2003	0.64	0.5	--	UG/L	40	
Ethylbenzene	8/21/2003	0.4	0.5	--	UG/L	40	J
m/p xylene	8/21/2003	0.36	0.5	--	UG/L	40	J
Naphthalene	8/21/2003	0.42	0.5	--	UG/L	40	J
524.2 TVOC	12/30/2003	11.48	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	12/30/2003	2.7	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	12/30/2003	3.7	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	12/30/2003	0.66	0.5	--	UG/L	40	
Cymene	12/30/2003	1.9	0.5	--	UG/L	40	

n-Propylbenzene	12/30/2003	1.1	0.5	--	UG/L	40	
sec-Butylbenzene	12/30/2003	0.62	0.5	--	UG/L	40	
Tetrachloroethylene	12/30/2003	0.8	0.5	--	UG/L	40	
524.2 TVOC	3/8/2004	1.92	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	3/8/2004	0.76	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	3/8/2004	0.65	0.5	--	UG/L	40	
Tetrachloroethylene	3/8/2004	0.51	0.5	--	UG/L	40	
524.2 TVOC	6/28/2004	0	--	--	UG/L	40	
524.2 TVOC	8/20/2004	3.23	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	8/20/2004	0.82	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	8/20/2004	1.2	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	8/20/2004	0.24	0.5	--	UG/L	40	J
Cymene	8/20/2004	0.21	0.5	--	UG/L	40	J
n-Propylbenzene	8/20/2004	0.43	0.5	--	UG/L	40	J
Tetrachloroethylene	8/20/2004	0.33	0.5	--	UG/L	40	J
524.2 TVOC	10/27/2004	15.85	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	10/27/2004	3.2	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	10/27/2004	5.7	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	10/27/2004	0.68	0.5	--	UG/L	40	
Cymene	10/27/2004	1.6	0.5	--	UG/L	40	
n-Butylbenzene	10/27/2004	0.56	0.5	--	UG/L	40	
n-Propylbenzene	10/27/2004	1.4	0.5	--	UG/L	40	
sec-Butylbenzene	10/27/2004	1.3	0.5	--	UG/L	40	
tert-Butylbenzene	10/27/2004	0.31	0.5	--	UG/L	40	J
Tetrachloroethylene	10/27/2004	1.1	0.5	--	UG/L	40	
524.2 TVOC	2/4/2005	16.71	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	2/4/2005	4.8	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	2/4/2005	5	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	2/4/2005	0.86	0.5	--	UG/L	40	
Cymene	2/4/2005	1.7	0.5	--	UG/L	40	
n-Propylbenzene	2/4/2005	1.3	0.5	--	UG/L	40	
sec-Butylbenzene	2/4/2005	1.3	0.5	--	UG/L	40	
tert-Butylbenzene	2/4/2005	0.35	0.5	--	UG/L	40	J
Tetrachloroethylene	2/4/2005	1.4	0.5	--	UG/L	40	
524.2 TVOC	6/29/2005	9	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	6/29/2005	2.4	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	6/29/2005	3.7	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	6/29/2005	0.44	0.5	--	UG/L	40	J
n-Propylbenzene	6/29/2005	1	0.5	--	UG/L	40	
sec-Butylbenzene	6/29/2005	0.72	0.5	--	UG/L	40	
tert-Butylbenzene	6/29/2005	0.13	0.5	--	UG/L	40	J
Tetrachloroethylene	6/29/2005	0.61	0.5	--	UG/L	40	
524.2 TVOC	8/31/2005	0.5	--	--	UG/L	40	
Tetrachloroethylene	8/31/2005	0.5	0.5	--	UG/L	40	
524.2 TVOC	12/8/2005	8.4	--	--	UG/L	60	
Benzene, 1,2,4-trimethyl	12/8/2005	2.4	0.5	--	UG/L	60	
Benzene, 1,3,5-trimethyl-	12/8/2005	1.8	0.5	--	UG/L	60	
Benzene, 1-methylethyl-	12/8/2005	0.43	0.5	--	UG/L	60	J
Bis(2-ethylhexyl)phthalate	12/8/2005	4.5	10	--	UG/L	60	J
Butyl benzyl phthalate	12/8/2005	6.2	10	--	UG/L	60	J
Cymene	12/8/2005	1.3	0.5	--	UG/L	60	
Di-n-octyl phthalate	12/8/2005	3.2	10	--	UG/L	60	J

