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October 9, 2009

Mr. John Nohrstedt
U.S. Army Corps of Engineers
Engineering and Support Center, Huntsville
Attn: CEHNC-FS-IS
4820 University Square
Huntsville, Alabama 35816-1822

SUBJECT: Final Annual Report and One-Year Review for the Open Burning Grounds at Seneca Army Depot Activity; Contract DACA87-02-D-0005, Delivery Order 0036

Dear Mr. Nohrstedt:

Parsons Infrastructure & Technology Group, Inc. (Parsons) is pleased to submit the Final Annual Report and One-Year Review for the Open Burning (OB) Grounds (SEAD-23) at Seneca Army Depot Activity (SEDA) in Romulus, New York. This work was performed in accordance with the Scope of Work for Delivery Order 0036 under Contract No. DACA87-02-D-0005. This report provides a review of long-term monitoring completed during the first year and provides recommendations for future long-term monitoring at SEAD-23.

Included with this report are responses to USEPA and NYSDEC comments received on the draft final document issued June 1, 2009.

Parsons appreciates the opportunity to provide you with the Report for this work. Should you have any questions, please do not hesitate to call me at (617) 449-1405 to discuss them.

Sincerely,

Todd Heino, P.E., Vice President
Program Manager

Enclosures

cc: S. Absolom, SEDA
K. Hoddinott, USACHPPM
R. Walton, USAEC
R. Battaglia, USACE, NY District

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October 9, 2009

Mr. Julio Vazquez
USEPA Region II
Superfund Federal Facilities Section
290 Broadway, 18th Floor
New York, NY 10007-1866

Mr. Kuldeep K. Gupta, P.E.
New York State Department of Environmental Conservation (NYSDEC)
Division of Environmental Remediation
Remedial Bureau A, Section C
625 Broadway
Albany, NY 12233-7015

Mr. Mark Sergott
Bureau of Environmental Exposure Investigation, Room 300
New York State Department of Health
547 River Street, Flanigan Square
Troy, NY 12180

SUBJECT: Final Annual Report and One-Year Review for Open Burning Grounds at Seneca Army Depot Activity; EPA Site ID# NY0213820830 and NY Site ID# 8-50-006

Dear Mr. Vazquez/Mr. Gupta/Mr. Sergott:

Parsons Infrastructure & Technology Group, Inc. (Parsons) is pleased to submit the Final Annual Report and One-Year Review for the Open Burning (OB) Grounds (SEAD-23) at Seneca Army Depot Activity (SEDA) in Romulus, New York (EPA Site ID# NY0213820830 and NY Site ID# 8-50-006). This report provides a review of long-term monitoring completed during the first year and provides recommendations for future long-term monitoring at SEAD-23.

Included with this report are responses to USEPA and NYSDEC comments received on the draft final document issued June 1, 2009.

Parsons appreciates the opportunity to provide you with the Annual Report and One-Year Review. Should you have any questions, please do not hesitate to call me at (617) 449-1405 to discuss them.

Sincerely,

Todd Heino, P.E., Vice President
Program Manager

Enclosures
cc: J. Nohrstedt, USACE, Huntsville
K. Hoddinott, USACHPPM
R. Battaglia, USACE, NY
S. Absolom, SEDA
R. Walton, USAEC
M. Heaney, TechLaw

Army's Response to Comments from the United States Environmental Protection Agency

Subject: Draft Final Annual Report and One Year Review
for the Open Burning Grounds LTM
Seneca Army Depot
Romulus, New York

Comments Dated: July 28, 2009

Date of Comment Response: October 9, 2009

Army's Response to Comments

Comment:

This letter provides a comment relating to the sediment monitoring program presented in the *Draft Final Annual Report and One Year Review for the OB Grounds Operable Unit, June 2009* that had been submitted by the Army fur EPA review. Portions of Section 5.0 (Reeder Creek Inspection) of the report at pages 7-8 incorrectly describe the status of the requirements for sediment monitoring at the OB Grounds and should be corrected, Since that is a fundamental issue, I wanted to bring that to your attention at the outset although EPA may have additional comments on the draft report.

The draft report erroneously states that an agreement between the Army, EPA, and NY State waives the need fur sediment monitoring based on information and data from the monitoring of groundwater and inspection of the soil cover. Sediment monitoring is a component of the remedy selected in the Record of Decision (ROD) and has not been waived, nor could it be waived outside of the formal ROD modification process.

Rather than waiving the sediment monitoring requirement, at the conclusion of the OB Grounds action, it was decided among the Army, EPA and NYS, merely to postpone the sediment monitoring due to the lack of sediment in the affected segment of Reeder Creek. However, it was further decided that visual inspections would be made in order to assess the accumulation of sediments so as to eventually implement the sediment monitoring plan as required by the OB Grounds ROD.

EPA's review and comments on the Long Term Monitoring Plan (OB LTM Plan) could not, and did not, override the requirements of the ROD. Among other things, the report incorrectly states that "EPA and NYSDEC recanted their previous agreement of the OB LTM Plan sediment monitoring program." and I note that, among other things, the OB LTM Plan does not address sediment monitoring.

If the Army believes that the sediment monitoring program selected in the ROD is no longer needed, then the remedy would need to be modified by ROD amendment OT, in this case, perhaps by an Explanation of Significant Differences which would require approval of senior EPA management, NYSDEC review and concurrence, and public participation.

In the meantime, please correct the subject document as previously indicated.

Response:

The Army has modified language in Section 5 to read as follows.

The Draft "Annual Report and One Year Review for the Open Burning Grounds" was issued to the EPA, NYSDEC, and NYSDOH on December 15, 2008. Comments were received from the EPA and the NYSDEC in February and March of 2009, and both sets focused on the need for the development and implementation of a monitoring program for lead and copper in sediment in Reeder Creek.

The Army initially responded to these comments by indicating that they understood that an agreement had been reached between the Army, EPA, and NYSDEC during the development of the long term monitoring program for the OB Grounds that indicated that a sediment monitoring plan would only be developed and implemented if information and data from the monitoring of groundwater and the soil cover overlying lead contaminated soils that were interred at the OB Grounds indicated that a transport mechanism was present that could convey lead or copper from the OB Grounds site to Reeder Creek. The Army understood that this agreement was approved by all parties because the Army had previously excavated contaminated sediment to the underlying shale bedrock from two extended portions out of Reeder Creek's bed adjacent to and downgradient of the OB Grounds site. During this work, the Army had also developed and provided data to the EPA and the NYSDEC that showed that the quality of the sediment in Reeder Creek adjacent to the OB Grounds site was consistent with the quality of sediment contained in Reeder Creek at locations hydraulically upgradient of the OB Grounds. Further, the Army had provided other data to both parties that indicated that native soils at the Depot contain concentrations of lead and copper which are above the sediment criteria identified in the ROD for the OB Grounds. As such, if native soil from locations that are hydraulically upgradient of the OB Grounds was carried by creek flow and was deposited at locations adjacent to the OB Grounds it would appear that the creek bed may have been "re-contaminated" by releases from the site.

In response to the Army's response, the EPA and NYSDEC reiterated their understanding that the OB Grounds ROD called for the development and implementation of a sediment monitoring program for Reeder Creek and indicated that monitoring of Reeder Creek was required under the OB Grounds Record of Decision. To address this continuing concern, the Army agreed to conduct and report the results of an inspection of Reeder Creek adjacent to the OB Grounds as part of the continuing long-term monitoring program of this site.

The Army performed a visual inspection of the Reeder Creek streambed in April of 2009 at locations adjacent to the OB Grounds. This inspection indicated that surface water flow within Reeder Creek has continued to scour the bedrock surface, and has limited and for the most part precluded, the redeposition of sediment adjacent to the OB Grounds. Soil sloughing from upland surfaces bordering both edges of the creek is observed at many locations along the creek bed; however, these are only noted at places where the creek's course broadens and where the wetted watercourse represents but a portion of the entire creek bed's width. There is no evidence that the

sloughed soil has migrated into, and deposited as sediment within, the main flow channel of Reeder Creek.

Examination of the spillways where surface water from the OB Grounds to Reeder Creek previously flowed into the creek, but which were closed as part of the overall OB Grounds remedial action, indicated that there is no current visible evidence that overland surface water flow is transporting soils from the OB Grounds into Reeder Creek. The spillways, which are shale based, are free of any accumulation of excessive debris and soil. Field observations also noted that the mechanisms that were placed at the OB Grounds to prevent surface water flow from entering the spillways are still evident and working.

As is reported above, the groundwater data collected during historic sampling events as well as during the first year of the Long-Term Monitoring Program shows no evidence of the release of copper or lead from the OB Grounds. The soil cap inspections did reveal that occasional animal burrows and shallow erosion depressions were present in the cover at the contaminated soil burial areas, but none of the noted burrow holes or depressions were sufficiently sized to allow buried soils to escape their containment. All of the noted holes and depressions were repaired as part of the Army's continuing maintenance activities. Finally, there is no visible evidence that excessive quantities of OB Grounds site soils are being released via overland flow to Reeder Creek as visual observations did not show signs of embankment collapse and mounding within the creek. As such, the Army does not see any evidence to suggest that a release of lead or copper above background levels is occurring from the OB Grounds site.

Based on these data and this information, the Army has not conducted sediment sampling and analysis of Reeder Creek as part of the first year of long term monitoring at the OB Grounds. The Army will conduct another visual inspection of the creek bed and spillways connecting the OB Grounds to Reeder Creek during the next scheduled annual monitoring event, and if evidence of overland transport of soil or groundwater migration of contaminants from the OB Grounds to Reeder Creek is identified a plan will be prepared and submitted for approval which will identify a sediment monitoring program that will be conducted.

Army's Response to Comments from the New York Department of Environmental Conservation

Subject: Draft Final Annual Report and One-Year Review
for the Open Burning Grounds LTM
Seneca Army Depot
Romulus, New York

Comments Dated: August 20, 2009

Date of Comment Response: October 9, 2009

Army's Response to Comments

General Comment:

Comment:

Our comments dated March 2, 2009 on "Draft Annual Report and One Year Review" dated December 15, 2008 are not adequately addressed in this Final report.

Response:

The Draft Final Annual Report and One Year Review for the OB Grounds indicates that an inspection of Reeder Creek was performed in April of 2009 and indicated that sediment had not redeposited in the areas that had previously been excavated during the Remedial Action and as such no sampling was performed (see discussion in Section 5, pages 8 and 9).

The Army believes that this action and the reporting of the results observed satisfies the requirement identified in the OB Grounds Record of Decision to monitor sediment in Reeder Creek. Since no sediment was observed, it is not possible to collect samples for chemical analysis.

Furthermore, in Section 6, page 9, fifth and sixth bullets, the Army states:

- Sediment deposition in Reeder Creek adjacent to the OB Grounds was not noted during the April 2009 inspection; and,
- The Army will continue to inspect Reeder Creek for evidence of sediment deposition and if it is observed, a sediment sampling and analysis program plan will be prepared, submitted for approval, and implemented for Reeder Creek at locations adjacent to the OB Grounds.

The Army views this as an indication that inspections of Reeder Creek will continue and that samples will be collected and analyzed once sediment is found to be present in the creek.

Specific Comments:

Comment:

NYSDEC concurs with the EPA comments dated Ju126, 2009 for action to override the requirements of the ROD.

Response:

The Army has modified language in Section 5 to read as follows.

The Draft "Annual Report and One Year Review for the Open Burning Grounds" was issued to the EPA, NYSDEC, and NYSDOH on December 15, 2008. Comments were received from the EPA and the NYSDEC in February and March of 2009, and both sets focused on the need for the development and implementation of a monitoring program for lead and copper in sediment in Reeder Creek.

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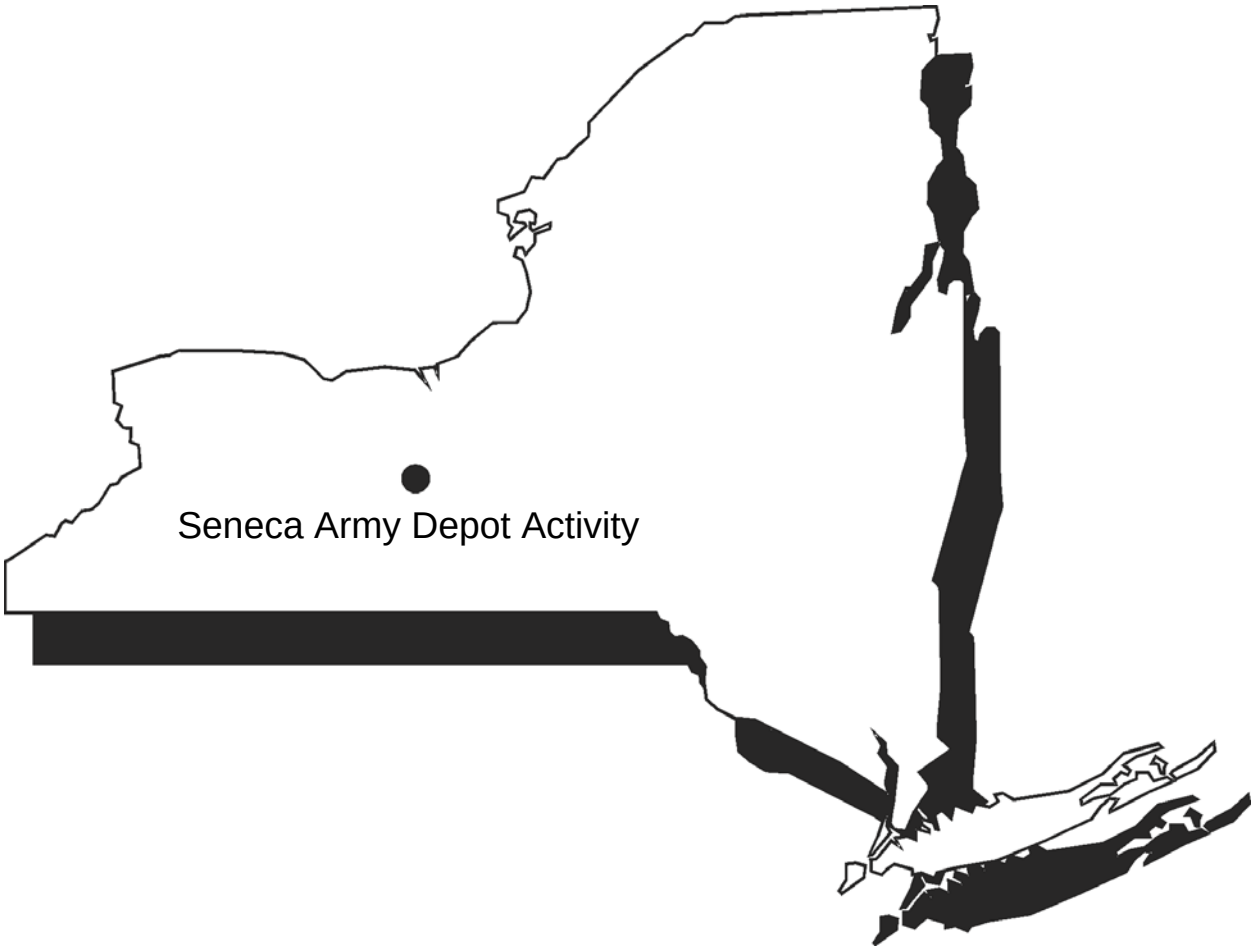
US Army, Engineering & Support Center
Huntsville, AL

00512

Seneca Army Depot Activity
Romulus, NY



FINAL

ANNUAL REPORT AND ONE-YEAR REVIEW

FOR THE OPEN BURNING GROUNDS
SENECA ARMY DEPOT ACTIVITY

Contract No. DACA87-02-D-0005
Delivery Order No. 0036
EPA Site ID# NY0213820830
NY Site ID# 8-50-006

PARSONS

October 2009

FINAL

ANNUAL REPORT AND ONE-YEAR REVIEW

FOR THE OPEN BURNING GROUNDS
SENECA ARMY DEPOT ACTIVITY, ROMULUS, NEW YORK

Prepared for:

U.S. ARMY, CORPS OF ENGINEERS, ENGINEERING AND SUPPORT CENTER, HUNTSVILLE

HUNTSVILLE, ALABAMA

and

SENECA ARMY DEPOT ACTIVITY
ROMULUS, NEW YORK

Prepared by:

PARSONS
100 High Street
Boston, MA 02110

Contract Number DACA87-02-D-0005
Task Order No. 0036
EPA Site ID# NY0213820830
NY Site ID# 8-50-006

October 2009

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

This Annual Report provides a review of long-term monitoring (LTM) conducted during the past year for the Open Burning (OB) Grounds located at the Seneca Army Depot Activity (SEDA or the Depot) in Seneca County, New York. The LTM for the OB Grounds includes the collection and analysis of groundwater samples and the inspection of the vegetated, compacted soil cap that has been constructed over lead contaminated soil that is interred at the site. This report presents and summarizes the results of the LTM conducted over the last year and provides recommendations for future long-term monitoring at OB Grounds.

Long-term monitoring is an integral component of the approved remedy implemented at the OB Grounds. The "Record of Decision (ROD) Former Open Burning Grounds Site, Final" (Parsons, 1999) indicated that monitoring of groundwater and the vegetated soil cap at the OB Grounds, and of the sediment within Reeder Creek was required. Specifically, the ROD required:

- Periodic monitoring of groundwater quality at the OB Grounds for lead and copper content;
- Periodic monitoring of the vegetated, compacted soil cap placed over the lead contaminated soil remaining at the OB Grounds to assess whether evidence of erosion or protective cover breaching were present; and,
- Periodic monitoring of the sediment in Reeder Creek for lead and copper.

The LTM that is being conducted at the OB Grounds is being performed in accordance with the "Long-Term Monitoring Plan for the Open Burning Grounds, Final" (LTM Plan) (Parsons, 2007). The collection of groundwater quality data is needed to monitor the effectiveness of the implemented remedy at the site for preventing future impacts to groundwater at the OB Grounds and to sediments in Reeder Creek. Additionally, monitoring of the vegetated compacted soil cap placed over the buried soils at the OB Grounds is required to assure its long-term integrity of the cover and to prevent direct contact to, and incidental ingestion of, soils containing lead at concentrations up to 500 mg/kg by terrestrial wildlife at the site.

Monitoring of sediment quality within Reeder Creek is currently not being performed as part of the implemented LTM at the OB Grounds. During the preparation and approval of the LTM Plan for the OB Grounds, representatives of the U.S. Army Corps of Engineers (Army), the U.S. Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (NYSDEC) agreed to postpone sediment quality monitoring until information was developed to suggest that a potential pathway existed by which contaminants located at the OB Grounds were being mobilized and were moving towards Reeder Creek where they could potentially re-contaminate sediment found in the creek. The decision to postpone sediment quality monitoring, pending the development of the additional data, was based on the fact that the sediment cleanup goals documented in the ROD (i.e., 16 mg/Kg for copper and 31 mg/Kg for lead) could not be achieved until all

sediments found at locations within the creek and adjacent to the OB Grounds prior to the remedial action were excavated to the underlying bedrock. Further, Reeder Creek carries a significant amount of water flow from upgradient locations of the Depot which contains native soil that is known to contain background levels of copper that exceed the ROD identified sediment clean-up levels. Additionally, the soil clean-up level (i.e., less than or equal to 60 mg/Kg) for lead in soils at the OB Grounds exceeds the sediment cleanup level (i.e., 31 mg/Kg) specified in the ROD. As such, the re-deposition of soil from either the OB Grounds or other upgradient locations along Reeder Creek will most likely result in the exceedance of the sediment clean-up criteria specified in the ROD. Therefore, all parties agreed that until such time as either a groundwater pathway or a breach in the vegetated soil cover was identified, and was shown to potentially impact Reeder Creek, sediment quality monitoring would be postponed.

The overall objectives of the monitoring program is to monitor the effectiveness of the remedial actions completed at the site in preventing future groundwater quality deterioration at the site and the integrity of the vegetated, soil cap which prevents incidental contact and ingestion of contaminated soil left buried at the site by indigenous terrestrial wildlife, and the potential mobilization of lead contaminated soil interred beneath the cap. In addition to assessing the quality of site groundwater and the integrity of the cap, the results of the periodic monitoring will be used to assess the need for design and implementation of any sediment monitoring program that may subsequently be needed to assess potential site impacts to the sediment in Reeder Creek.

The first round of groundwater sampling was completed at the OB Grounds between November 21, 2007 and November 28, 2007. The OB Grounds cap was first inspected on January 11, 2008. The results of the first monitoring event were presented in a technical memo submitted on January 25, 2008. The second round of groundwater sampling and cap inspections were completed between February 25, 2008 and February 26, 2008. The results of the second monitoring event were presented in a technical memo submitted on May 19, 2008. The third round of groundwater sampling and cap inspections were completed between May 20, 2008 and May 21, 2008. The results of the third monitoring event were presented in a technical memo submitted on September 16, 2008. The fourth round of groundwater sampling and cap inspections were completed between August 25, 2008 and August 26, 2008. The results of the fourth monitoring event were presented in a technical memo submitted on November 13, 2008.

2.0 SITE BACKGROUND

2.1 Site Description

SEDA is a 10,587-acre former military facility located in Seneca County in the towns of Varick and Romulus, New York, which has been owned by the United States Government and operated by the Department of the Army since 1941. SEDA is located between Seneca Lake and Cayuga Lake and is bordered by sparsely populated farmland and New York State Highway 96 on the east, New York State Highway 96A on the west, and sparsely populated farmland on the north and south.

The former OB Grounds is located in the northwestern portion of the Depot where the planned future use of the land is currently designated for conservation purposes. The former site sits on gently sloping terrain as shown in **Figure 1**. The OB Grounds is bounded on the east by Reeder Creek, which is a perennial creek that is generally less than 1 foot deep and eventually flows into Seneca Lake. The quality of surface water in Reeder Creek has been designated by the State of New York as a Class C water body (best usage of fresh water is fishing; the waters shall be suitable for fish propagation and survival). Seneca Lake is located approximately 10,000 feet west of the OB Grounds site and is used as a source of drinking water for numerous surrounding communities and the SEDA.