n-Propylbenzene	12/8/2005	0.74	0.5	--	UG/L	60	
sec-Butylbenzene	12/8/2005	0.72	0.5	--	UG/L	60	
tert-Butylbenzene	12/8/2005	0.17	0.5	--	UG/L	60	J
Tetrachloroethylene	12/8/2005	0.84	0.5	--	UG/L	60	
524.2 TVOC	3/2/2006	7.95	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	3/2/2006	2.2	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	3/2/2006	3.2	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	3/2/2006	0.43	0.5	--	UG/L	40	J
Cymene	3/2/2006	0.47	0.5	--	UG/L	40	J
n-Propylbenzene	3/2/2006	0.78	0.5	--	UG/L	40	
sec-Butylbenzene	3/2/2006	0.49	0.5	--	UG/L	40	J
Tetrachloroethylene	3/2/2006	0.38	0.5	--	UG/L	40	J
524.2 TVOC	5/1/2006	5.591	--	--	UG/L	40	
Benzene, 1,2,4-trimethyl	5/1/2006	1.6	0.5	--	UG/L	40	
Benzene, 1,3,5-trimethyl-	5/1/2006	1.6	0.5	--	UG/L	40	
Benzene, 1-methylethyl-	5/1/2006	0.23	0.5	--	UG/L	40	J
Cymene	5/1/2006	0.69	0.5	--	UG/L	40	
n-Propylbenzene	5/1/2006	0.49	0.5	--	UG/L	40	J
sec-Butylbenzene	5/1/2006	0.38	0.5	--	UG/L	40	J
tert-Butylbenzene	5/1/2006	0.091	0.5	--	UG/L	40	J
Tetrachloroethylene	5/1/2006	0.51	0.5	--	UG/L	40	
Benzene, 1,2,4-trimethyl	8/8/2006	0.11	0.5	--	UG/L	40	J
Benzene, 1,3,5-trimethyl-	8/8/2006	0.083	0.5	--	UG/L	40	J
Tetrachloroethylene	8/8/2006	0.18	0.5	--	UG/L	40	J

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Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
524.2 TVOC	2/4/2000	0.79	--	--	UG/L	60	
Chloroform	2/4/2000	0.49	0.5	--	UG/L	60	J
Tetrachloroethylene	2/4/2000	0.3	0.5	--	UG/L	60	J
524.2 TVOC	6/29/2000	21.4	--	--	UG/L	25	
cis-1,2-Dichloroethylene	6/29/2000	20.2	0.5	--	UG/L	25	
Gross Beta	6/29/2000	2.26	0.815	0.511	PCI/L	25	J
Strontium-90	6/29/2000	1.64	0.331	0.236	PCI/L	25	
Tetrachloroethylene	6/29/2000	1.2	0.5	--	UG/L	25	
524.2 TVOC	7/31/2000	14.3	--	--	UG/L	25	
cis-1,2-Dichloroethylene	7/31/2000	13.1	0.5	--	UG/L	25	
Tetrachloroethylene	7/31/2000	1.2	0.5	--	UG/L	25	
524.2 TVOC	10/23/2000	9.29	--	--	UG/L	25	
cis-1,2-Dichloroethylene	10/23/2000	7.1	0.5	--	UG/L	25	
Methylene chloride	10/23/2000	0.89	0.5	--	UG/L	25	
Tetrachloroethylene	10/23/2000	1.3	0.5	--	UG/L	25	
524.2 TVOC	1/26/2001	3.5	--	--	UG/L	25	
cis-1,2-Dichloroethylene	1/26/2001	2.2	0.5	--	UG/L	25	
Tetrachloroethylene	1/26/2001	1.3	0.5	--	UG/L	25	
524.2 TVOC	5/9/2001	1.51	--	--	UG/L	40	
cis-1,2-Dichloroethylene	5/9/2001	0.59	0.5	--	UG/L	40	
Tetrachloroethylene	5/9/2001	0.64	0.5	--	UG/L	40	
Toluene	5/9/2001	0.28	0.5	--	UG/L	40	J
524.2 TVOC	7/24/2001	0.48	--	--	UG/L	25	
Tetrachloroethylene	7/24/2001	0.48	0.5	--	UG/L	25	J
524.2 TVOC	11/8/2001	0.66	--	--	UG/L	40	