The OB Grounds is vegetated with grass and brush and there are no permanent structures within the area other than small concrete bunkers. The Open Detonation Area (SEAD-45) is located immediately north of the OB Grounds, and the Explosive Ordnance Disposal Area (SEAD-57) is located approximately 4,000 to 5,000 feet south of the former OB Grounds. A site plan of the former OB Grounds prior to the removal of contaminated soil is provided in **Figure 1**.

2.2 Site Hydrology

The stratigraphy of the OB Grounds generally consists of between 2 and 10 feet of glacially derived till below which is a zone of weathered bedrock. The depth to groundwater in the till/weathered shale aquifer varies seasonally between approximately 2 and 7 feet below the ground surface. Infiltration of precipitation is the sole source of groundwater for the overburden aquifer and the direction of the groundwater flow in the till/weathered shale aquifer at the OB Grounds is generally to the east towards Reeder Creek as shown in **Figure 2**.

Historic groundwater elevation monitoring in wells located at the OB Grounds prior to the remedial action indicated the presence of a groundwater divide near the western edge of the site. The approximate location of the apparent groundwater divide found in April 1993 is highlighted on **Figure 2** and represents a high point of the upgradient groundwater flow regime. The divide diverts a portion of the groundwater to the west, away from Reeder Creek, which lies to the east. Historic sampling results from wells located west of the identified divide suggest that the quality of groundwater has not been impacted by soils at the OB Grounds.

Pre-remedial action surface water drainage from the OB Grounds was to the east-northeast via a series of man-made drainage ditches, culverts, and spillways to Reeder Creek. During the remedial action, many of the drainage ditches and culverts were destroyed or filled, altering the surface flow patterns. Additionally, the historic surface water spillways connecting the OB Grounds and Reeder Creek were plugged during the remedial action to prevent surface overflow to the creek.

Little of the current storm event runoff impacting the former OB Grounds reaches the creek via overland flow because it is captured in one of the numerous, localized topographic lows that are scattered throughout the former AOC. The topographic lows result from the soil removal and

interment action performed at the AOC. The captured storm water subsequently infiltrates into the soil or evaporates.

2.3 Summary of the Remedial Action

The remedy specified in the ROD for the OB Grounds included:

- Removal of the berms surrounding the historic burn pads;
- Removal of at least 1-foot of all soils;
- Placement of a 9-inch vegetative cover over any soils with lead concentrations greater than 60 mg/kg, but less than or equal to 500 mg/kg;
- Excavation of sediments in Reeder Creek with elevated levels of copper or lead; and
- Monitoring program for groundwater, sediment and the capped areas.

The first four of these required actions were conducted between June 1999 and May 2004. Groundwater monitoring at the site began in November 2007, and inspections of the cap began in January of 2008.

As is indicated above, , the Army, EPA, and NYSDEC agreed to reserve development of a sediment monitoring program until groundwater monitoring and cap inspection components indicated that releases from the OB Grounds might be or were occurring and could be impacting the sediments in Reeder Creek. Therefore, no post-remediation sediment monitoring is currently being conducted.

3.0 LONG-TERM GROUNDWATER MONITORING

Four rounds of sampling were conducted at the OB Grounds during the Year 1 LTM. The first round was completed between November 21, 2007 and November 28, 2007. The second round was completed between February 25, 2008 and February 26, 2008. The third round was completed between May 20, 2008 and May 21, 2008. The fourth round was completed between August 25, 2008 and August 26, 2008. Six monitoring wells (MW23-1, MW23-2, MW23-3, MW23-4, MW23-5, and MW23-6) that were installed in 2007 to replace the historic monitoring well network that existed at the site prior to the remedial action were sampled as part of these monitoring events.

OB Grounds groundwater samples were collected using low flow sampling techniques. Sampling procedures, sample handling and custody, holding times, and collection of field parameters were conducted in accordance with the "Final Sampling and Analysis Plan for Seneca Army Depot Activity (SAP)" (Parsons, 2005).

Groundwater samples and groundwater elevation measurements were collected from the six wells located at OB Grounds during each of the four monitoring events. Groundwater samples were

collected and submitted to Columbia Analytical Services (CAS) in Rochester, New York for the analysis of total copper and total lead by USEPA SW846 Method 6010B. Analytical results reported for copper and lead were compared to site-specific action levels that are defined in **Table 1**.

In addition, the following geochemical parameters were measured and recorded in the field for each groundwater sample:

- pH
- ORP
- Dissolved oxygen
- Conductivity
- Temperature
- Turbidity

The pH, ORP, conductivity, temperature, and turbidity of the groundwater were measured with a Horiba U-22 water quality meter, and dissolved oxygen content was measured with an YSI 85 Dissolved Oxygen Meter. Data from the geochemical parameters were used to assess when the well was purged and stabilized adequately prior to sampling and to assess macro-groundwater quality.

3.1 Groundwater Elevations

Groundwater levels were recorded on November 20, 2007 (Round 1), February 25, 2008 (Round 2), May 20, 2008 (Round 3) and August 25, 2008 (Round 4). The groundwater elevation range found during the four monitoring events is presented on **Table 2**. The current OB Grounds monitoring well network provides insufficient data to develop current day groundwater contours with the level of detail that was provided by the pre-remedial action well network. However, the available current day groundwater data indicate an overall west-to-east, or possibly east-northeast, groundwater flow direction across the OB Grounds site Groundwater elevation data from the Round 3 (May 2008) monitoring event are shown superimposed over the April 1993 groundwater contours in **Figure 2**. Review of this figure and the new elevation data alone indicates that generally groundwater at the site moves west-to-east from wells MW23-5 and MW23-4 towards wells MW23-6, and then wells MW23-2, MW23-1, and MW23-3. There is also an indication that groundwater along the western side of the site may flow to the north, as the elevations observed at MW23-5 are higher than those recorded at MW23-4 during all four of the events (See Table 2). Along the eastern edge (Reeder Creek side) of the OB Grounds site, the groundwater elevations measured at MW23-2 in the center of the boundary, are always higher than those measured at MW23-1 and MW23-3. These data suggest some flow variations to the south and the north, away from the west-to-east prevailing flow direction. However, when the new data are evaluated with consideration of the April 1993 contours, the continuing presence of the apparent groundwater divide in the western portion of the site can not be ruled out.

Further, evaluation of the new groundwater elevation data indicates that all of the highest elevations were found during the Round 2 (February 2008) monitoring event, with five of the six wells (all except MW23-4) reaching their lowest elevations during the Round 4 (August 2008) event. The lowest groundwater level measured at MW23-4 was recorded during the Round 1 (November 2007) event.

3.2 Analytical Data

Neither total copper nor total lead was detected in any of the six wells during any of the four monitoring events. Chemical specific detection limits were below action levels for both of these parameters. The data support that groundwater at the site has not been impacted by residual levels of copper and lead that remain in the soils at the site. The groundwater results are presented in **Table 3**, where they are compared to the groundwater cleanup goals listed in **Table 1**.

Figure 4 through **Figure 9** presents a summary of the groundwater sampling results for monitoring wells MW23-1 and MW23-6 from all the monitoring events conducted in November 2007, February, May and August 2008. As may be noted from a review of these figures, neither copper nor lead were detected above the groundwater cleanup goals in any of the wells sampled during any of the four monitoring events.

4.0 SOIL CAP INSPECTION

The cap inspection consisted of documenting observations of the 25, 125- by 125-foot grids, where soils with residual lead concentrations between 60 mg/Kg and 500 mg/Kg were interred under a 9-inch soil cover. The locations of the grids are shown on **Figure 10**. Cap inspections were completed on January 10, February 25, May 20, and August 25, 2008 during the four monitoring events. Observations made during the cap inspections are noted below.

A cap inspection log for all four monitoring events is provided in **Table 4**.

4.1 January 2008

Minimal erosion and animal burrowing activity were observed in the capped areas. Less than half the grids had between one to six small holes (e.g., animal burrows) that extended between 2 and 6 inches deep into the cover. No holes were observed greater than this depth, indicating that the depth of the cap had not been penetrated. No excessive erosion was observed.

4.2 February 2008

Minimal erosion and a lack of animal burrowing activity were observed in the capped areas. There had been surface melt of snow and the accumulation of new snow, since the Round 1 cap inspection was completed. Shallow surface water drainage paths were observed in three grids (L8, I8, and J6). At Grid I8, sparse vegetation was observed.

The observations were reported to the Army, and the washout areas observed in grids L8, I8, and J6 were repaired in May 2008. The areas of the cap that were sparsely vegetated were reseeded.

4.3 May 2008

Minimal erosion and a lack of animal burrowing activity were observed in the capped areas. Shallow surface water drainage paths were observed in three grids (L8, I8, and J6). At Grid I8, sparse vegetation was observed. The observations were reported to the Army, and the washout areas observed in grids L8, I8, and J6 were repaired in May 2008. The areas of the cap where sparse vegetation was found were reseeded.

4.4 August 2008

Minimal erosion and a lack of animal burrowing activity were observed in the capped areas. At Grid R8, a mouse hole approximately 6 inches wide and approximately 6 inches deep was observed. The mouse hole was repaired in August 2008.

5.0 REEDER CREEK INSPECTION

The Draft "Annual Report and One Year Review for the Open Burning Grounds" was issued to the EPA, NYSDEC, and NYSDOH on December 15, 2008. Comments were received from the EPA and the NYSDEC in February and March of 2009, and both sets focused on the need for the development and implementation of a monitoring program for lead and copper in sediment in Reeder Creek.

The Army initially responded to these comments by indicating that they understood that an agreement had been reached between the Army, EPA, and NYSDEC during the development of the long-term monitoring program for the OB Grounds that indicated that a sediment monitoring plan would only be developed and implemented if information and data from the monitoring of groundwater and the soil cover overlying lead contaminated soils that were interred at the OB Grounds indicated that a transport mechanism was present that could convey lead or copper from the OB Grounds site to Reeder Creek. The Army understood that this agreement was approved by all parties because the Army had previously excavated contaminated sediment to the underlying shale bedrock from two extended portions of Reeder Creek's bed adjacent to and downgradient of the OB Grounds site. During this work, the Army had also developed and provided data to the EPA and the NYSDEC that showed that the quality of the sediment in Reeder Creek adjacent to the OB Grounds site was consistent with the quality of sediment contained in Reeder Creek at locations hydraulically upgradient of the OB Grounds. Further, the Army had provided other data to both parties that indicated that native soils at the Depot contain concentrations of lead and copper which are above the sediment criteria identified in the ROD for the OB Grounds. As such, if native soil from locations that are hydraulically upgradient of the OB Grounds was carried by creek flow and was deposited at locations adjacent to the OB Grounds it would appear that the creek bed may have been "re-contaminated" by releases from the site.

In response to the Army's response, the EPA and NYSDEC reiterated their understanding that the OB Grounds ROD called for the development and implementation of a sediment monitoring program for

Reeder Creek and indicated that monitoring of Reeder Creek was required under the OB Grounds Record of Decision. To address this continuing concern, the Army agreed to conduct and report the results of an inspection of Reeder Creek adjacent to the OB Grounds as part of the continuing long-term monitoring program of this site.

The Army performed a visual inspection of the Reeder Creek streambed in April of 2009 at locations adjacent to the OB Grounds. This inspection indicated that surface water flow within Reeder Creek has continued to scour the bedrock surface, and has limited and for the most part precluded, the redeposition of sediment adjacent to the OB Grounds. Soil sloughing from upland surfaces bordering both edges of the creek is observed at many locations along the creek bed; however, these are only noted at places where the creek's course broadens and where the wetted watercourse represents but a portion of the entire creek bed's width. There is no evidence that the sloughed soil has migrated into, and deposited as sediment within, the main flow channel of Reeder Creek.

Examination of the spillways where surface water from the OB Grounds to Reeder Creek previously flowed into the creek, but which were closed as part of the overall OB Grounds remedial action, indicated that there is no current visible evidence that overland surface water flow is transporting soils from the OB Grounds into Reeder Creek. The spillways, which are shale based, are free of any accumulation of excessive debris and soil. Field observations also noted that the mechanisms that were placed at the OB Grounds to prevent surface water flow from entering the spillways are still evident and working.

As is reported above, the groundwater data collected during historic sampling events as well as during the first year of the Long-Term Monitoring Program shows no evidence of the release of copper or lead from the OB Grounds. The soil cap inspections did reveal that occasional animal burrows and shallow erosion depressions were present in the cover at the contaminated soil burial areas, but none of the noted burrow holes or depressions were sufficiently sized to allow buried soils to escape their containment. All of the noted holes and depressions were repaired as part of the Army's continuing maintenance activities. Finally, there is no visible evidence that excessive quantities of OB Grounds site soils are being released via overland flow to Reeder Creek as visual observations did not show signs of embankment collapse and mounding within the creek. As such, the Army does not see any evidence to suggest that a release of lead or copper above background levels is occurring from the OB Grounds site.

Based on these data and this information, the Army has not conducted sediment sampling and analysis of Reeder Creek as part of the first year of long-term monitoring at the OB Grounds. The Army will conduct another visual inspection of the creek bed and spillways connecting the OB Grounds to Reeder Creek during the next scheduled annual monitoring event, and if evidence of overland transport of soil or groundwater migration of contaminants from the OB Grounds to Reeder Creek is identified a plan will be prepared and submitted for approval which will identify a sediment monitoring program that will be conducted.

6.0 LONG-TERM MONITORING CONCLUSIONS AND RECOMMENDATIONS

Based on the results of Year 1 LTM at the OB Grounds, the following conclusions have been reached:

- Residual lead and copper concentrations remaining in the soils have not impacted groundwater at, or in the immediate vicinity of, the site;
- The integrity of the vegetated soil cap overlying interred contaminated soils at the site was generally intact and there was minimal evidence that terrestrial wildlife are exposed to the contaminated soils below the 9-inch cap at this time. One small mouse hole was noted, and repaired. The washout areas noted during in cells I8, J6, and L8 in May 2008 were repaired and the existing soil cap in these locations was restored to its original condition;
- The Army will continue to monitor cap erosion, and note any instance of cap erosion or exposed native soil;
- Based on the groundwater data and the cap inspection, there is no evidence to suggest that the OB Grounds may be contributing to the degradation of sediment quality in Reeder Creek.
- Sediment deposition in Reeder Creek adjacent to the OB Grounds was not noted during the April 2009 inspection; and,
- The Army will continue to inspect Reeder Creek for evidence of sediment deposition and if it is observed, a sediment sampling and analysis program plan will be prepared, submitted for approval, and implemented for Reeder Creek at locations adjacent to the OB Grounds.

Based on the result of the LTM events conducted at the OB Grounds, the Army recommends changing the monitoring frequency from once per quarter to once per year. As is presented and summarized above, available monitoring data shows no evidence of lead or copper in the groundwater subsequent to the completion of the remedial action for the site. These findings are consistent with the groundwater sample results obtained during the remedial investigation stage (1990s) of work at the site, indicating that there is no evidence of groundwater quality deterioration over the past 15 years. Further, the quarterly inspections of the soil cap have shown minimal evidence of erosion or animal breaching of the protective soil cover. Additionally, the examination of spillways connecting the OB Grounds to Reeder Creek indicate that measures performed to eliminate overland surface water flow the OB Grounds to Reeder Creek continue to exist and have been effective, as there is no indication that soil or debris from the OB Grounds is located in the spillways downgradient of the control measures. Finally, the inspections of Reeder Creek indicate that the bedrock that underlies the watercourse adjacent to the OB Grounds continues to be scoured by the perennial flow within the creek. There is no current indication that sediment is being redeposited at locations from which it was previously excavated. Therefore, due to the absence of any evidence that suggests contaminants

of concern have been mobilized from the OB Grounds either via the groundwater or overland flow of storm-event waters, and due to the continued scouring of the creek bed by the perennial flow of water, there is no reason to develop or implement a sediment monitoring plan for Reeder Creek at this time.

Results of the next year's monitoring efforts at the OB Grounds will be evaluated after the second year of LTM, and recommendations of necessary changes to the frequency of monitoring will be made at that time.

7.0 REFERENCES

Final Remedial Investigation Report at the Open Burning (OB) Grounds, Seneca Army Depot Activity, 3 Volumes, Parsons 1994.

Final Record of Decision, Open Burning (OB) Grounds, Seneca Army Depot Activity, Parsons 1999.

Final Long-Term Monitoring Plan for the Open Burning (OB) Grounds, Parsons 2007.

LIST OF TABLES

Table 1
Site-Specific Cleanup Goals for Groundwater
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity

ANALYTES	Contract Required Quantitation Limits Water (µg/L)	Action Level Water (µg/L)
Copper	20	200
Lead	5	15

Notes:
1. Copper action level is from NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998 through addendum June 2004).
2. Lead action level is from USEPA Maximum Contaminant Limit (MCL), Source http://www.epa.gov/safewater/mcl.html#inorganic.html
3. Referenced from Table 5-1 in "Final Long-Term Monitoring Plan for the Open Burn (OB) Grounds", (Parsons, Jan 2007)

Table 2
Groundwater Elevation Data
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity

Monitoring Well	Top of Riser Elevation (ft)	Round 1 - November 2007			Round 2 - February 2008			Round 3 - May 2008			Round 4 - August 2008			Historical Data			
		Date	Depth to Groundwater (ft)	Water Level Elevation (ft)	Date	Depth to Groundwater (ft)	Water Level Elevation (ft)	Date	Depth to Groundwater (ft)	Water Level Elevation (ft)	Date	Depth to Groundwater (ft)	Water Level Elevation (ft)	Groundwater Elevation (ft)			Well Depth (ft)
														Maximum	Minimum	Range	
MW23-1	622.64	11/20/2007	12	610.635	02/25/2008	11.46	611.175	05/20/2008	11.63	611.005	08/25/2008	12.10	610.54	611.18	610.54	0.64	15.50
MW23-2	622.28	11/20/2007	9.6	612.68	02/25/2008	8.78	613.5	05/20/2008	9.17	613.11	08/25/2008	9.84	612.44	613.50	612.44	1.06	15.50
MW23-3	619.18	11/20/2007	10.8	608.381	02/25/2008	9.24	609.941	05/20/2008	9.68	609.501	08/25/2008	10.59	608.59	609.94	608.38	1.56	15.50
MW23-4	637.11	11/20/2007	8.6	628.507	02/25/2008	3.2	633.907	05/20/2008	4.14	632.967	08/25/2008	7.82	629.29	633.91	628.51	5.40	17.50
MW23-5	639.47	11/20/2007	7	632.472	02/25/2008	2.85	636.622	05/20/2008	5.19	634.282	08/25/2008	8.33	631.14	636.62	631.14	5.48	17.50
MW23-6	632.59	11/20/2007	8.35	624.244	02/25/2008	3.78	628.814	05/20/2008	5.54	627.054	08/25/2008	10.08	622.51	628.81	622.51	6.30	17.60

Table 3
Summary of COCs detected in Groundwater
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity

Project:									OB Grounds	OB Grounds	OB Grounds	OB Grounds	OB Grounds	OB Grounds			
Location ID:									MW23-1	MW23-1	MW23-1	MW23-1	MW23-1	MW23-2			
Matrix:									GW	GW	GW	GW	GW	GW			
Sample ID:									OBLM20001	OBLM20008	OBLM20009	OBLM20015	OBLM20022	OBLM20002			
Date:									11/21/2007	02/25/08	02/25/08	5/21/2008	8/26/2008	11/21/2007			
QC Code:									SA	SA	DU	SA	SA	SA			
Study ID:									LTM	LTM	LTM	LTM	LTM	LTM			
Study Round									1	2	2	3	4	1			
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Action Level Source**	**Action Level**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)			
Copper	UG/L	0	0%	GA	200	0	0	28	20 U	20 U	20 U	20 U	20 U	20 U			
Lead	UG/L	0	0%	MCL	15	0	0	28	5 U	5 U	5 U	5 U	5 U	5 U			
Turbidity	NTU								0	2.09	2.09	0.42	0.9	0			

Notes:
1. Copper action level is from NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998).
2. Lead action level is from US EPA Maximum Contaminant Limit (MCL),
Source http://www.epa.gov/safewater/mcl.html#inorganic.html

Table 3
Summary of COCs detected in Groundwater
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity

Project:									OB Grounds		OB Grounds		OB Grounds		OB Grounds		OB Grounds	
Location ID:									MW23-2		MW23-2		MW23-2		MW23-2		MW23-3	
Matrix:									GW		GW		GW		GW		GW	
Sample ID:									OBLM20010		OBLM20017		OBLM20016		OBLM20023		OBLM20004	
Date:									02/25/08		5/21/2008		5/21/2008		8/26/2008		11/21/2007	
QC Code:									SA		DU		SA		SA		DU	
Study ID:									LTM		LTM		LTM		LTM		LTM	
Study Round									2		3		3		4		1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Action Level Source**	**Action Level**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)	Value	(Q)
Copper	UG/L	0	0%	GA	200	0	0	28	20	U	20	U	20	U	20	U	20	U
Lead	UG/L	0	0%	MCL	15	0	0	28	5	U	5	U	5	U	5	U	5	U
Turbidity	NTU								2.37		0.15		0.15		0.85		0	

Notes:
1. Copper action level is from NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998).
2. Lead action level is from US EPA Maximum Contaminant Limit (MCL),
Source http://www.epa.gov/safewater/mcl.html#inorganic.html

Table 3
Summary of COCs detected in Groundwater
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity

Project:									OB Grounds	OB Grounds	OB Grounds	OB Grounds	OB Grounds	
Location ID:									MW23-3	MW23-3	MW23-3	MW23-3	MW23-4	
Matrix:									GW	GW	GW	GW	GW	
Sample ID:									OBLM20003	OBLM200011	OBLM20018	OBLM20024	OBLM20005	
Date:									11/21/2007	02/25/08	5/21/2008	8/26/2008	11/21/2007	
QC Code:									SA	SA	SA	SA	SA	
Study ID:									LTM	LTM	LTM	LTM	LTM	
Study Round									1	2	3	4	1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Action Level Source**	**Action Level**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Copper	UG/L	0	0%	GA	200	0	0	28	20 U	20 U	20 U	20 U	20 U	
Lead	UG/L	0	0%	MCL	15	0	0	28	5 U	5 U	5 U	5 U	5 U	
Turbidity	NTU								0	9.91	2	7.9	2	