Bis(2-ethylhexyl)phthalate	11/8/2001	0.43	10	--	UG/L	40	J
Tetrachloroethylene	11/8/2001	0.66	0.5	--	UG/L	40	
524.2 TVOC	2/12/2002	1.5	--	--	UG/L	25	
Methylene chloride	2/12/2002	0.61	0.5	--	UG/L	25	
Tetrachloroethylene	2/12/2002	0.57	0.5	--	UG/L	25	
1,1,1-Trichloroethane	5/14/2002	0.35	0.5	--	UG/L	25	J
524.2 TVOC	5/14/2002	32.67	--	--	UG/L	25	
cis-1,2-Dichloroethylene	5/14/2002	26.6	0.5	--	UG/L	25	
Tetrachloroethylene	5/14/2002	3.4	0.5	--	UG/L	25	
Trichloroethylene	5/14/2002	0.82	0.5	--	UG/L	25	
524.2 TVOC	8/7/2002	7.16	--	--	UG/L	25	
cis-1,2-Dichloroethylene	8/7/2002	5.6	0.5	--	UG/L	25	
Tetrachloroethylene	8/7/2002	1.3	0.5	--	UG/L	25	
Trichloroethylene	8/7/2002	0.26	0.5	--	UG/L	25	J
1,1,1-Trichloroethane	10/30/2002	0.46	0.5	--	UG/L	25	J
524.2 TVOC	10/30/2002	27.16	--	--	UG/L	25	
cis-1,2-Dichloroethylene	10/30/2002	19.7	0.5	--	UG/L	25	
Tetrachloroethylene	10/30/2002	5.9	0.5	--	UG/L	25	
Trichloroethylene	10/30/2002	1.1	0.5	--	UG/L	25	
1,1,1-Trichloroethane	1/31/2003	0.35	0.5	--	UG/L	25	J
524.2 TVOC	1/31/2003	24.96	--	--	UG/L	25	
cis-1,2-Dichloroethylene	1/31/2003	19.3	0.5	--	UG/L	25	
Tetrachloroethylene	1/31/2003	4.5	0.5	--	UG/L	25	
Trichloroethylene	1/31/2003	0.81	0.5	--	UG/L	25	
524.2 TVOC	5/22/2003	2.7	--	--	UG/L	25	
cis-1,2-Dichloroethylene	5/22/2003	1.7	0.5	--	UG/L	25	
Tetrachloroethylene	5/22/2003	1	0.5	--	UG/L	25	
524.2 TVOC	8/21/2003	1.49	--	--	UG/L	25	
Chloroform	8/21/2003	0.64	0.5	--	UG/L	25	
cis-1,2-Dichloroethylene	8/21/2003	0.32	0.5	--	UG/L	25	J
Tetrachloroethylene	8/21/2003	0.53	0.5	--	UG/L	25	
524.2 TVOC	12/29/2003	1.87	--	--	UG/L	25	
cis-1,2-Dichloroethylene	12/29/2003	0.77	0.5	--	UG/L	25	
Tetrachloroethylene	12/29/2003	1.1	0.5	--	UG/L	25	
524.2 TVOC	3/8/2004	6.5	--	--	UG/L	25	
cis-1,2-Dichloroethylene	3/8/2004	3.9	0.5	--	UG/L	25	
Tetrachloroethylene	3/8/2004	2.6	0.5	--	UG/L	25	
524.2 TVOC	6/28/2004	2.1	--	--	UG/L	25	
Tetrachloroethylene	6/28/2004	2.1	0.5	--	UG/L	25	
524.2 TVOC	8/30/2004	6.48	--	--	UG/L	25	
cis-1,2-Dichloroethylene	8/30/2004	4.2	0.5	--	UG/L	25	
Tetrachloroethylene	8/30/2004	2	0.5	--	UG/L	25	
Trichloroethylene	8/30/2004	0.28	0.5	--	UG/L	25	J
1,1,1-Trichloroethane	10/26/2004	0.23	0.5	--	UG/L	25	J
524.2 TVOC	10/26/2004	15.84	--	--	UG/L	25	
cis-1,2-Dichloroethylene	10/26/2004	10	0.5	--	UG/L	25	
Tetrachloroethylene	10/26/2004	4.8	0.5	--	UG/L	25	
Trichloroethylene	10/26/2004	0.81	0.5	--	UG/L	25	
524.2 TVOC	2/4/2005	9.66	--	--	UG/L	25	
cis-1,2-Dichloroethylene	2/4/2005	6.3	0.5	--	UG/L	25	
Tetrachloroethylene	2/4/2005	2.9	0.5	--	UG/L	25	
Trichloroethylene	2/4/2005	0.46	0.5	--	UG/L	25	J

524.2 TVOC	8/31/2005	2.5	--	--	UG/L	25	
cis-1,2-Dichloroethylene	8/31/2005	1.2	0.5	--	UG/L	25	
Tetrachloroethylene	8/31/2005	1.3	0.5	--	UG/L	25	
524.2 TVOC	3/10/2006	0.873	--	--	UG/L	25	
Chloroform	3/10/2006	0.14	0.5	--	UG/L	25	J
cis-1,2-Dichloroethylene	3/10/2006	0.29	0.5	--	UG/L	25	J
Tetrachloroethylene	3/10/2006	0.36	0.5	--	UG/L	25	J
Trichlorofluoromethane	3/10/2006	0.083	0.5	--	UG/L	25	J
Chloroform	8/8/2006	0.11	0.5	--	UG/L	25	J
cis-1,2-Dichloroethylene	8/8/2006	0.23	0.5	--	UG/L	25	J
Methyl chloride	8/8/2006	0.1	0.5	--	UG/L	25	J
Tetrachloroethylene	8/8/2006	0.32	0.5	--	UG/L	25	J
Trichlorofluoromethane	8/8/2006	0.084	0.5	--	UG/L	25	J

Site ID: 085-01

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
1,1,1-Trichloroethane	1/12/2000	0.54	0.5	--	UG/L	75	
1,1-Dichloroethylene	1/12/2000	0.5	0.5	--	UG/L	75	J
524.2 TVOC	1/12/2000	4.71	--	--	UG/L	75	
Benzene	1/12/2000	0.5	0.5	--	UG/L	75	JB
Benzene, 1,2,4-trimethyl	1/12/2000	0.5	0.5	--	UG/L	75	JB
Chloroform	1/12/2000	0.67	0.5	--	UG/L	75	
m/p xylene	1/12/2000	0.5	0.5	--	UG/L	75	JB
Toluene	1/12/2000	0.5	0.5	--	UG/L	75	JB
Trichloroethylene	1/12/2000	0.5	0.5	--	UG/L	75	J
Trichlorofluoromethane	1/12/2000	0.5	0.5	--	UG/L	75	JB
1,1,1-Trichloroethane	7/5/2000	6.3	0.5	--	UG/L	75	
1,1-Dichloroethylene	7/5/2000	2.6	0.5	--	UG/L	75	
524.2 TVOC	7/5/2000	9.32	--	--	UG/L	75	
Chloroform	7/5/2000	0.42	0.5	--	UG/L	75	J
Gross Beta	8/1/2000	3.49	2.28	2.94	PCI/L	75	
Tritium	8/1/2000	1450	320	538	PCI/L	75	
Tritium	10/6/2000	547	508	315	PCI/L	75	JN2
1,1,1-Trichloroethane	1/9/2001	0.62	0.5	--	UG/L	75	
1,1-Dichloroethylene	1/9/2001	0.26	0.5	--	UG/L	75	J
524.2 TVOC	1/9/2001	1.19	--	--	UG/L	75	
Chloroform	1/9/2001	0.31	0.5	--	UG/L	75	J
1,1,1-Trichloroethane	7/3/2001	0.5	0.5	--	UG/L	85	
524.2 TVOC	7/3/2001	1.38	--	--	UG/L	85	
Toluene	7/3/2001	0.88	0.5	--	UG/L	85	
524.2 TVOC	10/8/2001	0	--	--	UG/L	75	
Tritium	4/11/2002	1340	448	321	PCI/L	75	
Tritium	7/10/2002	1400	523	362	PCI/L	75	
524.2 TVOC	10/10/2002	0	--	--	UG/L	75	
Tritium	10/10/2002	10200	381	516	PCI/L	75	
Tritium	1/9/2003	2290	405	330	PCI/L	75	
Tritium	4/24/2003	392	276	215	PCI/L	75	
524.2 TVOC	10/27/2003	0	--	--	UG/L	75	
Tritium	10/27/2003	287	271	180	PCI/L	75	
Tritium	1/29/2004	310	260	190	PCI/L	75	J
524.2 TVOC	10/6/2004	0.94	--	--	UG/L	75	
Chloroform	10/6/2004	0.2	0.5	--	UG/L	75	J