Notes:
1. Copper action level is from NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998).
2. Lead action level is from US EPA Maximum Contaminant Limit (MCL),
Source http://www.epa.gov/safewater/mcl.html#inorganic.html

Table 3
Summary of COCs detected in Groundwater
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity

Project:									OB Grounds	OB Grounds	OB Grounds	OB Grounds	OB Grounds	
Location ID:									MW23-4	MW23-4	MW23-4	MW23-4	MW23-5	
Matrix:									GW	GW	GW	GW	GW	
Sample ID:									OBLM20012	OBLM20019	OBLM20026	OBLM20025	OBLM20006	
Date:									02/25/08	5/21/2008	8/25/2008	8/25/2008	11/21/2007	
QC Code:									SA	SA	DU	SA	SA	
Study ID:									LTM	LTM	LTM	LTM	LTM	
Study Round									2	3	4	4	1	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Action Level Source**	**Action Level**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)	
Copper	UG/L	0	0%	GA	200	0	0	28	20 U	20 U	20 U	20 U	20 U	
Lead	UG/L	0	0%	MCL	15	0	0	28	5 U	5 U	5 U	5 U	5 U	
Turbidity	NTU								41.1	6.3	5.27	5.27	0	

Notes:
1. Copper action level is from NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998).
2. Lead action level is from US EPA Maximum Contaminant Limit (MCL),
Source http://www.epa.gov/safewater/mcl.html#inorganic.html

Table 3
Summary of COCs detected in Groundwater
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity

Project:									OB Grounds	OB Grounds	OB Grounds	OB Grounds	OB Grounds
Location ID:									MW23-5	MW23-5	MW23-5	MW23-6	MW23-6
Matrix:									GW	GW	GW	GW	GW
Sample ID:									OBLM20013	OBLM20020	OBLM20027	OBLM20007	OBLM20014
Date:									02/25/08	5/21/2008	8/25/2008	11/28/2007	02/25/08
QC Code:									SA	SA	SA	SA	SA
Study ID:									LTM	LTM	LTM	LTM	LTM
Study Round									2	3	4	1	2
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Action Level Source**	**Action Level**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value (Q)	Value (Q)	Value (Q)	Value (Q)	Value (Q)
Copper	UG/L	0	0%	GA	200	0	0	28	20 U	20 U	20 U	20 U	20 U
Lead	UG/L	0	0%	MCL	15	0	0	28	5 U	5 U	5 U	5 U	5 U
Turbidity	NTU								6.72	4.5	2.13	8	2.84

Notes:
1. Copper action level is from NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998).
2. Lead action level is from US EPA Maximum Contaminant Limit (MCL),
Source http://www.epa.gov/safewater/mcl.html#inorganic.html

Table 3
Summary of COCs detected in Groundwater
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity

Project:									OB Grounds		OB Grounds	
Location ID:									MW23-6		MW23-6	
Matrix:									GW		GW	
Sample ID:									OBLM20021		OBLM20028	
Date:									5/20/2008		8/25/2008	
QC Code:									SA		SA	
Study ID:									LTM		LTM	
Study Round									3		4	
Parameter	**Units**	**Maximum Value**	**Frequency of Detection**	**Action Level Source**	**Action Level**	**Number of Exceedances**	**Number of Times Detected**	**Number of Samples Analyzed**	Value	(Q)	Value	(Q)
Copper	UG/L	0	0%	GA	200	0	0	28	20	U	20	U
Lead	UG/L	0	0%	MCL	15	0	0	28	5	U	5	U
Turbidity	NTU								8.2		48	

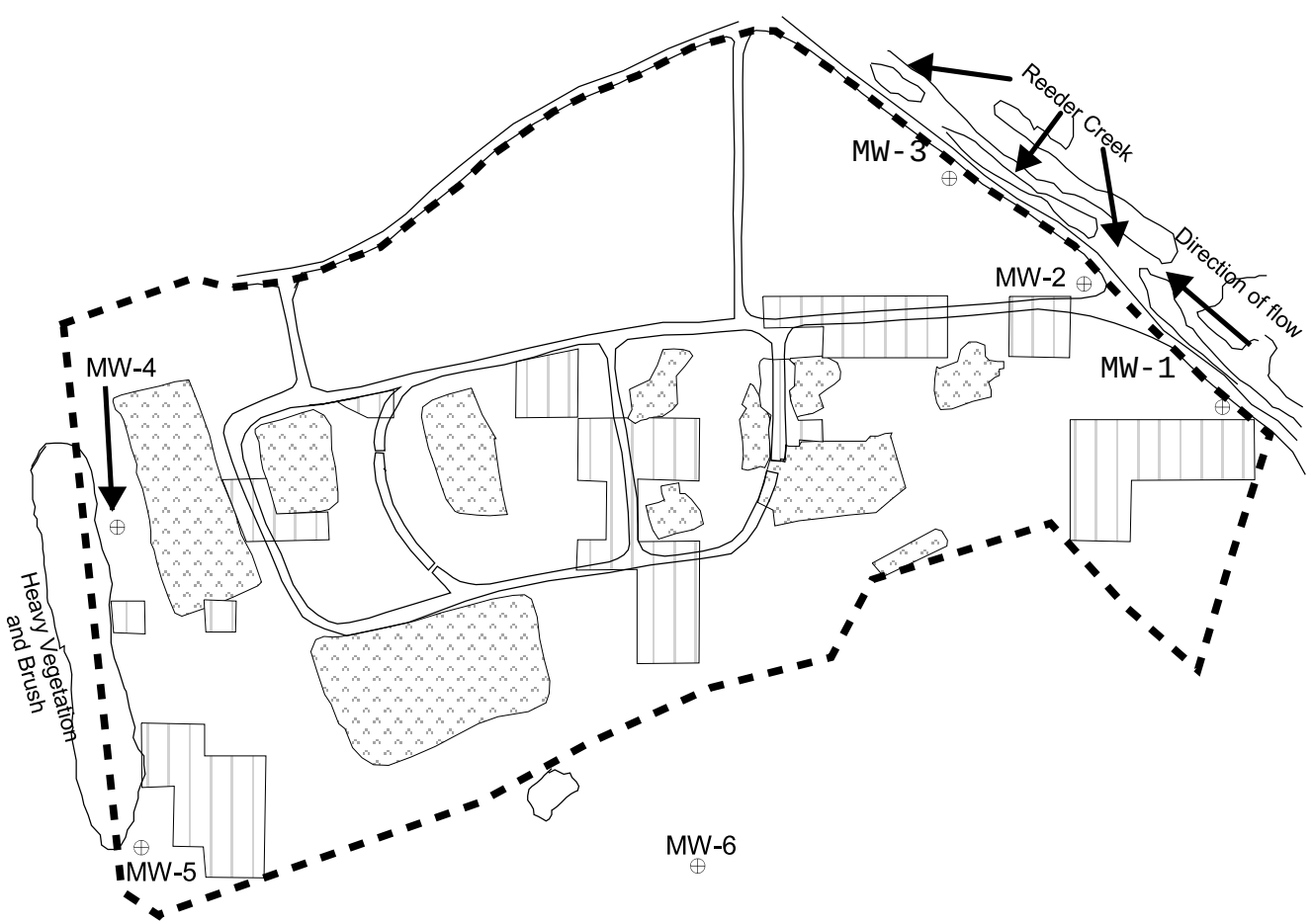
Notes:
1. Copper action level is from NYSDEC Class GA Groundwater Standard (TOGS 1.1.1, June 1998).
2. Lead action level is from US EPA Maximum Contaminant Limit (MCL),
Source http://www.epa.gov/safewater/mcl.html#inorganic.html

Table 4
Soil Cap Inspection Log
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity

	Observations			
Grid #	**Round 1 - January 2008**	**Round 2 - February 2008**	**Round 3 - May 2008**	**Round 4 - August 2008**
S8	Several 1" to 2" size mice holes were observed	No change	No change	No change
S8	Several 1" to 2" size mice holes were observed on the ground surface.	No change	No change	No change
R8	Several 1" to 2" size mice holes were observed on the ground surface.	No change	No change	A mouse hole approximately 6" wide and approximately 6" deep was observed. Hole was repaired August 2008.
Q8	2" mice hole was observed on the ground surface.	No change	No change	No change
Q8	A cluster of 1" to 2" size mice holes was observed.	No change	No change	No change
P10	A cluster of 1" to 2" size mice holes was observed.	No change	No change	No change
L9	Two mice holes approximately 6" deep	No change	No change	No change
L9	A mouse hole approximately 6"deep was observed	No change	No change	No change
L9	A mouse hole approximately 6"deep and 6" diameter was observed	No change	No change	No change
L8	Minor erosion along the edge of the soil cap from surface water flow.	Surface water runoff path forming. Repaired drainage path May 2008.	Repaired drainage path May 2008.	No change
I8	A mouse hole about 2" to 3" in size was observed	Vegetation spotty, large amounts of surface soil exposed. Reseeded May 2008.	Reseeded May 2008.	No change
I8	Minor erosion of the soil cap.	Surface water runoff path forming. Repaired drainage path May 2008.	Repaired drainage path May 2008.	No change
I6	A cluster of 1" to 2" size mice holes was observed.	No change	No change	No change
J6	2" mice holes were observed on the ground surface.	Short surface water drainage path; native soil not visible. Repaired drainage path May 2008.	Repaired drainage path May 2008.	No change
H9	Two mice 2" size holes was observed.	No change	No change	No change
D7	Two mice 2" size holes was observed.	No change	No change	No change
B3	A mouse hole approximately 6" wide and approximately 6" deep was observed	No change	No change	No change

Notes:
1. All grids capped areas were inspected. Grids with no signs of erosion or other disturbances to the cover are not included in this log.
2. The Army repaired the washout areas noted above, and reseeded areas with sparse vegetation on or before May 22, 2008.

LIST OF FIGURES



Approximate Location of Interred Soils

Former Burning Pads

OB Grounds Boundary

Proposed Monitoring Well Location

Map not to scale. Site features derived from information presented in "Soil and Sediment Remediation, Open Burning Grounds, Completion Report." See Figure 4-13 . (Weston Solutions, Inc. June 2005)

PARSONS

SENECA ARMY DEPOT ACTIVITY
OPEN BURNING (OB) GROUNDS
LONG-TERM MONITORING REPORT

FIGURE 1
Open Burning Grounds
Site

JOB NUMBER: 745818 | DATE: May 2008

N

APPROXIMATE GROUNDWATER DIVIDE

MW23-1
611.01

MW23-2
613.11

MW23-3
609.50

MW23-4
632.97

MW23-5
634.28

MW23-6
627.05

LEGEND:

- BURNING PAD DESIGNATION
- PAD OR GRID BORING
- APRIL 1993 GROUND CONTOUR AND ELEVATION
- W-1 WETLAND & DESIGNATION
- 611.01 CURRENT LONG-TERM MONITORING WITH MAY 2008 DATA
- 616.82 HISTORICAL WELLS WITH APRIL 1993 DATA
- GROUNDWATER ELEVATION CONTOUR MSL DATUM
- GENERAL GROUNDWATER FLOW DIRECTION

125′ 0 125′ 250′
1″ = 250′

PARSONS
PARSONS ENGINEERING SCIENCE, INC.