Methylene chloride	10/6/2004	0.74	0.5	--	UG/L	75	
Tritium	4/1/2005	2170	180	380	PCI/L	75	
524.2 TVOC	10/7/2005	0	--	--	UG/L	75	
Tritium	10/7/2005	2560	470	480	PCI/L	75	J(-)-S
Tritium	1/13/2006	3480	340	490	PCI/L	75	
Tritium	4/11/2006	1370	380	320	PCI/L	75	
Tritium	7/19/2006	2460	350	400	PCI/L	75	

Site ID: 085-02

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
1,1,1-Trichloroethane	1/12/2000	3	0.5	--	UG/L	145	
1,1-Dichloroethane	1/12/2000	0.5	0.5	--	UG/L	145	J
1,1-Dichloroethylene	1/12/2000	0.86	0.5	--	UG/L	145	
1,2-Dichloroethane	1/12/2000	0.5	0.5	--	UG/L	145	J
524.2 TVOC	1/12/2000	6.24	--	--	UG/L	145	
Chloroform	1/12/2000	0.88	0.5	--	UG/L	145	
Trichloroethylene	1/12/2000	0.5	0.5	--	UG/L	145	J
1,1,1-Trichloroethane	7/5/2000	5.6	0.5	--	UG/L	145	
1,1-Dichloroethylene	7/5/2000	1.8	0.5	--	UG/L	145	
524.2 TVOC	7/5/2000	7.95	--	--	UG/L	145	
Chloroform	7/5/2000	0.55	0.5	--	UG/L	145	
1,1,1-Trichloroethane	1/9/2001	18.5	0.5	--	UG/L	145	
1,1-Dichloroethylene	1/9/2001	8.7	0.5	--	UG/L	145	
524.2 TVOC	1/9/2001	27.84	--	--	UG/L	145	
Chloroform	1/9/2001	0.64	0.5	--	UG/L	145	
1,1,1-Trichloroethane	7/2/2001	9.3	0.5	--	UG/L	145	
1,1-Dichloroethane	7/2/2001	0.35	0.5	--	UG/L	145	J
1,1-Dichloroethylene	7/2/2001	4.4	0.5	--	UG/L	145	
524.2 TVOC	7/2/2001	16	--	--	UG/L	145	
Chloroform	7/2/2001	0.54	0.5	--	UG/L	145	
Naphthalene	7/2/2001	1.1	0.5	--	UG/L	145	B
Toluene	7/2/2001	0.31	0.5	--	UG/L	145	J
1,1,1-Trichloroethane	10/8/2001	8.2	0.5	--	UG/L	145	
1,1-Dichloroethane	10/8/2001	0.27	0.5	--	UG/L	145	J
1,1-Dichloroethylene	10/8/2001	4.1	0.5	--	UG/L	145	
524.2 TVOC	10/8/2001	13.02	--	--	UG/L	145	
Chloroform	10/8/2001	0.45	0.5	--	UG/L	145	J
Tritium	1/14/2002	487	1150	678	PCI/L	145	DL
1,1,1-Trichloroethane	10/10/2002	24.5	0.5	--	UG/L	145	
1,1-Dichloroethane	10/10/2002	1.7	0.5	--	UG/L	145	
1,1-Dichloroethylene	10/10/2002	13.1	0.5	--	UG/L	145	
524.2 TVOC	10/10/2002	40.85	--	--	UG/L	145	
Chloroform	10/10/2002	0.57	0.5	--	UG/L	145	
Trichlorofluoromethane	10/10/2002	0.98	0.5	--	UG/L	145	
Tritium	10/10/2002	908	400	269	PCI/L	145	J
Tritium	4/24/2003	750	276	233	PCI/L	145	
1,1,1-Trichloroethane	10/27/2003	7	0.5	--	UG/L	145	
1,1-Dichloroethane	10/27/2003	0.96	0.5	--	UG/L	145	
1,1-Dichloroethylene	10/27/2003	3.7	0.5	--	UG/L	145	
524.2 TVOC	10/27/2003	12.46	--	--	UG/L	145	
Chloroform	10/27/2003	0.8	0.5	--	UG/L	145	
Tritium	1/29/2004	680	250	250	PCI/L	145	