CLIENT/PROJECT TITLE
SENECA ARMY DEPOT ACTIVITY
OPEN BURING (OB) GROUNDS
LONG-TERM MONITORING REPORT

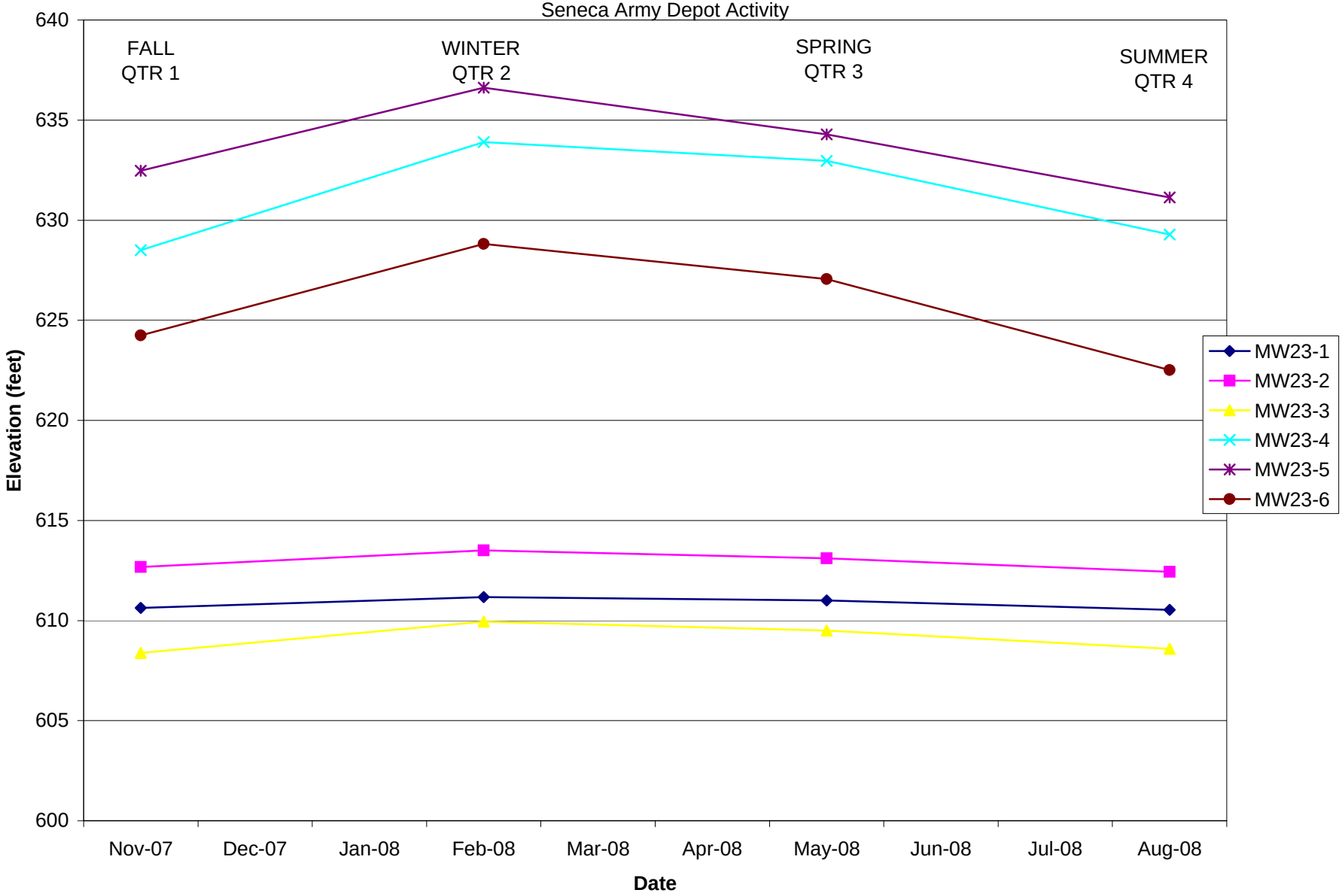
DEPT. ENVIRONMENTAL ENGINEERING
Dwg. No. 745818

FIGURE 2
HISTORIC GROUNDWATER CONTOURS
AND MAY 2008 ELEVATIONS

SCALE 1" = 250'
DATE NOVEMBER 2008
REV A

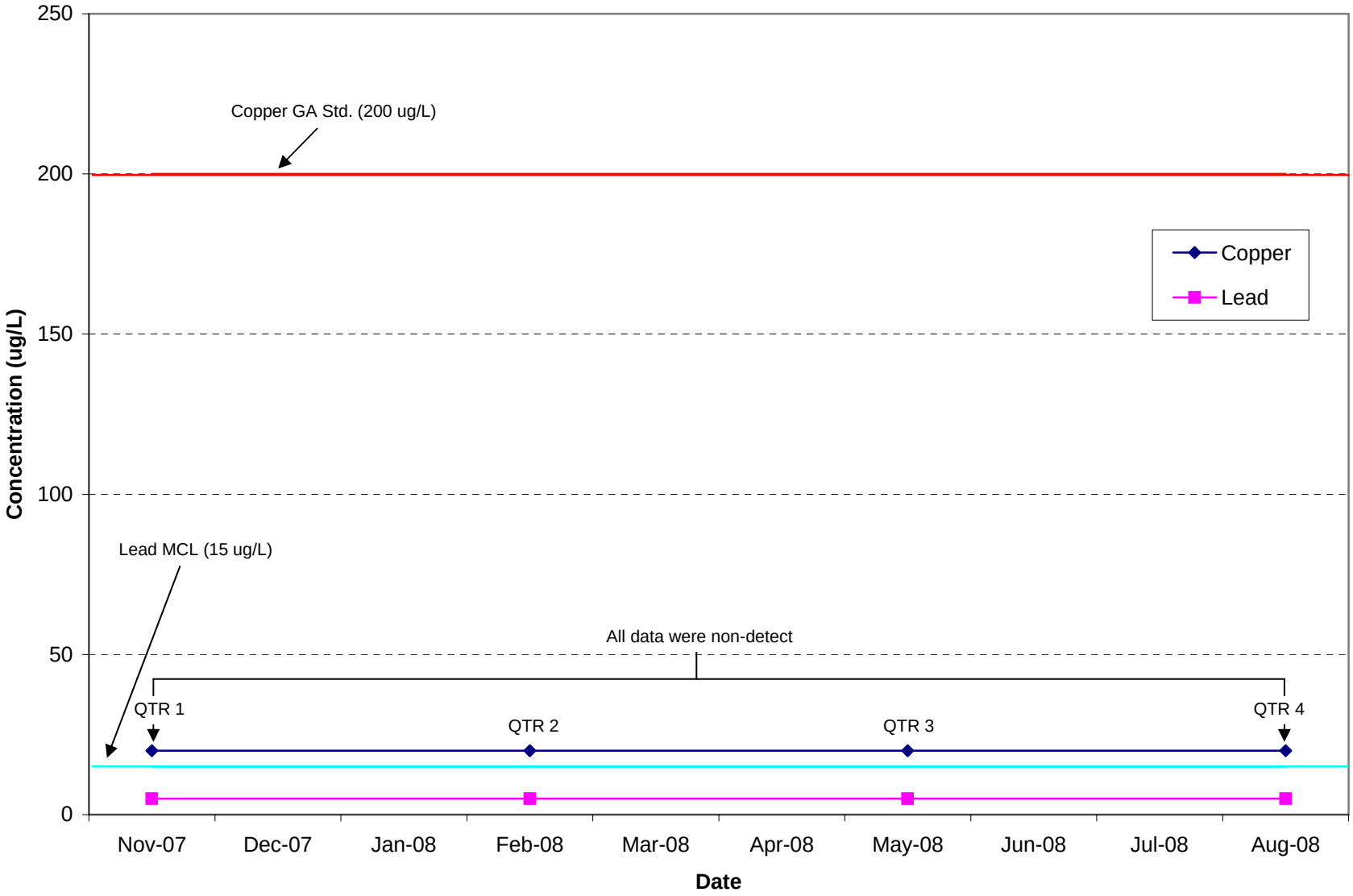
R:\SENECA\OBRI\OBGW_UPDATE.DWG

Figure 3
Groundwater Elevation Profile
OB LTM Annual Report, Year 1
Seneca Army Depot Activity



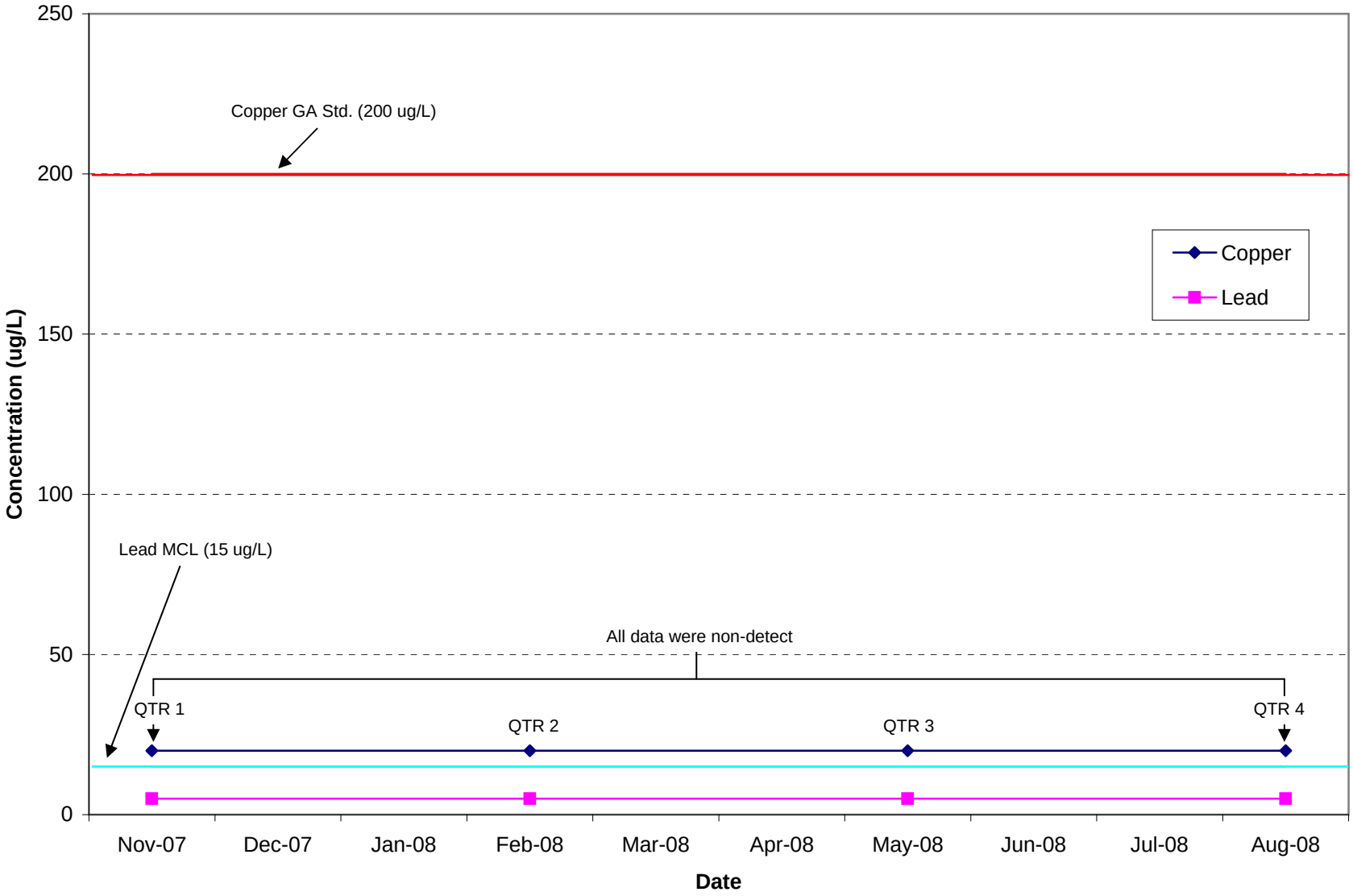
Note: Groundwater elevation was measured on the following dates: November 20, 2007, February 25, 2008, May 20, 2008, and August 25, 2008 .