Tritium	4/1/2004	370	310	220	PCI/L	175	J
Tritium	7/7/2004	390	340	230	PCI/L	145	J
1,1,1-Trichloroethane	10/6/2004	19	0.5	--	UG/L	145	
1,1-Dichloroethane	10/6/2004	2.7	0.5	--	UG/L	145	
1,1-Dichloroethylene	10/6/2004	10	0.5	--	UG/L	145	
524.2 TVOC	10/6/2004	34.28	--	--	UG/L	145	
Chloroform	10/6/2004	0.84	0.5	--	UG/L	145	
Methylene chloride	10/6/2004	0.68	0.5	--	UG/L	145	
Trichloroethylene	10/6/2004	0.5	0.5	--	UG/L	145	
Trichlorofluoromethane	10/6/2004	0.56	0.5	--	UG/L	145	
Tritium	10/6/2004	380	300	210	PCI/L	145	J
Tritium	1/5/2005	340	260	190	PCI/L	145	J
Tritium	4/1/2005	510	180	180	PCI/L	145	
1,1,1-Trichloroethane	10/7/2005	8.4	0.5	--	UG/L	140	
1,1-Dichloroethane	10/7/2005	1.1	0.5	--	UG/L	140	
1,1-Dichloroethylene	10/7/2005	3.3	0.5	--	UG/L	140	
524.2 TVOC	10/7/2005	13.99	--	--	UG/L	140	
Chloroform	10/7/2005	0.79	0.5	--	UG/L	140	
Trichloroethylene	10/7/2005	0.4	0.5	--	UG/L	140	J
Tritium	1/13/2006	380	340	230	PCI/L	145	J

Site ID: 085-171

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
1,1,1-Trichloroethane	1/24/2000	21.8	0.5	--	UG/L	135	
1,1-Dichloroethane	1/24/2000	1	0.5	--	UG/L	135	
1,1-Dichloroethylene	1/24/2000	9.7	0.5	--	UG/L	135	
1,2-Dichloroethane	1/24/2000	0.11	0.5	--	UG/L	135	J
524.2 TVOC	1/24/2000	35.892	--	--	UG/L	135	
Chloroform	1/24/2000	0.36	0.5	--	UG/L	135	J
m/p xylene	1/24/2000	0.032	0.5	--	UG/L	135	J
Methylene chloride	1/24/2000	0.49	0.5	--	UG/L	135	JB
Toluene	1/24/2000	0.08	0.5	--	UG/L	135	JB
Trichloroethylene	1/24/2000	0.22	0.5	--	UG/L	135	J
Trichlorofluoromethane	1/24/2000	2.1	0.5	--	UG/L	135	
1,1,1-Trichloroethane	7/12/2000	19.8	0.5	--	UG/L	130	
1,1-Dichloroethane	7/12/2000	1.6	0.5	--	UG/L	130	
1,1-Dichloroethylene	7/12/2000	7.6	0.5	--	UG/L	130	
524.2 TVOC	7/12/2000	33.99	--	--	UG/L	130	
Chloroform	7/12/2000	0.84	0.5	--	UG/L	130	
Methylene chloride	7/12/2000	0.81	0.5	--	UG/L	130	B
Toluene	7/12/2000	0.38	0.5	--	UG/L	130	J
Trichloroethylene	7/12/2000	0.76	0.5	--	UG/L	130	
Trichlorofluoromethane	7/12/2000	2.2	0.5	--	UG/L	130	
Tritium	7/12/2000	714	412	267	PCI/L	130	J
Tritium	10/19/2000	1230	470	320	PCI/L	130	
1,1,1-Trichloroethane	2/13/2001	6	0.5	--	UG/L	130	
1,1-Dichloroethane	2/13/2001	0.41	0.5	--	UG/L	130	J
1,1-Dichloroethylene	2/13/2001	1.9	0.5	--	UG/L	130	
524.2 TVOC	2/13/2001	9.43	--	--	UG/L	130	
Chloroform	2/13/2001	0.82	0.5	--	UG/L	130	
Trichloroethylene	2/13/2001	0.3	0.5	--	UG/L	130	J
Tritium	2/13/2001	845	320	213	PCI/L	130	J

1,1,1-Trichloroethane	7/19/2001	10.5	0.5	--	UG/L	130	
1,1-Dichloroethane	7/19/2001	0.93	0.5	--	UG/L	130	
1,1-Dichloroethylene	7/19/2001	4.3	0.5	--	UG/L	130	
524.2 TVOC	7/19/2001	17.09	--	--	UG/L	130	
Chloroform	7/19/2001	1	0.5	--	UG/L	130	
Trichloroethylene	7/19/2001	0.36	0.5	--	UG/L	130	J
Tritium	7/19/2001	469	430	268	PCI/L	130	J-N2
1,1,1-Trichloroethane	10/15/2001	13.9	0.5	--	UG/L	130	
1,1-Dichloroethane	10/15/2001	0.8	0.5	--	UG/L	130	
1,1-Dichloroethylene	10/15/2001	5.3	0.5	--	UG/L	130	
524.2 TVOC	10/15/2001	21.48	--	--	UG/L	130	
Chloroform	10/15/2001	0.88	0.5	--	UG/L	130	
Methyl chloride	10/15/2001	0.27	0.5	--	UG/L	130	J
Trichloroethylene	10/15/2001	0.33	0.5	--	UG/L	130	J
1,1,1-Trichloroethane	10/18/2002	16.4	0.5	--	UG/L	130	
1,1-Dichloroethane	10/18/2002	1	0.5	--	UG/L	130	
1,1-Dichloroethylene	10/18/2002	5.1	0.5	--	UG/L	130	
524.2 TVOC	10/18/2002	24.04	--	--	UG/L	130	
Chloroform	10/18/2002	0.96	0.5	--	UG/L	130	
Methylene chloride	10/18/2002	0.29	0.5	--	UG/L	130	J
Trichloroethylene	10/18/2002	0.29	0.5	--	UG/L	130	J
Tritium	8/6/2003	321	273	180	PCI/L	130	
1,1,1-Trichloroethane	10/30/2003	4.4	0.5	--	UG/L	130	J
1,1-Dichloroethane	10/30/2003	0.45	0.5	--	UG/L	130	J
1,1-Dichloroethylene	10/30/2003	1.6	0.5	--	UG/L	130	J
524.2 TVOC	10/30/2003	7.67	--	--	UG/L	130	
Chloroform	10/30/2003	0.77	0.5	--	UG/L	130	J
Methyl tert-butyl ether	10/30/2003	0.45	0.5	--	UG/L	130	J
Tritium	2/10/2004	350	220	180	PCI/L	130	J
1,1,1-Trichloroethane	4/11/2005	2.7	0.5	--	UG/L	130	
1,1-Dichloroethane	4/11/2005	0.53	0.5	--	UG/L	130	
1,1-Dichloroethylene	4/11/2005	1.3	0.5	--	UG/L	130	
524.2 TVOC	4/11/2005	6.01	--	--	UG/L	130	
Chloroform	4/11/2005	1.2	0.5	--	UG/L	130	
Toluene	4/11/2005	0.12	0.5	--	UG/L	130	J
Trichloroethylene	4/11/2005	0.16	0.5	--	UG/L	130	J
1,1,1-Trichloroethane	12/22/2005	2.1	0.5	--	UG/L	130	
1,1-Dichloroethane	12/22/2005	0.49	0.5	--	UG/L	130	J
1,1-Dichloroethylene	12/22/2005	1	0.5	--	UG/L	130	
524.2 TVOC	12/22/2005	4.18	--	--	UG/L	130	
Chloroform	12/22/2005	0.42	0.5	--	UG/L	130	J
Trichloroethylene	12/22/2005	0.17	0.5	--	UG/L	130	J
Tritium	12/22/2005	360	360	230	PCI/L	130	J
Tritium	1/24/2006	550	280	220	PCI/L	130	
Tritium	4/14/2006	460	350	230	PCI/L	130	J
Tritium	7/11/2006	550	390	270	PCI/L	130	