Figure 4
Concentrations of Lead and Copper at MW23-1
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity



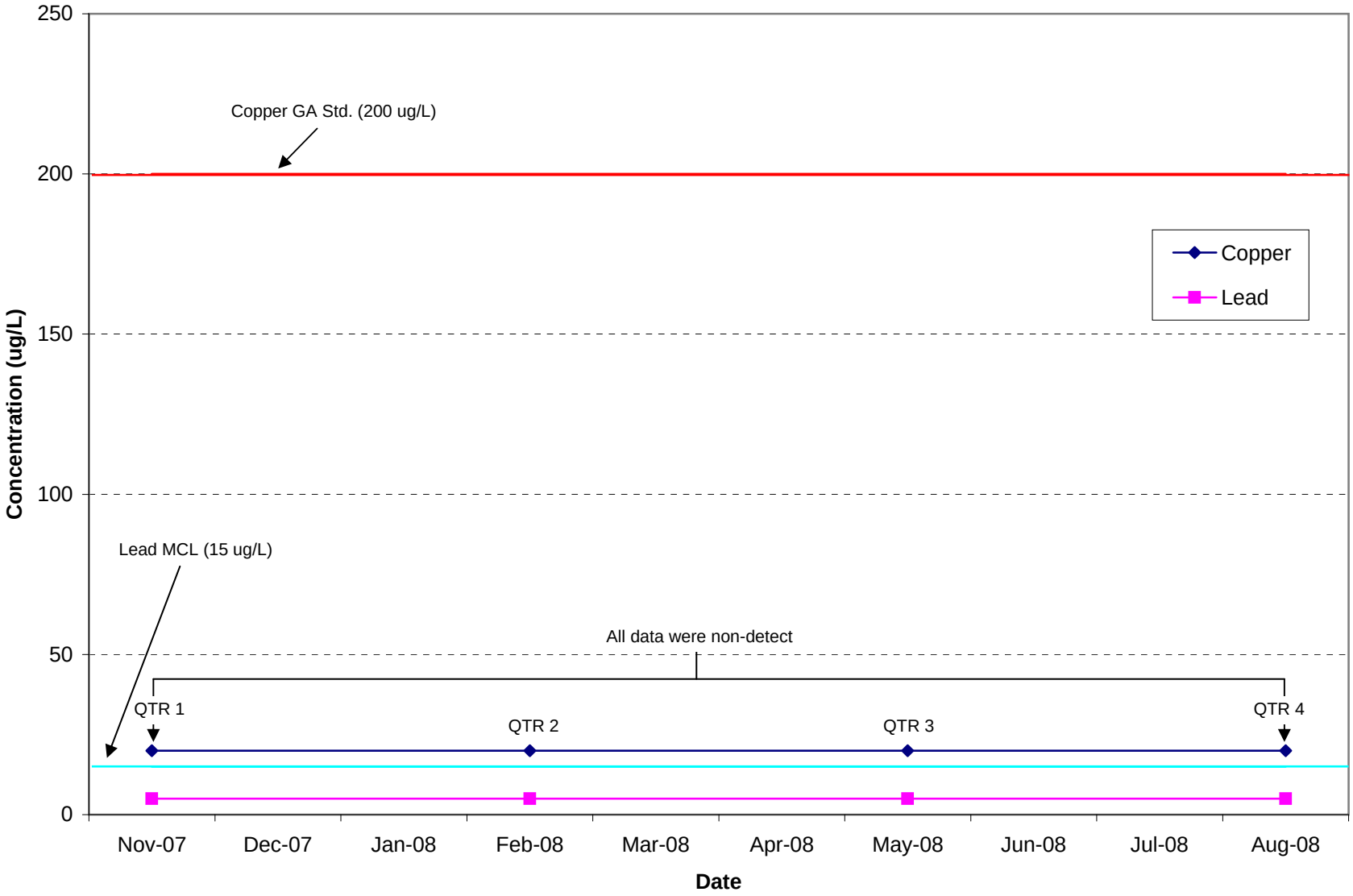
Note: Groundwater samples were collected on the following dates: November 21, 2007, February 25, 2008, May 21, 2008, and August 26, 2008.
All groundwater concentrations were below detection limits.

Figure 5
Concentrations of Lead and Copper at MW23-2
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity



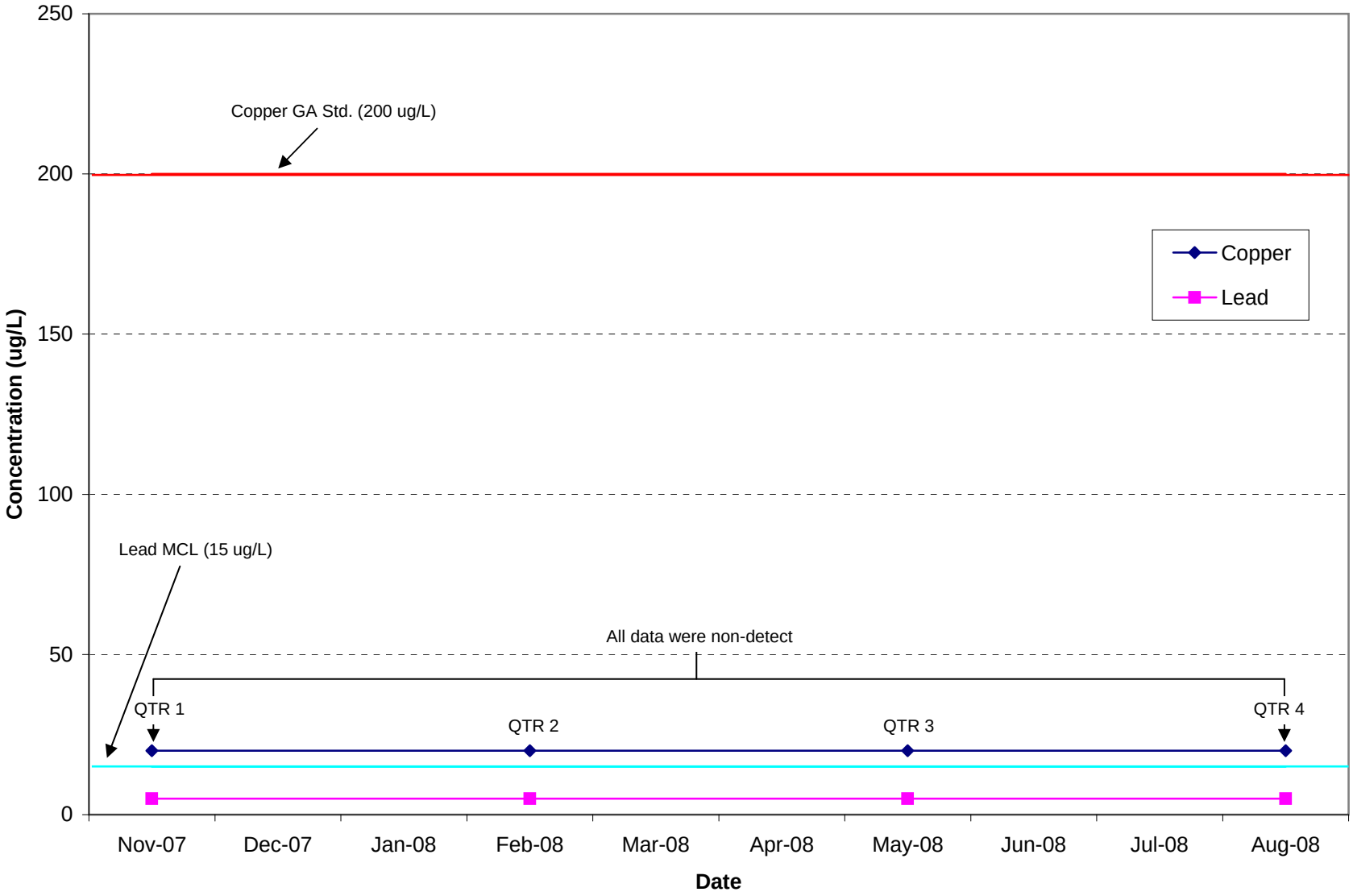
Note: Groundwater samples were collected on the following dates: November 21, 2007, February 25, 2008, May 21, 2008, and August 26, 2008.
All groundwater concentrations were below detection limits.

Figure 6
Concentrations of Lead and Copper at MW23-3
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity



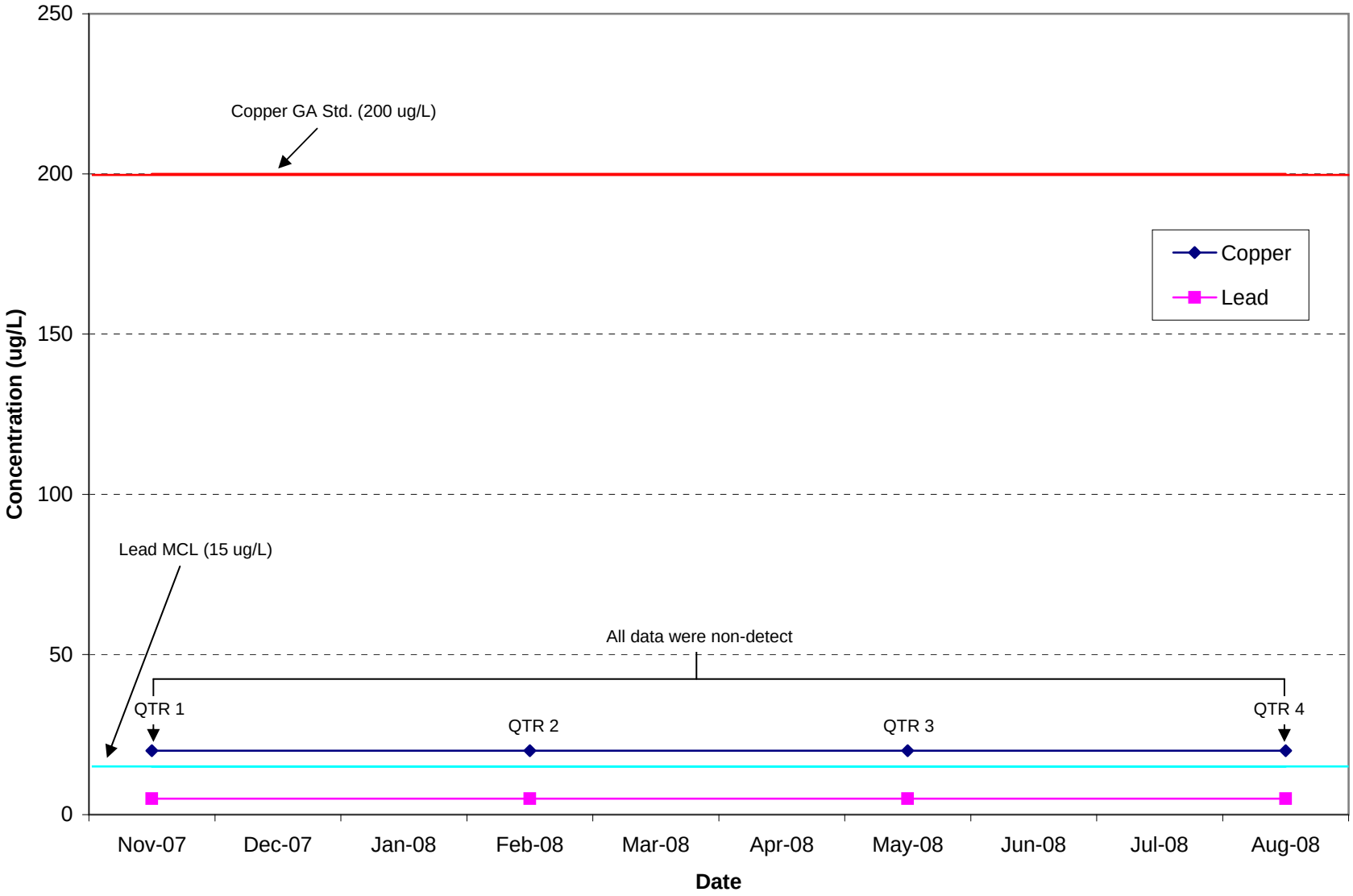
Note: Groundwater samples were collected on the following dates: November 21, 2007, February 25, 2008, May 21, 2008, and August 26, 2008.
All groundwater concentrations were below detection limits.

Figure 7
Concentrations of Lead and Copper at MW23-4
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity



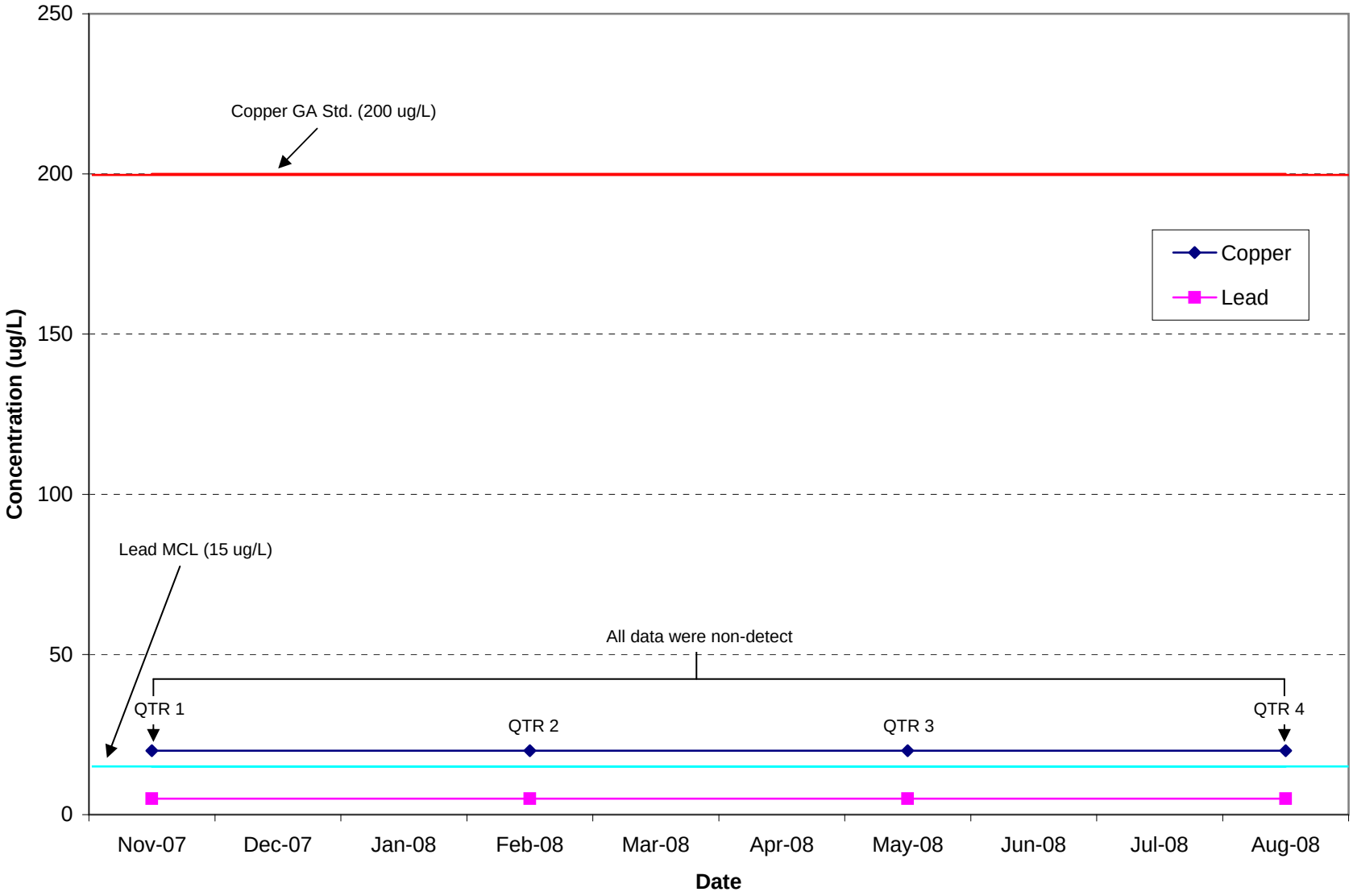
Note: Groundwater samples were collected on the following dates: November 21, 2007, February 25, 2008, May 21, 2008, and August 25, 2008.
All groundwater concentrations were below detection limits.

Figure 8
Concentrations of Lead and Copper at MW23-5
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity

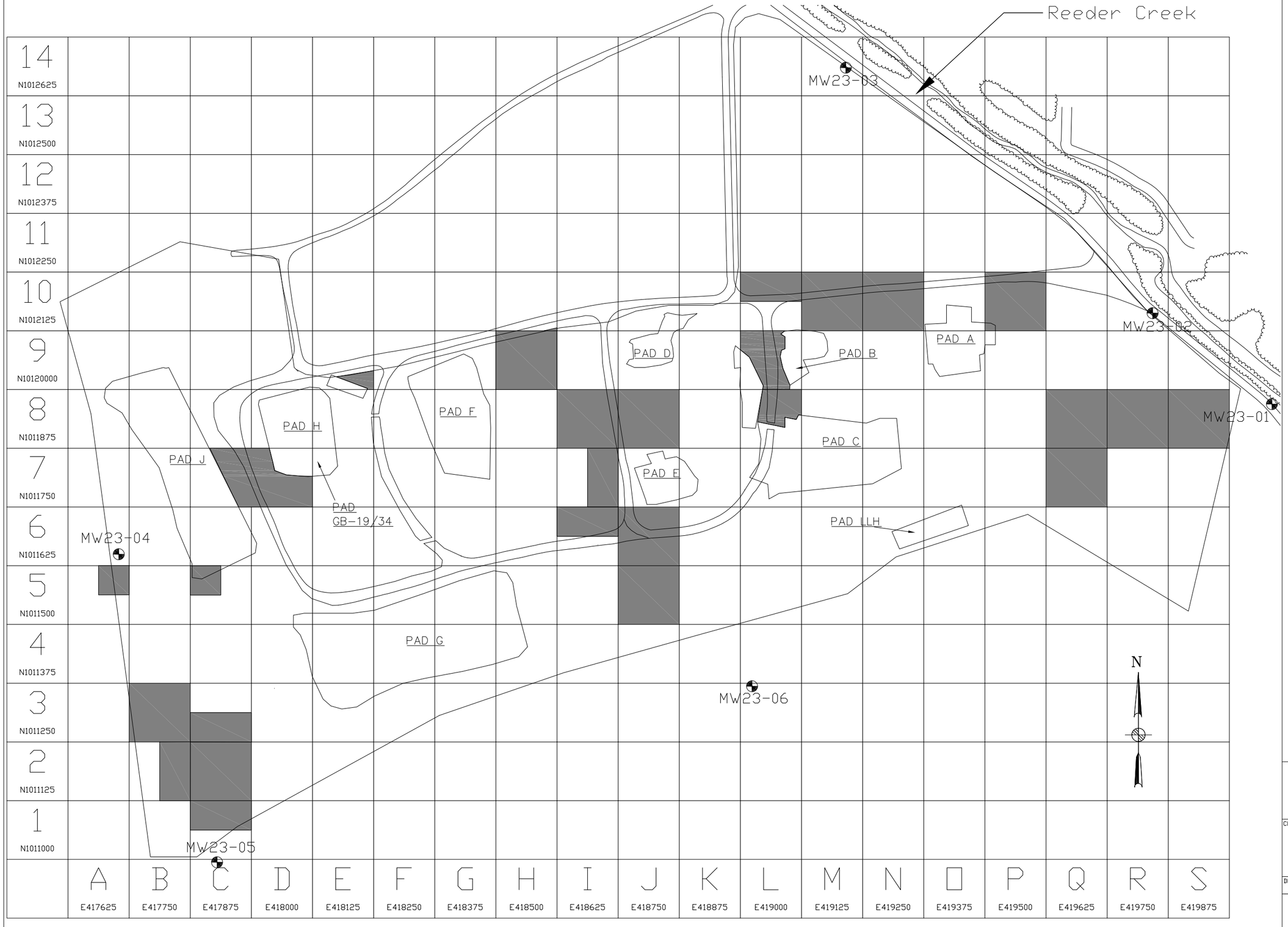


Note: Groundwater samples were collected on the following dates: November 21, 2007, February 25, 2008, May 21, 2008, and August 25, 2008.
All groundwater concentrations were below detection limits.

Figure 9
Concentrations of Lead and Copper at MW23-6
OB Grounds LTM Annual Report, Year 1
Seneca Army Depot Activity



Note: Groundwater samples were collected on the following dates: November 28, 2007, February 25, 2008, May 20, 2008, and August 25, 2008.
All groundwater concentrations were below detection limits.



LEGEND

Wells installed August 2004

Area of 9-inch vegetative cover over soil. Having lead concentrations between 60 and 500 mg/ug. (Remedial Action, 1999-2004)

PARSONS

CLIENT/PROJECT TITLE

SENECA ARMY DEPOT
OPEN BURNING GROUNDS
LONG-TERM MONITORING REPORT

DEPT. ENVIRONMENTAL ENGINEERING | Dwg. No. 745818-02000

FIGURE 10
OPEN BURNING GROUNDS
SOIL CAP AREAS AND WELL LOCATIONS

SCALE 1" = 200' | DATE FEBRUARY 2008 | REV –