Site ID: 086-05

Chemical Name	Sample Date	Value	Det. Limit	Error	Units	Depth	Qual.
524.2 TVOC	2/11/2000	0.54	--	--	UG/L	85	
Chloroform	2/11/2000	0.54	0.5	--	UG/L	85	
524.2 TVOC	5/25/2000	0.63	--	--	UG/L	85	

Chloroform	5/25/2000	0.63	0.5	--	UG/L	85	
524.2 TVOC	8/31/2000	0.84	--	--	UG/L	85	
Chloroform	8/31/2000	0.84	0.5	--	UG/L	85	
Vanadium-48	8/31/2000	-4.3	10.4	6.36	PCI/L	85	DL
524.2 TVOC	11/30/2000	0.84	--	--	UG/L	85	
Chloroform	11/30/2000	0.84	0.5	--	UG/L	85	
524.2 TVOC	3/5/2001	0.44	--	--	UG/L	85	
Chloroform	3/5/2001	0.44	0.5	--	UG/L	85	J
524.2 TVOC	5/25/2001	0.75	--	--	UG/L	85	
Chloroform	5/25/2001	0.48	0.5	--	UG/L	85	J
Methylene chloride	5/25/2001	0.27	0.5	--	UG/L	85	J
524.2 TVOC	8/20/2001	0.4	--	--	UG/L	85	
Chloroform	8/20/2001	0.4	0.5	--	UG/L	85	J
524.2 TVOC	10/8/2001	0.33	--	--	UG/L	85	
Chloroform	10/8/2001	0.33	0.5	--	UG/L	85	J
524.2 TVOC	6/28/2002	0	--	--	UG/L	85	
524.2 TVOC	7/18/2003	0.27	--	--	UG/L	85	
Chloroform	7/18/2003	0.27	0.5	--	UG/L	85	J
524.2 TVOC	9/1/2004	0.29	--	--	UG/L	85	
Chloroform	9/1/2004	0.29	0.5	--	UG/L	85	J
Gross Alpha	9/1/2004	1.36	1.2	0.86	PCI/L	85	J
Gross Beta	9/1/2004	2.58	1.2	0.91	PCI/L	85	J
524.2 TVOC	8/29/2005	0.43	--	--	UG/L	85	
Chloroform	8/29/2005	0.43	0.5	--	UG/L	85	J